

The New England JOURNAL of MEDICINE

Owned and Published by
THE MASSACHUSETTS MEDICAL SOCIETY

Official Organ of the Massachusetts Medical Society
The New Hampshire Medical Society—The Vermont State Medical Society
The New England Surgical Society—The Boston Surgical Society, Inc
The New England Pediatric Society—The New Hampshire Surgical Club
The New England Obstetrical and Gynecological Society
And The Neisserian Medical Society of Massachusetts

Volume 214

January 2, 1936 to June 25, 1936

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The New England Journal of Medicine

Volume 214, January 2, 1936 to June 25, 1936

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HOLKINS FREDERICK S	WHITE, PAUL D
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HUTCHINS HENRY T	

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CORRY FLETCHER H	STILES PERCY G
GRUND JACOB I	THOMAS JACKSON M
SHELDON RUSSELL F	TOWELL, HENRY P

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KEY TO ABBREVIATIONS

A N M S—American Neisserian Medical Society	Misc—Miscellany
B B M L—Boston Medical Library	N—Notice
B R—Book Review	N E S S—New England Surgical Society
C—Correspondence	N E U A—New England Branch of the American
E—Editorial	Biological Association
M L N—Massachusetts Legislative Notes	N H M S—New Hampshire Medical Society
M L S—Massachusetts Medical Legal Society	N M S M—Neisserian Medical Society
M M S—Massachusetts Medical Society	of Massachusetts
M T L—Massachusetts Tuberculosis League	O—Obituary
M P—Medical Progress	Or—Original Article
M N—Meeting Notice	V S M S—Vermont State Medical Society
M R—Meeting Report	

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The New England Journal of Medicine

VOLUME 214

JANUARY 2, 1936

NUMBER 1

NEW ENGLAND SURGICAL SOCIETY

A FORM OF SCLEROSING OSTEOMYELITIS FOLLOWING FRACTURES OF THE LONG BONES*

BY PAUL P. SWETT, M.D.†

BY a singular coincidence it was my lot to see three peculiar and previously unheard of cases of pain and disability following fractures of the long bones at about the same time. All of them presented certain similarities which seemed to link them into a single group. In two of these the fractures occurred in the shaft of the tibia and in the third the shaft of the second metatarsal bone. Symptomatically these patients complained of disabling pain long after the fractures had united. Physical examination showed local edema of the soft tissue surrounding the sites of the fractures, and local tenderness, and the x ray showed an obliteration of the medullary portion of the bone for a considerable distance at the fracture site. These three patients shared the accusation of malingering. Both men had been denied further compensation insurance benefits on the basis that they were able to work, and the woman was thought to be brazenly malingering. A search of the literature has not brought to light a single reference to the condition from the clinical side though there are a few obscure pathological references. Hence it seems appropriate to report these cases in some detail, and to follow this with a discussion of the pathology.

CASE 1. H. R. A young man aged twenty-seven years married in good health formerly employed as a lineman by the Western Union Telegraph Company was referred to me January 24, 1933 by Compensation Commissioner Donohue because of pain and disability involving the right leg following a fracture sustained while at work on October 7, 1927 when a pole fell on his leg. Following this injury he was treated in a hospital for ten weeks during which time the leg was immobilized in a circular plaster case. At the end of twenty-one weeks he resumed his former work but he could not long continue it because of constant pain near the fracture site. He noticed that his leg was bowed when he resumed his work and he felt that the bowing increased as time went on.

The examination showed him to be well developed and nourished and healthy appearing. Mouth and throat were negative. Heart sounds normal. Blood pressure 122/86. Abdomen negative. Reflexes normal. The right leg showed an old healed fracture of the tibia and fibula in the mid portion which had united

with considerable external bowing and an inch and one-eighth of shortening. He had good motion in the knee hip and ankle. He had no limitation in straight leg raising of either thigh. Normal range of motion in both hips knees and ankles. He referred the origin of his discomfort to the fracture site in the mid-portion of the tibia. Both legs were moderately bowed but the right leg was unquestionably more bowed than the left.

X rays at that time were reported by Drs. Roberts and Ogden as follows:

"The x ray examination of the right leg shows evidence of old fractures of the tibia and fibula in their middle thirds. The fragments of each bone appear firmly united at this time with abundant callus formation. The lower tibial fragment is displaced to antero-external aspect fully one-half the width of the shaft and the fragments show a slight degree of postero-external angulation. The lower fibular fragment is displaced completely to antero-external aspect with slight overriding."

Although this patient was a compensation case he was not interested at the time I saw him in securing a permanent partial disability settlement but he was anxious to have some type of treatment to relieve the pain in his leg. I came to the conclusion that the pain resulted from the strain secondary to the bowing and the shortening and that the only effective plan that we might pursue to relieve this pain would be to do a corrective osteotomy above the fracture site. I suggested that if the patient objected to so radical a procedure, it would not be unreasonable to let him try the effect of balancing his shoe in such a manner as to relieve some of the strain.

We tried this for approximately six weeks, but on March 14, 1933 the patient said that he could not see that there was any improvement and that the leg troubled him so much that he was not able to work continuously and I therefore arranged for the corrective osteotomy.

This procedure was carried out on March 20 and the following operative note was made at that time:

"The purpose of the operation was to correct a bow leg deformity resulting from an old fracture at about the mid portion of the right tibia and fibula. The fracture had been of the oblique type and while it was solidly united there remained a considerable degree of external bowing, a slight degree of posterior bowing and some degree of internal rotation of the distal fragment. Through a three inch longitudinal anterior incision we did an oblique osteotomy of the tibia slightly above the fracture site and through an external longitudinal incision we did a transverse osteotomy of the fibula at the same level. The wounds were closed in layers without drainage. The leg was manipulated into as nearly

Read at the Annual Meeting of the New England Surgical Society at Manchester, N. H., September 27, 1935.
†Swett, Paul P. — Attending Orthopedic Surgeon, Charlotte Hungerford Memorial Hospital, Torrington. For record and address of author see "This Week's Issue," page 2.

correct alignment as possible and immobilized in this corrected position in a circular plaster case extending from the toes to the mid thigh "

B, July 20 the following note was made

"The alignment of his leg is perfect. He appears to have solid union at the osteotomy site. New x rays made today confirm this clinical observation. I have, therefore, advised him that he may discontinue his crutches "

On September 14 our note is as follows

"The alignment of his leg is very satisfactory. There are no signs of inflammatory reaction and while it seems to me entirely reasonable that he may continue to have some pain at the old fracture site, for some little time in the future, I do not think that the extent of his pain now should be of sufficient degree to totally disable him, and I believe his leg is now strong enough to permit his resuming his work "

On October 13, although the patient continued to complain of pain, saying that his leg bothered him just the same as it did before the corrective osteotomy, I made the following note

"My examination of his leg today shows that the general alignment is satisfactory, that there is only a slight increase in the degree of varus of the right leg, as compared with the left, there is no swelling, there is no local disturbance in the circulation. He has a full range of motion in his knee and in his ankle, and there is no reason at the present time that I can see why he should not do his former work "

On November 13 I made the following note

"He has been doing some odd jobs around the past month and he says that the more he does with his leg the more pain he has, that the pain is just the same as it was before I operated upon him and that the pain extends downward from just below the site of the old original fracture in his tibia and he says that at times also, the leg swells and he has tenderness to local pressure and some edema throughout the region of the fracture site. Because of his continued symptoms and because of the edema, I do not see how we can avoid the conclusion that there must be something in connection with the original fracture site which leads to these symptoms and while his leg now looks quite straight, lining up perfectly in comparison with the other leg, I believe we should have new x rays of the entire right leg to see what explanation we can find for these continued symptoms "

On November 23, the x rays were reported as follows

"The x ray re-examination of the right leg now shows firm appearing and rather dense union throughout tibial and fibular fracture sites. The position of the fragments remain approximately the same as last noted "

And I found that the patient still had a distinct area of local edema at the original fracture site in his tibia

On reviewing his last x rays I was impressed by the fact that he has an unusually extensive degree of sclerosis of the medulla at each side of the fracture site. Basing my decision, therefore, on this x-ray observation, the patient's apparently sincere complaint of continued pain, the presence of the local tenderness and the undoubted local edema, I have concluded that we are dealing with a painful condition which

either is similar or at least is analogous to, a sclerosing type of osteomyelitis. I believe that we should operate at the original fracture site for the purpose of opening the medullary area on both sides of the old fracture site in an effort to overcome the sclerosis and reopen the medullary channel to relieve the tension and consequent pain "

This operation was carried out at the Hartford Hospital on December 4, and the following operative note was made

"Operation was for the purpose of doing a decompression of the medullary portion of the tibia at the site of a fracture at about the junction of the lower and middle thirds of the tibial shaft. The original fracture fragments were oblique and had united in position of considerable external bowing. The patient had persistent pain at the fracture site accompanied by local edema of the soft tissues and this pain had not been relieved by an osteotomy done several months ago above the fracture site for the purpose of correcting the alignment of the leg. On this occasion we exposed the original fracture site through a four inch anterior longitudinal incision. We took out a slot of bone approximately one inch in length on each side of the original fracture site and we found that for a distance of more than an inch on each side of the fracture line the medulla had been replaced by cortical bone. After we had removed about two inches of the anterior surface of the tibia approximately one-half inch in width we were able to break through into the medullary cavity at each end and thus to establish a communication again. Wound was closed in layers without drainage and the leg was immobilized in a circular plaster case extending from the toes to the knee "

The pathological report follows

"R— Diagnosis Focal necrosis of bone

Macroscopic Specimen consists of many fragments of bone tissue in part dense cortical type, with some areas of cancellous bone

Microscopic The decalcified sections show in part dense cortical bones of essentially normal structure. The marrow spaces are largely filled with fat. There is no obvious proliferation of bone tissue. There are, however, several areas of necrosis with an amorphous blue staining granular debris not associated with inflammatory reaction. There is no evidence of neoplasm "

Following this procedure the patient appeared to make an uninterrupted recovery and the following note was made

"His leg pains are less but he notices that, since he discontinued the crutches, he has had a little buckling sensation in his knee when it is hyperextended

"Examination of his knee suggests the possibility of a slight amount of thickening of the infrapatellar pad. The alignment of his leg is normal, the wound is beautifully healed, there is no local edema or hypersensitiveness and a normal range of motion in his ankle joint. He has full flexion and full extension in his knee joint

"It seems to me that except for some degree of weakness in his leg resulting from disuse, he has made an excellent recovery. I think he has convalesced now to a point where he is able to resume his work and I do not believe it will be necessary for me to examine him

again, and I anticipate he will have a very satisfactory result.

The last time I heard from him in July 1935 he said his leg was entirely well and he was applying for a job as a state policeman.

CASE 2 A. S. a man of forty-eight married in good health formerly employed by the Connecticut Quarry Company was referred to me on December 1 1933 by Attorney Richard Deming because of pain and swelling in the left leg following a fractured tibia and fibula sustained while at work on August 10 1932 when a stone fell and struck his left leg above the ankle causing the fractures. Following this injury he was treated in a hospital, first by skeletal traction with a pin in the heel and then a cast was applied. On May 22 1933 he resumed work but was unable to continue after the second week on account of pain and swelling in his leg. If he made a misstep his leg bothered him.

Examination showed him to be well-developed and well-nourished and healthy appearing. He had two upper crowned teeth and one retained lower root. Throat was negative. Heart sounds were normal. Blood pressure 136/100. Abdomen negative. His patellar reflexes were normal. There was a fracture of the left tibia at the junction of the lower and mid thirds which had united with some inward displacement of the distal fragment. The alignment was good. There were edema and tenderness present at the fracture site. There was no false point of motion and no heat. Some limitation in ankle joint motion. The patient had bilateral bowleg but it was less marked on the fracture side than on the sound side.

X-rays made at that time by Doctors Roberts and Ogden were reported as follows:

The x-ray examination of the lower two-thirds of the left leg including the ankle shows an oblique fracture through the tibia 9 cm above the distal end. Firm bony union has taken place with the lower fragment displaced to the inner side approximately one-third its width. There is an oblique fracture through the fibula at the same level. Firm bony union likewise has taken place here with the lower fragment displaced to the inner side over one-half its width.

The arteries throughout the region examined are moderately calcified.

I reviewed these films and while I was in agreement with the above findings it seemed to me that there also was an additional factor in connection with the unusually extensive degree of sclerosis for a considerable distance at each side of the old fracture site involving the whole medulla in this area and preventing the normal communication within the medullary cavity between the distal and proximal fragments. This fact taken in conjunction with the patient's complaint of continued pain and the presence of local edema in the neighborhood of the fracture site led me to the conclusion that he had a considerable degree of disability and continued pain, and while the patient unquestionably exaggerated the extent of his disability somewhat, I was inclined to think he should be given the benefit of the doubt and that his tibia should be operated upon for the purpose of reestablishing the communication between the medullary cavity of the upper fragment and the lower fragment.

The patient was operated upon on April 23 and the following operative note was made:

"The operation was for the purpose of reestablishing the medullary canal where it had become blocked off at the site of a fracture at

about the junction of the middle and lower thirds of the left tibia because the patient had local edema and tenderness constant pain and occupational disability. We exposed the area through a four inch anterior longitudinal incision. We found the periosteum very thick and dense and perhaps four times as dense as normal. We removed a slot from the anterior cortical surface approximately three inches in length and we found that for a distance of approximately three-fourths of an inch in the mid portion of this slot the medullary canal was completely blocked by dense osseous bone. The removal of the slot restored medullary communication. The periosteum was carefully closed over. The skin was closed with silk and the leg was immobilized in a circular plaster case extending from the toes to the knee."

Following this procedure the patient appeared to make an uninterrupted recovery until on June 7 1934 the following x-ray report was made:

"The x-ray reexamination of the left leg shows evidence of surgical procedure along the inner aspect anteriorly of the tibial fracture site with an absence of a portion of cortical bone along this area and also an apparent absence of a portion of the medulla with a cavitation now formed extending from the upper to the lower fragment, through the fracture site. All fragments remain firmly united as formerly noted. Through out the medullary portion of the operative site, there are a few small fragments of bone. Otherwise the findings are negative."

The pathological findings were as follows:

A. S. — Diagnosis: Focal necrosis of bone. Macroscopic: Specimen consists of many fragments of bone chips together forming a mass about 3 cm in diameter.

Microscopic: Sections show largely a cancellous type of bone. The trabeculae appear somewhat thickened and rather irregular. There is no neoplastic proliferation. Marrow spaces are largely filled with fat though in some places there appears to be increased vascularity. There are one or two small areas of degeneration with amorphous calcium deposit not associated with inflammatory reaction. No evidence of malignancy.

On July 6 I made the following note:

He seems to have made a practically complete recovery. There still is a little tenderness and a little edema in the region of the scar. He is to discontinue the cane, discontinue the bandage and he may resume work.

On November 30 1934 he wrote that he wanted me to know that the leg was all right.

CASE 3 F. K. a young woman of twenty-three in good health employed at the Windham County Hospital, was admitted to the hospital on November 16 1933 because of pain and swelling on the dorsum of the right foot which she began to notice about six days before her admission. Three or four weeks before her admission she had run the wheel of a hospital bed over the dorsum of her right foot but thought very little of the accident at the time although for two weeks afterward she had difficulty in walking particularly up stairs. She had no symptoms indicative of arthritis, no history of chills and no swelling in the groin or leg.

Examination showed a well-nourished girl. Her pupils were equal. Tonsils had been removed there was no general adenopathy. The heart was not enlarged and there were no murmurs. Abdomen was negative. Lungs were clear and resonant. Examina-

tion of the foot showed marked swelling and tenderness over the dorsum of the foot, there was a suggestion of an ecchymotic area in this region

X-rays made on November 14 showed no evidence of fracture or dislocation. There were no localizing signs of tumor or disease, nor was there any evidence of foreign body.

On November 27, 1933 a reexamination of the right foot is reported as follows

"Reexamination of the right foot now shows some periosteal new bone along the margin of the distal third of the shaft of the second metatarsal. There is a very slight amount of bone destruction on the internal side of the shaft in this area and in the soft tissue there is a shadow approximately one-half cm in thickness which is just surrounding the first mentioned portion of the shaft. There is also considerable soft tissue swelling over the dorsum of the foot. These findings are thought to be due, first, to an osteomyelitis, probably tuberculous in origin, secondly, to lues and third, to neoplasm. The first is thought much more probable."

On November 29, 1933 it was decided to explore the region and the following operative note was made

"Under gas-oxygen anesthesia a small incision was made over the distal end of the second metatarsal and after going through the skin a cavity was entered which was lined by necrotic and broken down tissues with some old blood clot. The appearance of the cavity suggested tuberculosis. No frank pus was encountered. The incision was carried down to the distal end of the shaft of the second metatarsal bone and here the periosteum was found to be stripped and the bone to be roughened. A specimen of the bone was removed for pathological diagnosis as well as the tissue lining the cavity. Boric ointment drain was placed to the center of the wound."

Following this procedure the patient had a fairly satisfactory convalescence with gradual improvement until she was discharged on January 12, 1934

The pathological findings were as follows

"F K.— Diagnosis Bony fragments, adipose tissue with organizing exudate and hemorrhage

"Gross The specimen consists of several small pieces of tissue said to be curettings from the second metatarsal bone of the right foot. They are irregular, the largest being approximately 2 cm in length. All the fragments are firm and pearly white. The entire specimen is preserved for microscopic study

"Microscopic The preparation consists of several fragments of osseous tissue the marrow of which has been replaced by a thin network of connective tissue which contains a very slight sprinkling of small round cells of adipose tissue scattered throughout which are large areas of fresh extravasated blood and slight sprinklings of small round cell infiltration. Many of the areas of hemorrhage appear altered and extending into them are proliferations of fibroblasts and capillaries."

Postoperative x rays are reported as follows

"December 20, 1933—Reexamination of the right foot shows a marked increase in the amount of calcium laid down in the area previously described at the distal end of the shaft of the metatarsal to the second toe. This has the appearance more of a chronic granuloma rather than osteomyelitis of pyogenic origin.

"January 3, 1934—Reexamination of the right foot shows very little change since the previous examination except that more calcium has been laid down on the distal third of the shaft of the second metatarsal. There are still some areas of bone loss, some of which very closely simulate a fracture through this area."

The following is a copy of a letter from Dr M C Sosman, to whom the x-rays were sent

"Your films show a very peculiar form of osteitis and periostitis of the distal end of the second metatarsal. It is hard to reconstruct the progress of events from these films but one can see that there was no evidence of fracture or osteomyelitis November 14, that there was a definite periostitis November 27 with healing December 20 and January 3. It is conceivable that this lesion began as an infected hematoma on or around the bone, later involving the bone. It does not look like tuberculosis and there is no evidence that it is Madura foot. I should expect the process to subside without further complications."

On February 20, 1934 this patient reentered the hospital. She had gradually improved after leaving the hospital and had returned to work, but three days before readmission she began to have a return of pain and swelling on the dorsum of the foot.

X-ray reexamination showed very little change in the size and shape of the calcareous deposit around the distal third of the shaft of the second metatarsal since the previous examination

On April 11 I was called in consultation and made the following note

"I saw this patient in consultation with Dr Ottenheimer. I was informed that after I saw her previously in January the wound healed and her febrile reaction ceased so that she returned to her home for a month and got along very well until the pain and swelling recurred and since then she has been in the hospital with pain, swelling and edema on the dorsum of her foot and the maximum local tenderness is over the second metatarsal. X-rays of her teeth and sinuses have been made and are negative. Wassermann is negative, and test for undulant fever is negative. New x-rays of her foot, made on the 26th of March, appear to show the process healing. In view of the absence of any other apparent cause for her fever and because of the persistent swelling and thickening and local tenderness, I advised another operation and this operation was carried out at the hospital on April 13. Assisted by Dr Ottenheimer, I exposed the site of the lesion of the second metatarsal through the previous incision, somewhat enlarged. We removed from the dorsal surface of the metatarsal quite a thick plaque of very pale appearing dense fibrous tissue which seemed to be partially calcified. We also removed enough of the cortex of the bone directly underneath this mass of tissue, so we could establish normal communication on both sides of the medullary cavity. The wound was closed in layers without drainage and the removed tissue was sent to the laboratory for further examination. Judging from this experience and what I could see in the gross specimen, the condition would seem to have been one of mild chronic periostitis of the metatarsal bone."

The pathological findings are reported as follows

"Gross The specimen consists of a number of small fragments of yellow-white tissue most of

which is adherent to bone. The bone is stripped from one of the fragments of tissue and the soft tissue sent through for immediate microscopic preparation. The remainder of the specimen is preserved for decalcification and later microscopic preparation.

"Microscopic Preparation consists of fragments of osseous tissue. The bony lamellae are rather broad and show well formed haversian systems. The marrow spaces are filled with a rather loose fibrillar connective tissue with a considerable number of adipose tissue cells scattered throughout. No islets of blood forming cells are seen. The bony lamellae are thicker in some places than in others. In some areas the surface of the bony fragment is covered by periosteum. No evidence of atypical proliferation is noted. No cellular infiltration is noted anywhere in the preparation.

"Diagnosis. Fragments of osseous tissue.

Following an uneventful convalescence and recovery the patient was discharged from the hospital on May 19, 1934 using crutches.

On December 28, 1934 Dr. Ottenholmer wrote:

"You might be interested to know as a follow up note on Miss K. that she has made a perfect recovery. She is now working again in our hospital and has no limp or any pain or swelling in the foot and her general physical condition apparently is good.

While it is true that there is very little clinical record of such a condition as these three cases represent, fortunately there is some light thrown upon it by the pathologists and this serves to corroborate the authenticity of these clinical findings.

Adams and McCrue Textbook of Pathology Lea & Febiger 1912 p. 682 classify chronic osteomyelitis as showing two forms: 1. Rarefaction or osteoporosis. 2. Condensation or sclerosis. Condensing osteitis occurs where the irritation is not so intense. One of two events may occur. Either there is evidence of increased osteoblastic activity so that the lamellae undergo progressive thickening and the marrow spaces reduce or the marrow first becomes less cellular, shows an increased fibrosis and the cells of this fibroid tissue undergo metaplasia becoming bone corpuscles. In this way the whole of the marrow may become converted into dense bone.

Kaufmann's Pathology, trans. by Reimann Vol. 2. P. Blackiston & Son Co. 1929 p. 1106. Osteitis (actually endosteitis). Ossificans. Condensing Osteitis. Osteosclerosis.

Direct antithesis of osteoporosis.

Consists of formation of new at first osteoid then calcified true bone changes, coming from the marrow and vessel cavities and encroaching upon the old trabeculae. The spaces within the bone are filled with more and more bone tissue. This type of osteitis ossificans may lead to stony hard thickening, sclerosis and eburnation. Volkman differentiates restitutive reactive or durative and idiopathic bone sclerosis. The restitutive sclerosis sometimes follows a rarefying osteitis. The closure of marrow cavities after fractures in amputation stumps in the space left by discharged sequestra is due to this osteomyelitis ossificans. It may follow chronic central osteomyelitis with the formation of sequestra. It always occurs in the neighborhood of bone abscesses or may follow a leg ulcer or a chronic suppurative arthritis.

Geschickter and Copeland Tumors of Bone p. 682, 1931 refers to Garré's nonsuppurative osteitis.

The lesion is solitary and usually affects the tibia. Pain is not severe but may be aggravated by exertion and is often worse at night. It starts abruptly with fever and leukocytosis subsides rapidly into a chronic course extending over a period of years. The medullary cavity is narrowed or obliterated and the cortex thickened and its density increased. It is the result of a low-grade infection in the lymphatics of the bone which brings about an increased fibrous and fibro-osseous proliferation.

These three cases form a group presenting common characteristics which seem to warrant their inclusion in a single clinical entity. These characteristics include a fracture, solid bone union, persistent pain, lameness, occupational disability, local tenderness, local edema, x-ray evidence of a sclerosis of the bone throughout the original fracture site and extending across the medulla, and recovery following the operative reestablishment of the medullary canal between the upper and lower fragments. In addition the microscopic appearance was similar and apparently in the nature of a focal necrosis of bone.

The similarity between this condition and the sclerosing osteomyelitis of Garré led to the trial of the operation, and in every instance the effects were as striking as they are in the Garré cases. It is assumed that the condition is one of local sclerosis so extensive as to invade and block the medulla. In Garré's type the irritative process is held to be a sluggish localized osteomyelitis accompanied by a simultaneous process of repair and this combination results in a sclerosis extending across the medulla. The pain and local edema with tenderness indicate the tension within the bone because of the bridging of the medullary canal. The x-ray appearance, the signs and symptoms as well as the effects of operative treatment are so similar in Garré's type and in the cases here discussed that I am led to the hypothesis that certain fractures in the process of healing may respond to the irritating presence of minute areas of sterile necrosis resulting from the trauma that caused the fracture in the same manner as occurs in response to the irritating presence of a minute localized osteomyelitis in Garré's type of process. So far as the microscopic appearances go, there is considerable support for this theory, and nothing, so far as I can determine, to contradict it.

The practical importance of these observations cannot be overestimated since they make it obligatory for fracture surgeons to prove that a suspected malingerer is not suffering as he complains. This attitude may result in lowering the number of so-called compensation and litigation neuroses conditions that do exist but whose existence we should not allege until we are sure of our ground.

DISCUSSION

DR JAMES WARREN SEVER I was very much interested in hearing Dr Swett's paper

This condition which he has described is apparently a rare one so far as his experience goes, and it is also a rare one in my experience

From the point of view of the industrial surgeon, it seems as if the condition would be one of the greatest importance, and with the many fractures of both bones of the leg which exist in industry, and which come under the control and direction of the various compensation boards, it would seem as if this condition should have been recognized before, and should not by any means be a rare one. It is an interesting thing, that, in relation to fractures of the bones particularly since the various compensation acts have come into effect, it is considered that the anatomical repair is but a prelude to functional restoration of the limb, and the ability of the man to return to work.

Judges and juries today rarely admit cure of a fractured limb, pending acquisition of its complete functional aptitudes. French experts draw definite distinction between "the consolidation surgical" and the "consolidation judicial", or functional restoration.

Interesting and humiliating as it may be, the jurists were the first to realize the true goal of therapy, that is, the restoration of functional capacity following an injury.

These cases of Dr Swett's bring up again the difficult question of the difference between malingering and real functional disability in border-line cases. I can find nothing in the literature after a careful search, which gives one any lead in relation to the conditions which he has found. Faulty anatomical position, alignment and weight bearing of the fragments even when united may well lead to pain and edema and even mild neurotrophic disturbances, which may continue for a long period of time. Faulty alignment and weight bearing, even with normal union, may lead to persistent interference with the circulation and normal muscle pull, and so constitute disability.

Any fracture, of course, particularly one extensive enough to fracture both bones of the leg, may result in considerable injury to the vascular, nerve, and muscle apparatus, and it might well be that the conditions which Dr Swett describes might be in part due to these associated injuries.

Pathologically, repair of fractures of the bones almost always sets up solitary noninfectious, non-suppurative, low grade inflammatory lesions. It is quite easy to understand that destruction of the trabeculae may have a pathological effect on the venous sinuses that are supported by them, causing thinning of the vessel walls, which possess no muscular fibers, and their dilatation and varicosity, transudation and possible rupture. The varicose and dilated vessels are always a constantly active factor with the aid of the forming granulating tissue in which they are enmeshed, in the further rarefaction, and progressive destruction of the bone from pressure necrosis. This constitutes a low grade osteomyelitis, and in spite of the thickening of the cortical bone, and the apparent destruction of the medullary canal, may have been a factor in the causation of the pain and the localized edema.

Pathologically, Dr Swett found dense cortical bone, however, of normal structure, with the marrow space filled with fat. There were several areas of necrosis found in these sections, which make one think that there is a possibility of a noninfectious, low grade osteomyelitis. In some sections, there appeared to be increased vascularity, which might account for the pain and the edema. Granulation

tissue, as you know, is always found as a result of regeneration and reconstruction. Any such a process in bone is always properly termed an osteomyelitis, although there is no evidence presented of pus or pus formation. The fact of the destruction or obliteration of the medullary canal in these cases, I do not believe is the whole factor, but I do believe for some reason or other the presence of granulation tissue and the destruction of the trabeculae in the bone, cause the venous stasis, or congestion, and probably account for the pain and disability in these cases.

The operation on these cases was apparently successful but I believe the condition must be unique, which does not mean, however, that we should not look for it and recognize it when it occurs. It would be interesting in any follow up series, or check up in a number of cases of fracture of both bones of the leg, to have this condition in mind, see how frequently it happens, and whether it recovers spontaneously in any given time. The frank destruction, or apparent destruction of the medullary canal alone, I do not believe, is the sole factor, although the condition seems to be somewhat analogous to the thickened cortex and the narrowed medullary canal one finds in advanced cases of Paget's disease, associated with pain and which are relieved by operation.

DR ROBERT B OSOOD, Boston Dr Swett has called attention to the similarity of the phenomena he has studied to the sclerosing osteomyelitis reported by Garré in the *Beiträge zur Klinischen Chirurgie* in 1893 (Zehnter Band Zweiter Heft, pp 241-298). It will be remembered that in 1874 Poncet called attention to an observation of Ollier's of a periostitis with a clear exudate, albuminous in character, and without important signs of inflammation, to which the name "periostitis albumenosa" was applied. Cases of this nature have been reported from time to time. I remember encountering one over twenty five years ago which subsided without operative attack. This rather rare condition has been given different names,—*"periostitis ex sudativa"*, *"osteoperiostitis sereuse"*, *"plastische periostitis"*. Volkmann considered the lesion to represent a "lymph abscess", though most observers have considered the morphological process to represent a subacute hematogenous osteomyelitis involving chiefly the periosteum. Garré reports four cases of sclerosing osteomyelitis from three of which cultures of either staphylococcus aureus or albus were recovered, but in some animal experiments these cultures proved innocuous when injected into the knee joint and the periosteal cavity evidently bacteria of low virulence. In no case of his was frank pus recovered from the lesions of the bone or from the sometimes accompanying joint effusions.

Garré suggests that the medullary occlusion may be of the nature of a central sequestrum and the microscopic findings of focal necrosis in the bone fragments in Dr Swett's cases would suggest this conception also. In Garré's cases lues was thought to have been excluded as a possible etiologic factor and although, I think Dr Swett does not mention it, I fancy that it was ruled out in all his cases. But it is well to remember that this mocking bird of all bone lesions yields to a nonoperative attack. It is perhaps significant that Dr Swett's first two patients had sustained their fractures from crushing rather than from leverage violence and that in his third case, although I believe no true fracture was ever discovered, a crushing injury had also been received which might well have severely wounded the periosteum. This is the tissue initially involved in the production of the lesions which have been so well described.

I am most glad of the opportunity to thank Dr. Sweet for his interesting and well planned discourse. A paper like this has real value which less thorough reports of supposed surgical curiosities often lack. The medico-legal importance of his findings is undoubted.

PRESIDENT JOHNSON The discussion from the floor is now open.

DR. LYMAN ALLEN Burlington Vermont. This case may not be quite germane but the medico-legal aspects were similar.

A young woman was injured in a dynamite explosion, with frank osteomyelitis of the tibia but without fracture. After some eighteen months of pain and disability she had great relief when a piece of the cortex was removed leaving a slot perhaps half an inch wide and four inches long in the tibia. No fracture had existed.

The medullary cavity was not obliterated and there was no macroscopic evidence of osteomyelitis. The removal of this piece of bone and the opening of the slot relieved pain and enabled the patient to resume her occupation. I do not know whether the relief was permanent.

I have a feeling that the mere absence of a medullary canal alone probably does not cause the disability and that the alteration in weight bearing while it may play a part, is probably not necessarily a factor in the disability. Interference with venous and lymphatic circulation, the relief of tension by the opening of a slot and the alteration of the circulation in general probably furnish the answer to the relief of pain and therefore the curing of the disability.

PRESIDENT JOHNSON Is there any further discussion?

DR. F. J. COTTON Boston Mass. I would like to say Mr. President and gentlemen, that I am rather inclined to agree with Dr. Saver and Dr. Allen. We see so many fractures in which healing is accompanied by obliteration of the medullary cavity.

I think this is a very interesting group of cases and would like to emphasize what Dr. Allen just spoke of that is the classifications in which, with out fracture, trauma does lead to sclerosis of bone. There are a good many cases that we at one time classed as single osteitis fibrosa noncystic, which never meant anything really definitely not parathyroid cases, localized affairs following a minor trauma.

There are certain specimens that we have been working over that show that this situation of a sclerosing osteitis without any infection we can discover but with small cysts perhaps only one is apparently originally of hemorrhagic origin. It seems perfectly possible that the bone may act to produce this sclerotic condition as a result of various stimuli. Certainly it reacts in that way in those cases in which you will dig out a lot of bone and find a pinhead infectious focus without previous osteomyelitis in which you can recover staphylococci. It apparently will react in the same way to localized hemorrhage.

I think whatever the cause is we get the same sclerosing thing which is talked of loosely as Garré's nonsuppurative osteomyelitis.

I think the pain in those cases is probably the sclerosis as such rather than the question of what has or has not happened to the medulla.

I believe this sclerosis can come from a number of original causes.

DR. CHARLES P. CHANDLER Montpelier Vermont. I would like to add a word about the case that Dr. Allen has spoken about, because the patient is not well. He saw the case I think about a year ago and advised that a section of the bone be removed.

The patient was comfortable a while, but continued to run a low grade temperature and a similar operation was done a few months later. Dr. Ober saw this patient last summer and advised removing the whole length of the top of the tibia between the two epiphyses. This was done and there were areas of sclerosis along the shaft but there was no definite pus found and the laboratory report was staphylococcus.

That operation was done about two months ago and the patient now is complaining of pain above the epiphysis. She still runs this low grade temperature. The wound is now practically healed. She has been a state case.

This injury originated from a dynamite explosion. The patient was living in a house about a mile from where the dynamite exploded. The windows blew in and she was quite severely cut. About six weeks after this injury she developed this infection in the tibia.

I think the case is somewhat similar to those Dr. Sweet mentioned but as Dr. Allen stated, I will have to agree with him she is a long way from being well yet.

DIABETES EPIDEMIOLOGY FROM DEATH RECORDS

BY ELLIOTT P. JOSLIN, M.D.,* AND HERBERT L. LOMBARD, M.D.*

FACED with the problem of the inadequacy of death records in epidemiological studies, the authors have obtained an estimate of how closely the death records of Massachusetts approach the truth in ascertaining the epidemiology of diabetes. The items under discussion are age distribution, sex distribution, and duration increase, and incidence of disease. Diabetes is comparatively easy to diagnose and with the exception of priority of the other diseases listed in the "Manual of Joint Causes of

Death" the death records should portray the situation reasonably accurately. That this is not so is seen from the results of this study. Seven hundred and forty four cases which later died and which previously had been diagnosed as diabetes by Joslin have been reviewed. The death certificates were signed by many different physicians as the majority of these patients died in their homes. The deaths occurred in two periods: 1926-28 and 1931-33 and the cases were so chosen as to be equal in number for both periods. No other method of selection was made.

The part of the series classified as diabetes on the death certificates represents about one

Joslin Elliott P.—Medical Director, George F. Baker Clinic, New England Deaconess Hospital, Lombard Herbert L.—Director, Division of Adult Hygiene, Massachusetts Department of Public Health. For records and addresses of authors see "This Week's Issue," page 32.

thteenth of the total diabetic deaths in the State. While the sample is small, it is believed that it is representative of the State. The series represents a cross section of the diabetic population in respect to geographical location, economic status, and nationality, and while reviewed by Joslin represents the cases of many different physicians.

Table 1 shows both the composite picture for the six years and the same divided into two groups with a five-year interval.

Of the total number of individuals who had been diagnosed diabetes, only 62.9 per cent were so classified on the death records. An additional 13.0 per cent of patients had the

TABLE 3
CLASSIFICATION BY JOINT CAUSES OF DEATH OF PATIENTS WITH DIABETES WHO DID NOT HAVE DIABETES WRITTEN ON THE DEATH CERTIFICATES

	1926-28	1931-33
Cancer	22	28
Heart disease and coronary arteries	30	16
Pneumonia	3	5
Cerebral hemorrhage and embolism	10	6
Nephritis	13	3
Accidents	8	2
Others	18	15
Total	104	75

TABLE 1
CLASSIFICATION OF THE DEATHS OF 744 INDIVIDUALS WHO DIED WITH DIABETES

Group	1926-1928	1931-1933	Total
Diabetes cases	372	372	744
A—Classified as diabetes	60.0 ± 2.5%	65.9 ± 2.4%	62.9 ± 1.8%
B—Had the word "diabetes" on the death certificate but were otherwise classified	12.1 ± 1.7%	14.0 ± 1.8%	13.0 ± 1.2%
C—Failed to have the word "diabetes" on the death certificate. If they had, would have been classified as diabetes	17.7 ± 2.0%	9.1 ± 1.5%	13.4 ± 1.3%
D—Failed to have the word "diabetes" on the death certificate. If they had, would have been classified otherwise	10.2 ± 1.6%	11.0 ± 1.6%	10.6 ± 1.1%

word diabetes written on the certificate but due to Joint Causes of Death were classified otherwise. Twenty-four per cent of the cases did not have diabetes on the records at all, and about half of these (13.4 per cent of the cases) would have been classified as diabetes if the word had appeared on the death records. This indicates that the reported deaths in the State represent 82.5 per cent of the deaths that should be thus classified by the Joint Causes of Death, and 62.9 per cent of the individuals who had diabetes at time of death.

In the first period, 1926-28, 27.9 ± 2.3 per cent of the cases failed to have diabetes written on the death certificates, in the later period, 20.1 ± 2.1—a difference of 7.8 ± 3.1. This difference is significant statistically and indicates a slight improvement on the part of physicians in certifying deaths.

Table 2 shows the classification of cases with diabetes written on the death certificates, and Table 3 the classification of those without diabetes written on the death records.

TABLE 2

CLASSIFICATION BY JOINT CAUSES OF DEATH OF PATIENTS WITH DIABETES WHO HAD DIABETES WRITTEN ON THE DEATH CERTIFICATES

	1926-28	1931-33
Diabetes	223	245
Cancer	18	25
Tuberculosis	15	8
Accidents	2	4
Others	10	15
Total	268	297

The age distribution of the groups B, C, and D (table 1) did not differ from Group A. In this item alone, the death records portray the actual results.

The sex distribution differed materially in the cases without diabetes written on the death records from the classified cases. The sex ratio in the State and that in the classified series were practically identical, but was much higher in the cases without diabetes written on the records. This indicates that a larger percentage of men dying with diabetes, than women, are not so classified. This would tend to make one doubt the sex aspect of epidemiology of diabetes as portrayed by the death records.

TABLE 4
SEX RATIO IN THE 1926-28 SERIES

	Males per 100 Females
Sex ratio of diabetic deaths in State	58
Sex ratio of diabetic deaths in Joslin's series classified diabetes	57
Sex ratio of diabetic deaths in Joslin's series with diabetes not written on death records	76

Table 5 shows a comparison between the duration of the cases classified as diabetes on the death records and from Joslin's files. In both the earlier and later period Joslin's records give approximately one year longer duration of the disease than is obtained from the death records for the same cases. The average dura-

tion of total diabetic deaths in Massachusetts for 1930-32 is considerably less than for the sample. These findings indicate that duration of disease from the death records is not an adequate criterion

TABLE 5

AVERAGE DURATION IN YEARS OF DISEASE
PRIOR TO DEATH

	1926-28	1931-33	1930-3
Joslin's series from files	7.3	9.3	
Joslin's series from death records	6.4	8.0	
Total Massachusetts diabetic deaths			5.1

The application of rates found in table 1 would give an estimated number of deaths both from and with diabetes, assuming the sample to be representative and providing that none of the deaths so classified in the Massachusetts reports were from other causes. As all physicians are familiar with at least one test for sugar in the urine, it is probable that the only error of this type would be that of classifying an individual having sugar in his urine as being a diabetic without the confirmation of a blood sugar test. In a short series of eighty-three cases which were classified as either glycosuria or potential diabetes and which later died the death certificates recorded diabetes in 16.9 ± 4.1 per cent. In a series of 13,000 cases of suspected diabetes Joslin finds 13.5 ± 0.3 per cent not true diabetes and 2.5 ± 0.1 per cent with no definite diagnosis, a total of 16.0 ± 0.3 per cent. Using the standard deviation as a measure of variation for each of the rates used the resulting error in overstating the number

of diabetic deaths would lie between 3.6 and 6.2 per cent. Assuming this error to be 5 per cent and applying the classification rate of the State Registrar, the average yearly number of deaths with diabetes in Massachusetts in the period 1926-28 were 1385 and in 1931-33, 1690—an increase of 22.0 per cent. This is much less than the increase of 33.8 per cent between the reported deaths of 870 and 1164. This points to the probability that the increase in diabetes is less than would be expected from the death records, although the size of the sample prohibits a definite conclusion.

As a further check on the accuracy of the estimated number of cases dying with the disease in 1931-33 (1690) a comparison has been made between the number of cases alive, derived from this figure multiplied by Joslin's duration, and the number estimated by Bigelow and Lombard in "Cancer and Other Chronic Diseases in Massachusetts." The resulting figures are 15,700 and 15,000, respectively. This strengthens the opinion that the number estimated as dying with diabetes is approximately correct and gives additional weight to the previous estimate of the incidence of the disease.

From the study of 744 cases of diabetes it is concluded that the mortality from diabetes as recorded in the death records represents about four fifths of the true mortality as measured by the Joint Causes of Death and about two thirds of the mortality of individuals with the disease. The differences found in sex ratio, duration, and increase of disease warrant the assumption that epidemiological studies based solely on death records may be greatly misleading in portraying the true picture of diabetes.

THE GEORGE W. GAY LECTURE ON "MEDICAL ETHICS"

The Successful Doctor and the Human Side of Practice

BY JAMES B. HERRICK, M.D.

AN invitation to address medical students is often an incidental matter, a sort of by-product of one's presence in the university city while on a professional visit or while in attendance at a medical meeting. "Won't you say a word to the students?" casually remarks one's friend of the faculty. "It makes no difference what you talk about. Even a few minutes will suffice. I'd just like to have the boys see you." That night during the wakeful hours in the Pullman one wonders whether the remarks that were made to the boys seemed as colorless and unsatisfactory to the students as to the speaker who for a few uncomfortable minutes felt that he was

on exhibition. The invitation to deliver the Gay Lecture, however, with notice several months in advance, with an assigned topic and that topic "Ethics" showed a deliberate choice that pleased

quired in an extensive experience as practitioner, consultant, teacher and hospital physician.

In 1930 in presenting to Dr. Herrick the gold medal of the Association of American Physicians Dr. Kober termed him one of the most distinguished clinicians in the United States and always a painstaking student of clinical symptoms and most accurate in his description of observed facts.

In his monograph on coronary thrombosis Dr. Levine says of Dr. Herrick he "first finally focused the attention of the American medical profession on this disease. In 1911 he emphasized the fact that coronary thrombosis was a clinical entity could be recognized during life and that it need not end fatally. Under Dr. Herrick's aegis Fred Smith carried on the experimental work of ligating coronary vessels in the dog which is the foundation of our knowledge of the electrocardiographic evidences of coronary occlusion.

You, Mr. Dr. Herrick I present as our now universally recognized dean of clinicians, using the term not in its original sense of one set over ten but in the sense that all of us gladly acknowledge you as the leader among clinicians in this fair land of ours.

Herrick, James B.—Professor of Medicine Emeritus, Rush Medical College of the University of Chicago. For record and address of author see "This Week's Issue," page 32.

Delivered before the medical students of Harvard University November 7, 1935 under the endowment of Dr. George Washington Gay.

INTRODUCTION BY DR. HENRY A. CHRISTIAN
Of Dr. Herrick in 1924 when he had served as physician in what was then the Peter Bent Brigham Hospital I wrote a delightful personality with matured clinical judgment and

me I deeply appreciate the honor and am duly thankful

Dr Locke, as chairman of the Committee, wrote me that according to the Gay bequest the lecture was to deal with "medical ethics, economics, etc." I will not discuss medical economics for two reasons. In the first place the experience of the past six years leads me to question my qualifications. Secondly, there is available in the library the scholarly lecture of two years ago by Dr Osgood. This lecture contains such an excellent resumé of this topic that for me to take it up today would be needless repetition. My subject, therefore, narrows down to "medical ethics, etc." You may perhaps think I am talking mainly about "etc." for my theme is really the successful doctor. I trust, however, you may see that there is included something that bears directly on ethics and especially when I discuss as one of the qualifications of success an understanding of the human side of practice.

Success is the attainment of one's objective, reaching the goal. It is "getting there."

But objectives vary and standards are not uniform. No two of you have exactly the same aims. Perhaps some of you decided to become physicians by a process of exclusion. You did not know what else to do which is, I trust you notice, a little different from saying you did not know what else you were good for. Some hope to gain money, reputation, some aim to be teachers or medical writers, some are attracted by the lure of research or by curiosity concerning biologic science, particularly the mystery of disease, some think that the busy life of practice will bring them what they especially enjoy close contact with men of all types and conditions, some are genuinely altruistic and are eager to help those who suffer from illness. Motives, then, are different, no two exactly alike.

Objectives also are not fixed, they are constantly changing. The altruist may in time become the self-seeker after wealth or reputation. The investigator is transformed into the practitioner, the well-to-do practitioner ends his days as a teacher or writer or as a charitably minded minister to the poor. These changes are by no means to be condemned for they may indicate progress and growth in mental and ethical development.

Let me cite two contrasting instances. An old acquaintance of mine had been sent to the United States by the church from an oriental country to be trained as a missionary doctor. Instead of returning to his native country he changed his mind and settled as a practitioner in one of our large cities. A year or so ago he came to consult me about his health. I asked him how he was getting on in practice. "Practice?" he said. "Why should I practice when

I can make more money at poker or playing the races?"

A schoolmate in a preparatory academy went as medical missionary to China, became physician to the Empress dowager and head of a large hospital in Peking. At about sixty-five, while on her sabbatical year in this country, she came to me for advice. Her Board of the Methodist Church had decided against her return because of evident cardiovascular disease. "I admit the existence of the disease," she said, "but I deny the wisdom of their decision. A letter from you stating that it will do me no more harm to work moderately in China than to live idly here will enable me to go back. Why should I not die helping the people I love instead of selfishly staying here in the vain hope that I may live a year or two longer?" I gave her the letter. She returned to China and for three happy years carried on her useful work, dying honored and revered by the people she had so faithfully and unselfishly served.

Need I point out the lesson? The first doctor was an ethical failure, a disgrace to the profession, the life of the second was one of which the profession may be proud—a true success.

It must be assumed that the doctor who is to be successful has a fair physical, mental and moral endowment, i.e., that he is in reasonably good health, is at least of average mental caliber and has a character that according to existing ethical standards is approved by one's fellows.

It must be admitted that some qualifications for success are outside one's control. All contestants start at scratch but they are not equally equipped. Heredity, environment, chance play a part. Some have by inheritance the qualities that go to make up a successful doctor. Some simply haven't the knack, just as some persons have no talent for music or mathematics. Environment and chance count. The young medical man thrown into association with studious, eager fellows catches their spirit and pushes ahead. Without this stimulating contact he may lag behind. Chance favors some, upsets the hopes of others. Disease, accident, financial reverses, unfortunate choice of location, family complications may be a hindrance to success, though, as is well known, what seems a misfortune is at times a blessing in disguise.

I have in my office desk photographs of the hands of a doctor from a western state—fingers twisted and deformed almost beyond belief by arthritis, metal rings to render more fixed some of the looser joints, corresponding changes known to be present in the feet. Yet in spite of this handicap the doctor was for years a successful, efficient general practitioner. When patients, lay or professional, complain unreasonably of their ill fortune in having arthritis or other retarding physical ailments, I some-

times show them this picture and tell the story Or I cite the case of Dr Robert H Babcock, who, though totally blind from the age of thirteen, became a successful practitioner, a teacher and writer, well known in the field of diseases of the chest. Or I remind them of Franklin D Roosevelt I am surely not straying from my topic in referring to such subjects Courage in adversity, and steady maintenance of the highest ideals are a part of nobility of character Character and ethics are near of kin

But admitting that success may depend in a measure on inborn physical and mental equipment, on luck or influence on an attractive personality, in the long run it depends first of all on hard work I have never known a physician who in the true sense was successful who was not a hard worker When Dr Frank Billings was studying intensively the question of focal infections, he put us all to shame as at sixty years of age day after day promptly at eight he appeared at the hospital where he carried on his investigations At the same time he was giving his clinics acting as dean of the medical school looking after a large private practice, and taking an active part in the meetings of many local and national bodies If you have not already done so read Osler's charming essay on "The Master Word in Medicine" The master key, he says, that unlocks the door leading to success is work Systematic and well planned work call it plugging if you will explains the success of a large proportion of successful medical men

Too much dawdling is bad To some English lads Lord Cromer of Egypt gave as a motto "Love your country, speak the truth, do not dawdle" Vacillating doctors may resemble the chameleon who said he, "nearly busted" trying to change color as he walked from place to place on the Scotchman's plaid Take time It has been said that the American's notion of progress is moving rapidly in the direction in which one is going The race is not always to the swift Speed is as often a sign of mania as of progress Fuss and pother and making motions do not always mean productive activity Remember Chaucer's Sergeant of Law,

"Nowher so bley a man as he there nas
And yet he semed bliser than he was"

To succeed you must know your subject, and this means study Study of textbooks certainly But even in your undergraduate days you should learn the supreme value of monographs original articles, current medical and other scientific journals Only in this way can you be trained in the ability to judge for yourselves the value of what is written, to distinguish fact from theory, hypothesis or the mere guess—and not a little that is in print is of this latter character 'To know by heart is simply not to know' "Let the boy examine and sift every

thing he reads, and take nothing on trust or authority," said Montaigne more than 300 years ago Yes, such ideas, though old, will stand repetition

So read the promising new, the approved classics of the past Read by cases, by subjects e.g. diseases of the blood or of the bone If attracted by any one subject, read exhaustively and ponder over it You will acquire in this way a sense of mastery You will learn the meaning of thoroughness A thin spread of knowledge of a great many things spells mediocrity The mediocre man is the dangerous man in the community He does not know the limitations of his own knowledge or those of others the risks of operation or of drug the healing power of nature Book knowledge is indispensable It means work and more work in the library And blessed result of it all, such work becomes your daily joy!

But you cannot be good practitioners unless you are constantly in touch with patients The bedside in the home or the hospital is the laboratory where, by experience you acquire knowledge and learn how to apply it By all means grasp at the chance to become connected with a dispensary or a hospital Generally only one with concentration of time and energy is better than two or three Welcome the opportunity or compulsion to teach No man is aware of what he knows or believes until he has tried to tell someone else about it or to write it down Join a medical society When you have something to say and only then, speak Take a medical journal Dr N S Davis, founder of the American Medical Association, in the third week of his practice, though poor, sent in his subscription to a journal

All this means that even with few patients the hours are being profitably spent There are so many who do not do this They are waiting for something to turn up, something to come their way There are many faultfinders envious of those who succeed They whisper of the use of influence, of luck, even graft The fault so often is not in their stars but in themselves that they are underlings They are idlers And one effect of all this study at the desk, in the laboratory and at the bedside is that it keeps you always a little ahead, always ready for more than you are now doing In this way promotion comes because it is deserved This was one of Pasteur's oft repeated sayings.

It is not enough, however, that you should "have the goods" You must be able to deliver the goods This is the art of medicine as contrasted with the science It means knowing how to apply your knowledge, more important, it involves knowing when to apply it Or to put it in another way, technique is not all of the art One of my colleagues, a leading otolaryngologist, has a telling way of expressing this truth He says he can in a few weeks teach a

graduate student how to perform a mastoid operation, it takes months to teach when to do the operation and when to refrain. Some doctors are honest, industrious, well-informed, even erudite, yet they fail. They lack good judgment and tact. Tact, as you know, means "touch." These men do not understand, and therefore do not get in touch with, human nature. They are not good salesmen, the other fellow who may not know so much gets their patients.

Guard against trying to acquire the art by too much conscious or unconscious imitation. Very properly you have your medical models, your heroes. In striving too zealously to follow their example you may become mere imitators, copying externals rather than fundamentals. The result is apt to be that you acquire only mannerisms. Be careful to avoid traits of even famous doctors when you are conscious that these traits are foreign to your nature and for you, therefore, non-assimilable, or that they are grounded in moral or intellectual weakness. Intellectual honesty and moral integrity are after all closely allied. Older men may teach you by informing as to facts, by inculcating lessons drawn from experience, by illustrating proper methods of thought, by stimulating you by wise advice, but also—and of this your elders may be blissfully ignorant—by showing you by example how not to do it.

A word as to research. Real investigators are rare, i.e., those who can originate and independently carry on research. These men frequently make poor practitioners. Conversely, the practitioner is seldom a man of research in its highest sense. But the spirit of research is no monopoly of the laboratory of experimental physiology or pathology or biochemistry. It is, and should be found in the successful practitioner whether in the hospital or the home. He should have the curiosity that Lord Kelvin had when he so frequently exclaimed "Now, what's the go o' that?" Each case of disease is a problem for investigation. In trying to solve this problem of a case or a group of cases, the doctor may add to his own knowledge and perhaps to that of others. He has at least been stimulated to habits of more thoughtful and careful observation. To repeat, the spirit of research is the activating agent, the catalyzer of progressive and productive practice. It is a mistake to set up a real or a fancied barrier between research and practice. Many an investigator would do better work if he were not too fanatically wedded to the dogma of research for truth's sake alone and if he knew more of the problems of practice. Many a practitioner would be awakened to a new life if he were not wedded to the belief that experience, intuitive hunches, practical results were the all in all of medicine or if he were not so timid as to think he dare not enter the sanctum sanctorum reserved for research. Some of these features of

research and others that I have not touched upon may be found in Dr. Minot's excellent article on "Clinical Investigation" that appeared in the *Journal of the American Medical Association*, August 31, 1935.

Thus far I have tried to show that while success may depend in a measure on qualities that are inborn, on chance and environment, the main requirements are character, hard work, persistent study, daily contact with patients, all of which activities are permeated by the spirit of research. I wish now to take up another phase of the subject.

A physician's true success is estimated largely by what is commonly spoken of as service or what he does for others. This feature is inherent in the conception of medicine as a profession and not a trade. The distinction is not easily made for the legitimate income-earning and the professional factors overlap at many points. The physician is consulted for his opinion and not for wares that he sells from his shelf at a profit. He does not take orders, he issues them. The doctor, lawyer, priest, teacher, architect touch on something other than the material. They are motivated by the idealistic, artistic, altruistic, ethical. All this is implied by the term "profession."

The minister sees people at their best, the lawyer sees them at their worst, the doctor sees them just as they are. To no one more than to the physician is there offered the opportunity for service, to no one more than to him is the incentive to service more impelling. Rightly to embrace the opportunity to respond to the incentive the physician should possess a dual personality. He should be intellectually—or, as it is oftener expressed, scientifically—minded toward the disease but sympathetic or human toward the patient.

The training of the physician even in his premedical courses and as far back as to the secondary school leans toward the practical and scientific rather than toward the human attitude of mind, the attitude of emotion and sentiment. Geography is concerned more with the height or mineral content of the mountain than with the magnificence of the view when the peak is scaled. The imagery of Vergil and his portrayal of human motives are largely lost in stressing scansion and grammatical construction. History discusses the strategy of the campaign and the plan of the battle, but overlooks the suffering of the wounded and the desolation of homes. So, in his biologic study of the frog, the guinea pig and of man, the student continues to use the same yardstick that he used in solving his problem in the relatively dead or insensate mathematics, physics and chemistry.

In a measure this is necessary and as it should be. The practice of medicine is becoming more and more exact. The doctor who is oversympa-

thetic, i.e., in the derivational sense of the word "suffering with" his patient, may be lacking in the intellectual or unemotional qualities that are prerequisites of good judgment. This may be fatal to the patient's best interest. The scientific physician, on the contrary, may be callous to human suffering of mind as of body. This is wrong, is frequently harmful to health and is not necessary. In fact it is not so common as it is often thought to be, for most doctors are at heart sympathetic. Dr. John Brown in "Rab and His Friends" describes the loud laughter with which the students greeted the poor Scotch peasant woman who entered the clinic. The odd dress and strange manners of herself and husband were too much for them. But when they saw the hard cancerous breast, the courage with which without anesthetic the patient submitted to the operation, the tender devotion of the rustic husband and the courtesy and kindness of the surgeon,—none other than the renowned Syme,—tears coursed down their cheeks and as the brave little woman was wheeled away the amphitheatre rang with applause. I quote Dr. Brown's comments. "Don't think them (the students) heartless, they are neither better nor worse than you or I. They get over their professional horrors, and into their proper work and in their pity, as an emotion, ending in itself or at best in tears and a long drawn breath, lessens,—while pity as a motive, is quickened, and gains power and purpose. It is well for poor human nature that it is so." There is the lesson, pity as a motive.

We must all be on our guard lest enthusiasm over the strictly medical aspects of the illness leads us to forget the patient. "Doctor," a new patient said to me, "I do hope you will be different from the other doctors whom I have consulted. I trust you will look less at the x-ray picture and more at me." The busy attending man with his following of students and house staff was bustling down the ward to see the interesting case at the end of the row of beds. The Irishman in bed one leaned over to the Swede in bed two and said, "Ole, we ought to be a hell of a lot better. The professor has just walked by." There is a practical sermon on ethics in those two incidents.

You may not in your undergraduate days appreciate the force of what I am saying. It may be that the real meaning of the human side of practice will not come to you until as the family doctor you enter the home where with no intern, no attending man you must shoulder the full responsibility for the treatment of a serious illness. You are making your evening visit on the man with pneumonia. He is an interesting case. You record with care the physical signs, the blood count and the blood pressure. You are leaving the final directions for the night. The patient's breathing is rapid and labored, the delirium is marked. As he moans

with the pain of the cough you note the look of anguish on the face of the young wife who stands near with the two year old hanging to her skirt. There are signs that another baby will come soon. Suddenly you sense it all. The loss of this husband, this father, this wage-earner means not only a broken heart. It means wrecked hopes, a shattered home, the wife the future wage-earner. You say, you scarcely know why. "This may be a critical night, I will stay." You have unconsciously transmuted your emotion into an act of service. The look of gratitude from the dim eye of the wife is your ample reward. You have learned something of the human side of practice. The patient is a case, to be sure, but the case is a man.

In present day conditions of practice this feature is easily forgotten. There are fewer of the old type family doctors who though perhaps possessing less science, were often rich in the qualities that made them the family advisers, confidants and friends. There are fewer real homes and more apartments. Yet whether he is in his cramped apartment, his private room or ward in the hospital, he is the human being sensitive to pain, fearful of and not understanding illness, dreading death responsive to kindness and hurt by indifference or harshness. The doctor's dual personality must not be lost even though the family doctor is largely displaced by the hospital attending man.

Perhaps there is no call for me to discuss these topics before a class of Harvard students when your own teachers by precept and example keep this phase of medicine ever before you. And less reason for my so doing when there still pervades your class rooms laboratories, and wards the benign influence of that rare spirit, Francis Peabody who by act and word so perfectly exemplified the dual personality of the physician.

Every doctor aims to be honest. Yet one of the difficult things in practice is "to tell the truth." Patients consult us for our opinion and for advice as to treatment. Are they not entitled to the truth? Yes, but what is the truth concerning an illness? Suppose I say to a patient that he has tuberculosis or a leaky heart valve. I have told the truth as to diagnosis. But if the tuberculosis is curable if the valvular lesion is not inconsistent with length of years, in reality I may have uttered a falsehood. For tuberculosis may mean to the patient "quick consumption", and a leaky valve may be synonymous with sudden or dropsical death. My bald, naked truth is an untruth. You see what Emerson meant when he said "It is not the fact that imports, but the impression or the effect of the fact on the mind." Besides no one is infallible as to diagnosis or prognosis. The serious case may turn out better than I think

The supposed cancer may be an ulcer or diverticulitis, or it may melt away under iodide or arsenic. The patient is entitled to at least an explanation of what is implied by my diagnosis and to a modicum of hope that the illness may not be so serious as it seems to be or that modern treatment may help or cure. Lawrence Henderson, in discussing the problem of Physician and Patient as a Social System—and in a more penetrating and philosophical manner than I—expresses similar sentiments when he says "Do as little harm as possible, not only in treatment with drugs, or with the knife, but also in treatment with words."

We doctors too often forget that patients do not always grasp our meaning because we employ language they do not understand.

I could not convince a man of sixty-five that the trace of albumin in his urine was not of serious significance. On his report from the bureau of analysis was the finger, rubber-stamped in violet ink, pointing to the word *albumin*. This outweighed all my reassurances. One day I said "Why do you not worry about your wrinkles and your gray hair?" "Why, doctor," he said, "am I not entitled to have gray hair at sixty-five?" "You are," I replied, "and so you are to have a trace of albumin in the urine. Your trouble is simply gray hair in the kidney." I saw him no more for two years, when he again came to see me. "You don't remember the circumstances, doctor, but I was upset by your statement. I went to another doctor who promptly found Bright's disease. When he asked me what your diagnosis had been and I told him 'gray hair in the kidney', he was indignant and furious. He said he had never heard such a fool diagnosis in all his life. He had always thought Dr. Herrick, etc." *Haec fabula docet*. Beware of using figurative language in speaking to a patient who is literally minded.

The doctor, then, is to be human, sympathetic, helpful, always regarding the interests of the patient as paramount. This implies what is called character and a high standard of conduct or right thinking. Of such is the essence of ethics. So important is this in the conception of the best type of physician that there have prevailed even from the time of Hippocrates—with the well-known oath—to the present, rules of conduct often spoken of as codes of ethics. In order not to dictate in too arbitrary a manner the American Medical Association prescribes the principles of ethics rather than the code infringement of which may bring censure or more severe punishment to members of this national organization. These principles have to be modified from time to time to meet more explicitly the needs of changing conditions. Basically they are founded on the assumption that medicine is a profession not a trade, that a patient is a sufferer to whom the humane phy-

sician must offer help and that all physicians are members of a brotherhood, bound by mutual ties of friendship and helpfulness and not separated by barriers of enmity. Boiled down, the ethics of medicine is contained in the golden rule "Whatsoever ye would that men should do to you, do ye even so to them."

I shall not discuss in detail the various features of ethics. Dr. Osgood, Dr. Robey and others have well covered this ground in previous lectures that are in print. The puzzling question is often before the practitioner, What is proper under the circumstances? The answer may generally be found if he puts himself in the other's place. If he were the patient, what would he like to have done to him? If he were the other doctor, what treatment by his colleague would seem proper and friendly? An appeal to conscience is generally better than an appeal to the printed principles or to an official body of a medical society. Conscience will generally be found deciding in accordance with the printed precept.

Among features that deserve mention, some of them relatively trivial to be sure, are such things as avoidance of gossip, promptness in response to calls or at consultations, consideration for others' convenience, courtesy in converse, clearness and explicitness in giving directions, assumption of responsibility for risk in treatment or even for error of judgment instead of throwing the onus on the helpless patient or weaker colleague, the wickedness of getting the other man's patient by direct or indirect offensive advertising, or of injuring another's reputation by unjustified comment or innuendo. Much might be said, and it would be especially appropriate at the present time as to fees and the burden of the high cost of medical care. Secret splitting of fees is to be condemned. There should always be consideration of the patient's ability to pay. The pound of flesh attitude should be foreign to the doctor.

How shall I close this talk that has been, as I am acutely aware, not only informal but incomplete? Perhaps after having looked backward and having surveyed conditions of the present, I may appropriately venture to forecast the future. I do this optimistically. There are many *laudatores temporis acti* who are past the psalmist's three score years and ten, and others who are yet young, who are disheartened by the difficulties encountered in these last few years of storm and stress who believe that medicine has seen its brightest days and that the doctor of the future will be less successful, less honored, less useful than his predecessors and less high-minded. This gloomy view is unwarranted. As a science, medicine is far from exact or complete. There is still an enormous field for study. New facts and new principles await investigation in the laboratory and at the bedside. Cancer, many infections, endocrines

and scores of other problems await their Harveys, Pasteurs, Kochs or Theobald Smiths. The practice of medicine is still too empirical and crude. New instruments and new laboratory tests will make diagnosis more exact. Preventive medicine is still in its infancy. Dietetic and specific drug therapy will be more accurately and effectively applied. Psychology will be more sensibly and more successfully employed. Surgery will have triumphs as yet undreamed. Social and economic relations may radically change. The individualism of the practitioner may, for a time, seem to be lost in the group or in the imposed authority of the State. But whatever the status of medical science, or the imposed obligations of Society from out this unknown future there will surely emerge, as long as disease exists, two figures,

the physician and the patient constituting the social system of Henderson. Then as now this doctor must maintain most intimate relations to his patient. Then as now there must be heard the words "my doctor", "my patient". This doctor, if successful in the true sense, must possess the dual personality, he must be scientific and human or humane. He must know his facts and the principles underlying them, and have the ability to apply them in treating the sick. In addition he must have that touch of nature that makes the whole world kin and that enables him to see in the sufferer from disease a man and brother. In a word he must, and I believe will, be a man of character, which means a man of right living. And thus, as I understand it, is ethics.

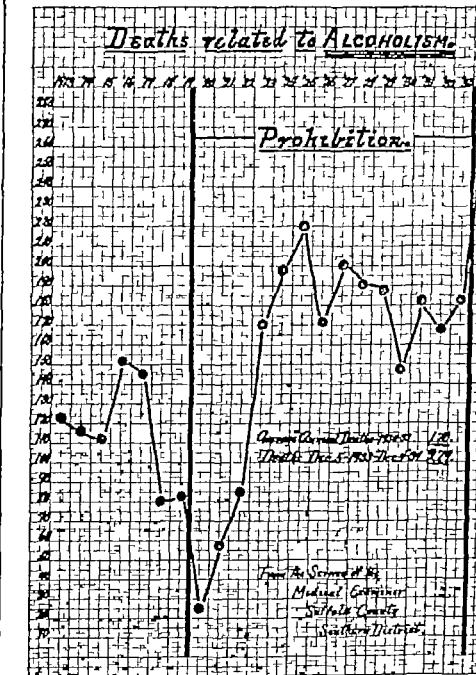
THE DEATH RATE FROM ALCOHOLISM

BY TIMOTHY LEARY, M.D.*

THE accompanying chart illustrates graphically a situation with reference to alcoholism which has become a serious menace. This chart records the deaths in which alcohol has been an important agency coming under my observation as Medical Examiner of Suffolk County. Most of the deaths have been directly due to alcoholism as such. The added cases include a percentage of alcoholic pneumonias in which the alcoholic factor was of primary importance, a percentage of cases of fractured skull in which the degree of alcoholism was extreme and was responsible for the violence, as from a fall, which led to the fracture. The list does not include deaths from automobile accidents since in doubtful cases it was difficult or impossible to differentiate the influence of the alcohol and that due to the traumatism. The criteria as to what should be listed under alcoholism have not changed to any measurable degree during the period recorded.

There are many types of observation which can serve as bases for judgment on the extent of the alcoholism in a population. The records of arrests for alcoholism and the hospital admissions for this cause are valuable, but in the final analysis the number of deaths arising out of alcoholic intoxication furnishes perhaps the best barometer of alcoholic overindulgence.

As seen by the chart the deaths related to alcoholism in this service were on a relatively standard average basis in the years 1913, 1914 and 1915. The years, 1916 and 1917, were those of prosperity, the silk shirt period when war loans had financed production and workers were well paid. In 1918 and 1919 we were preparing to and had entered the war. It was no longer fashionable to get drunk and the man who drank had difficulty in getting or



holding jobs. Under the influence of a patriotic urge we became one of the most temperate people in the world. Then came prohibition. In 1920 no liquor was available. The stocked liquor was shortly used up and new sources of

supply were not as yet organized. In 1921 and 1922 deaths for a considerable part were in individuals who had resource to bathing alcohol, extracts—jamaica ginger, vanilla—perfumes and bay rum. By 1923 the bootlegging business was well established and sources of supply were many. The eleven years from 1923 to 1933 inclusive mark the period of activity in bootleg products. Smuggling of concentrated alcohols was no more difficult and was more remunerative than the smuggling of beer and wines. The illicit distillation of alcohol flourished. We developed in the public a taste for beverages with a kick which could only be satisfied by concentrated alcohol. It will be noted that there is a more or less progressive downward trend in the death rate during these years. We were gradually settling down toward a standardized but relatively high death rate.

Prohibition was abolished Dec 4, 1933. In the State of Massachusetts the local alcohol control system permitted the sale over the counter by druggists of 95 per cent alcohol (190 proof). This is in contrast to the practice elsewhere. In New York State, for example, a physician's prescription is necessary for the purchase of ethyl alcohol. The usual drug store price for ethyl alcohol is eight ounces for a half dollar. During

the year ending Dec 4, 1934, there was a tremendous rise in the death rate. This, in my opinion, based upon evidence of what the decedents had been drinking, was due in very large part to the drinking of ethyl alcohol. Diluted properly perhaps at the beginning of a drinking bout, the fluid came to be drunk with less and less attention to dilution until delirium or unconsciousness supervened and treatment was of little or no avail. It requires but 0.6 per cent of ethyl alcohol in blood and brain to bring about a fatal issue. Quantity and concentration are both factors of importance. The human body can oxidize about 10 cc of ethyl alcohol per hour. The absorption of alcohol in these cases takes place more rapidly than oxidation can destroy it. The accumulation of the drug within the tissues gives rise to dangerous percentages often before the victim succumbs to sleep or delirium.

The increased death rate in this district following the abolition of prohibition is in contrast to the lowered mortality reported elsewhere throughout the country, notably from New York City. It is a reasonable conclusion that the readiness with which ethyl alcohol can be purchased over the counter in drug stores in this state is a factor in this local increase.

FURTHER EXPERIENCE WITH THE FRACTIONAL 'PHTHALEIN TEST

BY EARLE M. CHAPMAN, M.D.*

KIDNEY function tests that require the prolonged cooperation of the patient with regard to diet and fluid balance or the expense of chemical analyses do not conveniently serve the purpose of estimating kidney function in routine practice. Our continued use of the fractional phthalein method of estimating kidney function leads us to believe that it is both practical and reliable. In 1933 Chapman and Halsted¹ described the use of this test in forty-three cases including hemorrhagic arteriosclerotic and degenerative Bright's disease.

Four years of experience with this test have established it as a routine procedure in the wards and in the out-patient department of the Massachusetts General Hospital. The technique is simple. The patient empties the bladder, drinks two glasses of water and one half hour later 10 cc (6 mg) of phenolsulphonephthalein is given intravenously. In a normally hydrated person voided specimens of urine are then easily obtained fifteen and thirty minutes after giving the dye. The whole test occupies one hour and the results can be read immediately with the standard colorimeter (Hvnsen, Westcott and Dunning). The one and two hour specimens are no longer obtained as we have shown that the curve of dye elimination with

a high initial output (normal minimum 25 per cent) is the significant feature of 'phthalein excretion. One third of the forty-three patients with Bright's disease had a total dye output of 55 per cent or more by the old method of hourly collections yet in each there was a delay in the dye excretion shown only by the fractional method. This delay, reflected chiefly in the fifteen minute output, indicated an impaired kidney function.

Our further experience is recorded here for convenience in figures representing the curve of dye excretion in normal persons and in patients with acute and chronic hemorrhagic Bright's disease. As this is the most common type of Bright's disease it alone is used for illustrative purposes.

Chart 1 shows the average curves of normal dye excretion, the line A-B representing forty tests on twenty normal individuals. A Duboseq colorimeter was used. The line C-D represents the average of twenty-six tests on twenty-six ward patients without renal disease done routinely by interns using the standard colorimeter. It is evident that the latter method is sufficiently in agreement with the more accurate colorimetric determinations to permit its use as a reliable test of kidney function. Fluid intake¹ or anemia² does not alter the dye excretion.

*Chapman, Earle M.—Member of Staff, Massachusetts General Hospital. For record and address of author see "This Week," Issue page 32.

Chart 2 represents the course of acute hemorrhagic Bright's disease in a fourteen year old boy. He was very ill with sudden hematuria and edema and had hypertensive encephalopathy (convulsions) at the onset of his illness. He improved slowly and then after the tonsils were removed the improvement was rapid. He is now in the latent stage, having only a very slight trace of albumin in the urine. Here the fractional 'phthalein test reflects the diminu-

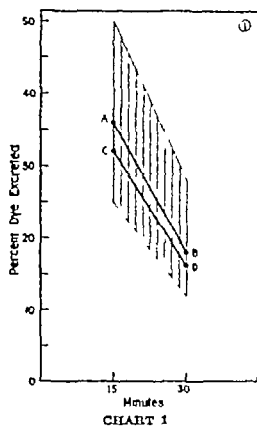


CHART 1

ished function that occurs in acute hemorrhagic disease and coincident with clinical recovery we see that the 'phthalein output has returned to normal. This case is illustrative of

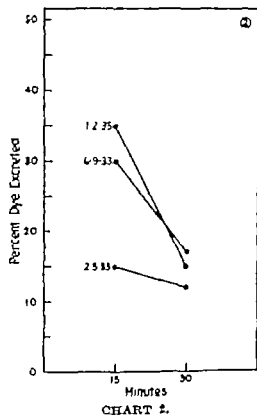


CHART 2.

the eight additional cases of acute disease we have observed in the past two years. However four of these showed a return of kidney function only to subnormal levels as they entered the chronic active stage of the disease.

Chart 3 shows the average curve of dye excre-

tion of thirty-one patients who entered the hospital with chronic active hemorrhagic Bright's disease not in the terminal stage. We believe that this test is of particular value in estimating the kidney function of patients with progressive Bright's disease. The increasing damage to the functioning tissue is shown chiefly by a decrease in the fifteen minute output of dye. By the usual hourly method MacKay³ states that

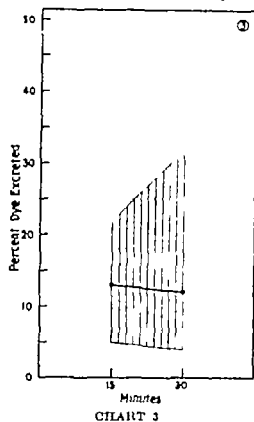


CHART 3

the 'phthalein test may be normal until at least half of the functioning tissue has been destroyed.

Chart 4 shows the course of a patient with

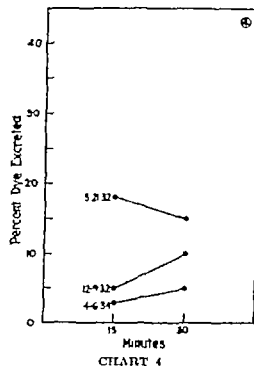


CHART 4

progressive kidney disease. This was a sixteen year old girl who first entered the hospital with the acute disease and progressed through the chronic active stage to the terminal event in uremia. Necropsy eight months after the last recorded test showed that she had diffuse glomerular nephritis. Here we see the progressive decline in kidney function over a period of two years reflected mainly in the fifteen minute dye output. It was not until six months after the last test that uremic symptoms appeared.

From this and similar cases we have attempted to govern prognosis. It would be hazardous to offer a graded prognosis on the basis of this test alone but we have followed seventeen patients with progressive Bright's disease who lived an average of six months after they could excrete less than 5 per cent of dye at the fifteen minute interval. Clinically some of these patients seemed surprisingly well but none lived over twelve months with this degree of kidney damage.

Like other clinical tests of body function a single fractional 'phthalein test is not to be accepted as proof of impaired renal function unless it forms a part of the clinical picture. Particularly in congestive heart failure with a

the ordinate. Excepting those tests marked with a cross the two methods compare favorably. (See upper left and lower right sections of chart 5.) In five instances (upper left square) the fractional 'phthalein test alone indicated impaired kidney function.

CONCLUSIONS

The fractional 'phthalein test is a practical and reliable method of estimating kidney function. It reflects the changing function of the kidneys in acute hemorrhagic Bright's disease and the progressive decline in function in the chronic active stage. Its possible prognostic value has been indicated and its limitations discussed.

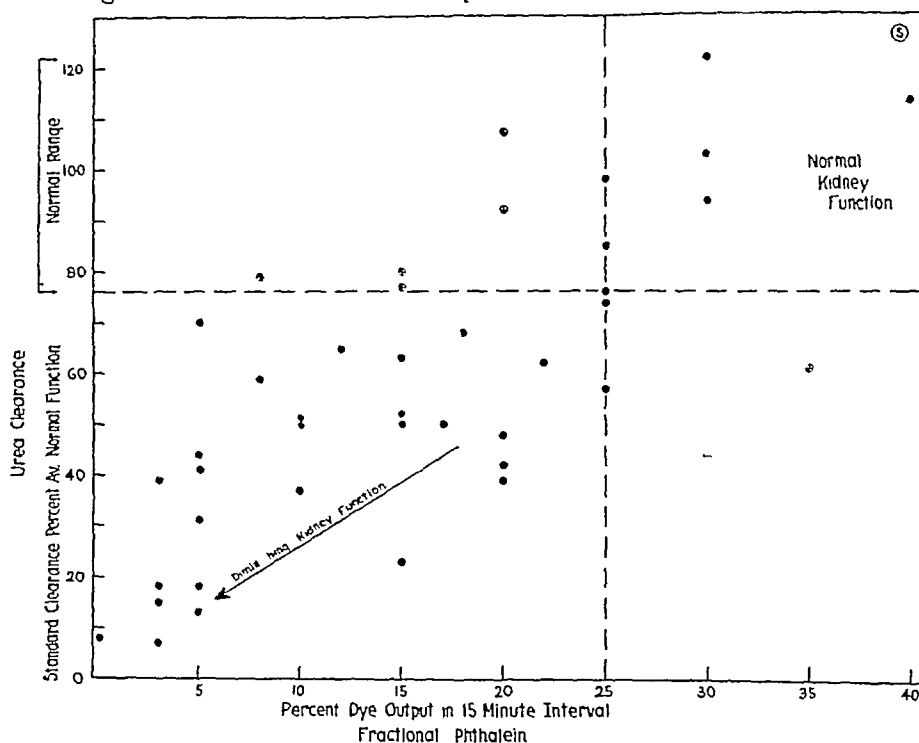
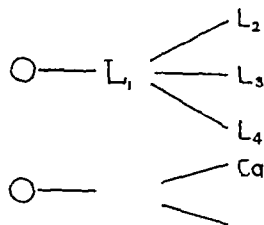


CHART 5

diminished blood flow through the kidneys the 'phthalein excretion is so delayed as to be of little value in estimating renal function. The reverse of this has been observed in cirrhosis where the 'phthalein output may be unusually high because of the inability of the damaged liver to excrete the usual 15-20 per cent of the dye. In the nephrotic stage of Bright's disease the dye output may be normal until late in the course of the illness. During this same period we have observed that other tests of function have also failed to indicate kidney damage. The explanation for this is not clear.

To estimate the accuracy of the fractional 'phthalein test we have done comparative tests of urea clearance* on thirty-eight individuals with varying amounts of renal damage. Chart 5 shows these comparative tests. The 'phthalein test is charted against the abscissa, the per cent of dye excreted in fifteen minutes, while the standard urea clearance expressed in per cent of average normal function is plotted against



CHARTS 1 TO 5

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THE TEACHING OF GYNECOLOGY AT THE
NEW ENGLAND MEDICAL CENTER

BY LOUIS D. PHANEUF, M.D.*

THE Boston Dispensary, established in 1796 has always maintained large out-patient clinics where teaching has been conducted for a great many years. In 1929 the Tufts College Medical School, the Boston Dispensary and the Floating Hospital combined to form the New England Medical Center and at that time the gynecological clinic was organized for the purpose of teaching Tufts medical students. During the past year, 1934, the total number of women treated in the gynecological clinic was 2209 and the total number of visits was 8928. It is felt at Tufts College Medical School that the teaching of gynecology to the third year class should consist largely of the examination of patients and the carrying out of clinic or office procedures. It is further felt that except for seeing living pathology the third year students get very little out of witnessing involved pelvic operations, because on the one hand, this form of teaching is too far advanced for them, and on the other hand, operations performed deeply in the pelvis are difficult for them to see. A vote recently taken at the Tufts College Medical School shows that the undergraduates favor out patient work. During the fourth year an elective course in gynecology is available. One member of the class is assigned for a month to the general clinic at the New England Medical Center, where he works as a regular assistant under supervision.

In order to utilize the large amount of material available, the floor plan has been designed according to the following drawings furnished by the architect.

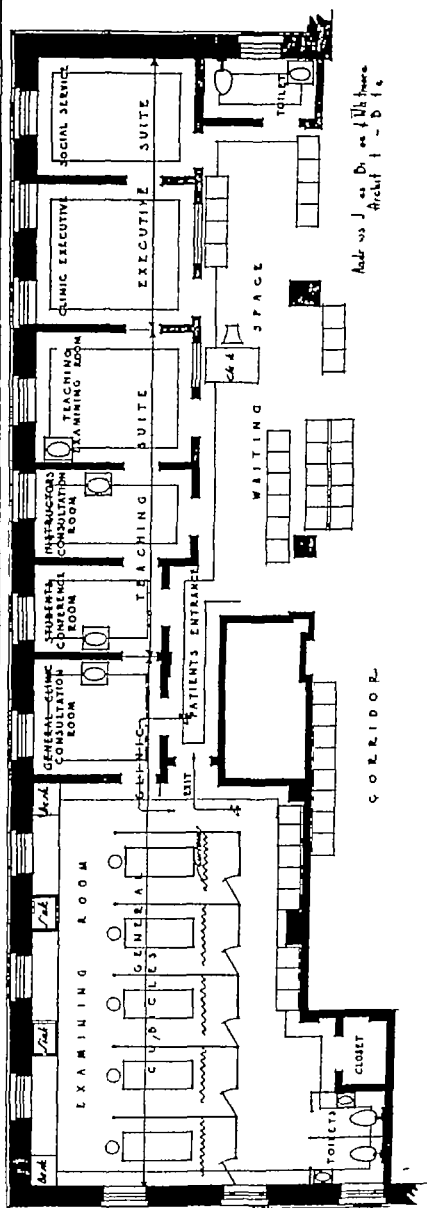
The daily teaching clinics are carried on as follows:

The patient enters the consultation room where the history is obtained by the instructor, she then enters the examining room and is draped. In the meantime the history is discussed with the members of the section. The next step is the examination, first by the instructor and then by the students. After the examination the necessary advice and treatment are given. The group then adjourns to the conference room where further discussion of the case takes place with the idea of clarifying anything that may be vague.

While the teaching is going on other members of the gynecological staff treat the patients in the general clinic, and lesions of unusual interest are demonstrated to the student group. The teaching does not in any way interfere with the progress of the general clinic, which is a unit apart from the teaching suite as shown by the drawings.

A large number of patients, representing a wide variety of gynecological conditions are

Phaneuf, Louis D., Professor of Gynecology, Tufts College Medical School. For record and address of author see "This Week's Issue" page 22.

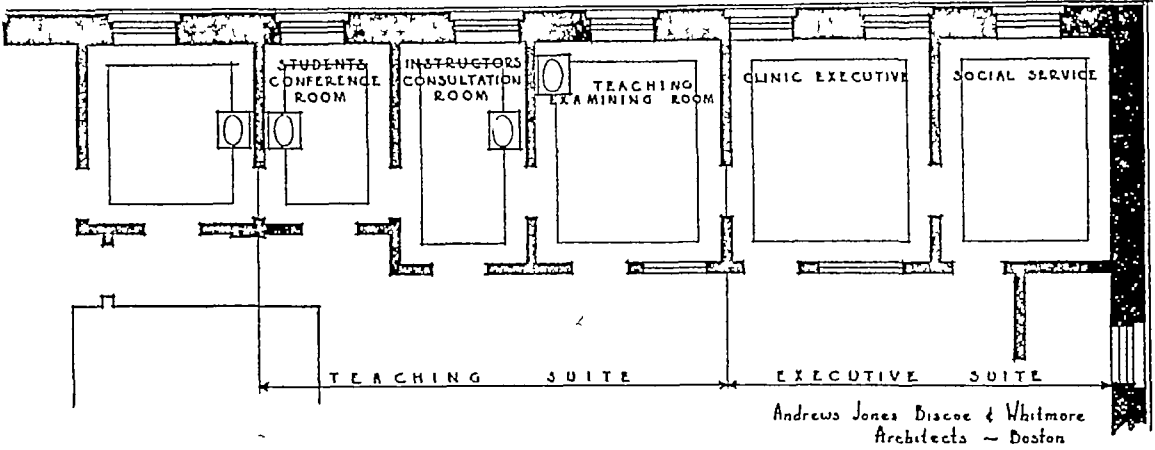


seen during a forenoon. The normal conditions are readily compared with the abnormal and the student has the opportunity of applying the knowledge gained from his lectures at the medical school in the discussion of the diagnosis, differential diagnosis and treatment of each individual case.

First hand experience and individual instruction are obtained by the students, there being three, or occasionally four, assigned to one in-

tory, examination and laboratory findings. The diagnosis, differential diagnosis and treatment are purposely omitted and are brought out in the discussion.

Large fibroid tumors or ovarian cysts are marked out on the abdomen with a skin crayon and may be readily demonstrated to the class. With the patient properly draped, and her eyes covered with a towel, a proctocentesis may be shown without embarrassment to her. Large



structor. The common variety and the rarer gynecological lesions are simultaneously encountered, emphasis being placed upon the more common lesions which these undergraduates will more frequently meet in their later private practice.

Clinical lectures have been given for the past three years. These are held in the latter part of the second semester, once a week for eight weeks, during which time eight important subjects in gynecology are discussed, with the presentation of patients. Each member of the class receives a mimeographed copy of the his-

story, examination and laboratory findings. The diagnosis, differential diagnosis and treatment are purposely omitted and are brought out in the discussion. Large fibroid tumors or ovarian cysts may be seen, together with similar conditions which have been repaired by plastic operations, thereby demonstrating the "before" and "after", and the general condition of patients who have been treated for malignancy, either surgically or by irradiation may be brought to the attention of those present.

This form of teaching in our hands has proved to be very satisfactory.

I wish to thank Mr. Frank E. Wing, Superintendent of the Boston Dispensary, and the architects, Andrews, Jones, Biscoe and Whitmore, for their cooperation in furnishing the architects' drawings.

ELIMINATION OF POSTOPERATIVE PAIN FOLLOWING HEMORRHOIDECTOMY

BY NATHANIEL J. SIMMONS, M.D.*

THE general practitioner is confronted with a few conditions that cause more acute suffering than prolapsed hemorrhoids. The palliative treatment of this anorectal condition by means of suppositories or salves is of no avail in cases where the disease process has resulted in organized tumor formation. The injection treatment has been of inestimable value for moderate sized bleeding and protruding varicose and capillary internal piles but should never be employed when hemorrhoids are large and hypertrophied, acutely inflamed, strangulated, extensively ulcerated, or when the patient suffers from complicating rectal diseases. There-

fore a large percentage of hemorrhoids must be operated upon if the patient is to be relieved.

Many individuals fear a hemorrhoidectomy because of the postoperative pain. Their fears are not unfounded. The pain following this proctological procedure is caused by the sphincter muscles contracting down on the fresh wound, the irritating discharge, the pressure pain against the sphincter muscles on the first evacuation of the bowels, the possible necessity of catheterization or a combination of several of these factors. The surgeon's duty is to eliminate so far as possible these conditions.

The problem which confronts the proctologist is to find a local anesthetic that will render rectal surgery painless or practically so for

*Simmons, Nathaniel J.—Assistant Surgeon, Out Patient Department, Beth Israel Hospital. For record and address of author see "This Week's Issue" page 32.

several days following the operation. If we can assure the patient that the postoperative pain can be mitigated, then rectal surgery will be one of the operative procedures which will not be unnecessarily postponed.

A good local anesthetic must first of all possess a specific affinity for nerve tissue and be retained at the site of injection long enough to perform the operation. The analgesic agent must paralyze the nerve tissue at a low concentration without poisoning the other tissues and the change brought about in the sensory nerve must cease after a certain time without leaving any aftereffects. It must be taken up by the circulation in a detoxified state. When the anesthetic solution is injected, it must not irritate or cause pain, which is also one of the requirements after its action has ceased. It is also important that the solution does not decompose during sterilization.

Various local anesthetic solutions were experimented with in an effort to obtain the desired fulfillment of a painless postoperative convalescence. The injection of novocaine in one per cent solution does not produce this result, although it produces local anesthesia at the time of the operation. Quinine-urea hydrochloride in 3 per cent solution is tremendously painful on and after the injection and the anesthesia lasts only a day or two. A solution of nupercaine (percaine) in 1:1000 dilution is only effective two to three hours. The analgesic solution made of anesthesia 3 per cent, benzyl alcohol 5 per cent, ether 5 per cent, and olive oil 82 per cent gives prolonged anesthesia but was discarded because the injections are extremely painful to the patient and because of objectionable taste in the mouth.

Wheeler¹ used a solution of Benacol (a mixture of five parts each of para amino benzoyl ethyl anil benzoate and phenethylol in ninety parts of rectified oil) which he claimed desensitizes the operative area from three to five days. Gorsch² used the same solution to which he added butesin (butyl para amino benzoate) and a basic procaine, with similar results. A solution containing anucaine, benzyl alcohol, and almond oil which works equally well has also been reported by Gorsch. Best³ does not infiltrate the sphincter muscles with a local anesthetic, preferring to operate under sacral or spinal anesthesia. Postoperative pain was relieved by him in one hundred cases by introducing in the rectum and on the dressing an ointment consisting of three ounces of one and one half per cent carbolyzed vaseline and one ounce of one per cent nupercainol ointment. Ross⁴ and Hertzler⁵ found that Diothane (piperidinopropyl di phenyl urethane hydrochloride), a comparatively new anesthetic, produces an anesthesia lasting from six hours to four days. Frankfeldt⁶ reported that he has obtained an anesthesia in hemorrhoidectomies for four or

five days using a one per cent solution of novocaine followed by an injection of 3 cc. of nupercaine in oil solution into the sphincter muscles.

The most satisfactory local anesthetic in hemorrhoidectomies seems to be nupercaine in oil. The formula is as follows: Nupercaine "Ciba" base 0.5 per cent, phenol 1 per cent, benzyl alcohol 10 per cent, and oil of sweet almond. This solution was made up at the suggestion of Gabriel⁷ for the treatment of fissure-in-ano. It has been used by Simmons⁸ for pruritus ani. This anesthetic produces prolonged anesthesia of the sphincter muscles, causes only slight pain, if any, on injection, gives complete relaxation, and is not toxic in the amounts which have been used. The anesthesia lasts from seven to ten days. The prolongation of anesthesia and nontoxicity is due to the slow absorption of the oil. This solution was used in thirty hemorrhoidectomies, with no postoperative pain in twenty six and only minimal discomfort in four cases. Contraindications to its use are local infection and eczema or possibly an idiosyncrasy to the drug, which have not been encountered in any of these cases.

The operation may be performed at the office if there is only one hemorrhoid, but it is better to hospitalize the patient on account of possible postoperative hemorrhage. The preoperative directions and technique are as follows: A soap suds enema is given the night before the operation, 8 grains of sodium pentobarbital are given two hours before the operation and supplemented by a hypodermic of one quarter grain of morphine sulphate and 1/200 grain of scopolamine an hour later. This allays any fear and excitement that the patient may experience.

The patient is placed in the lithotomy position as the separation of the legs automatically retracts the buttocks and gives excellent exposure. The anal region is shaved, scrubbed with soap and water, and an antiseptic applied. About 10 cc. of a one per cent solution of procaine hydrochloride is injected subcutaneously around the anal canal, and then five to ten cubic centimeters of the nupercaine solution in oil is warmed slightly and drawn up into the syringe fitted with a twenty five gauge needle one and one half inches in length. Three to five centimeters of this solution are injected at the posterior commissure into the posterior and posterior lateral fibers of the external sphincter muscles. The same amount is used anteriorly into the anterior and anterior lateral fibers. Anesthesia is obtained almost immediately and the operation may be begun as there is complete relaxation of the sphincter muscles. The anal skin is now retracted on either side with Allis forceps and the internal hemorrhoids are pulled out of the rectum to be grasped by Pennington forceps. The following is the technique employed: the hemorrhoids and hemorrhoidal feeding veins are dissected from their attach

ments for one-half inch or more depending on the size of the hemorrhoids. Great care should be exercised to prevent injury to the sphincter muscles. Chromic catgut No 1 or woven silk is placed beneath the pedicle, and the entire pile with relaxed mucosa is drawn down and outwards as far as possible. It is then ligated and excised. Enough stump is left to prevent slipping of the ligature. Skin tabs and external hemorrhoids if present are removed at the same operation. It may be necessary to inject one-half cubic centimeter of the anesthetic solution under a skin tab before removal.

A pressure pad is applied to the anus and the patient in a very comfortable state is returned to his room. Liquid diet is prescribed exclusively for two days to prevent cramps or desire to defecate.

Sitz baths are advised twice daily to promote healing. Mineral oil is given morning and night beginning with the third day postoperatively, and the patient is urged to defecate on the fourth day, or four ounces of mineral oil are instilled into the rectum followed in two hours by a soapsuds enema. The patient may be discharged from the hospital on the fifth day.

In the description of the operation it will be noted that the sphincter muscles were not manually dilated. The reasons for not dilating them are as follows: (1) Relaxation over a prolonged period of time is not obtained, (2) the tearing of the muscle fibers results in a fibrosis with possible loss of sphincter tone, (3) infection and rectal hematomas may occur due to excessive trauma.

Precautions which should be borne in mind

when injecting this local anesthetic are as follows: (1) The finger should be inserted into the anal canal to guide the direction of the needle and avoid penetration of the rectal mucous membrane which might cause infection, (2) the oily solution should not be pooled as it may lead to a rather painful induration, (3) any intradermal injection may lead to a slough.

By the use of the above technique and the local anesthetic which has been described, I believe that postoperative pain can be avoided in the average individual.

SUMMARY

In thirty cases of hemorrhoidectomies prolonged anesthesia and relaxation of the sphincter muscles were produced by the use of the local anesthetic nupercaine in oil (Ciba). The convalescence following this local anesthetic is practically painless. The requirements of a good local anesthetic are reviewed briefly. A simple technique for performing a hemorrhoidectomy is described.

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AMERICAN ACADEMY OF TROPICAL MEDICINE

At the meeting of the American Academy of Tropical Medicine in St. Louis on November 20 and 21, the following officers were elected: Dr. Richard P. Strong, of the Harvard Medical School, president; Dr. Wilbur A. Sawyer, director of the International Health Board of the Rockefeller Foundation, vice-president; Dr. Ernest Carroll Faust, of the Tulane University School of Medicine, secretary; Dr. W. W. Cort, of the School of Hygiene and Public Health, the Johns Hopkins University, was reelected treasurer; Dr. William H. Taliaferro, of the University of Chicago, and Dr. Thomas T. Mackie, of the School of Medicine of Cornell University, were elected members of the council. Initiated by the academy, the American Foundation for Tropical Medicine held its organization meeting, electing as president Dr. Isaiah Bowman, president of the Johns Hopkins University, and as executive secretary Dr. Earl B. McKinley, dean of the School of Medicine of the George Washington University. The foundation will be incorporated in the District of Columbia and will

hold its next meeting late in January when a formal program will be adopted for 1936.—*Science*

PUBLIC HEALTH SERVICE

HEALTH OFFICERS' MONTHLY STATEMENT OF VENEREAL DISEASES REPORTED IN NEW ENGLAND FOR OCTOBER, 1935

State	Syphilis		Gonorrhea	
	Cases Reported During Month	Monthly Case Rates per 10,000 Population	Cases Reported During Month	Monthly Case Rates per 10,000 Population
Connecticut	230	1.39	183	1.11
Maine	49	.61	40	.50
Massachusetts	511	1.18	595	1.37
New Hampshire	18	.38	20	.43
Rhode Island	107	1.52	68	.96
Vermont	22	.61	33	.91

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITALANTH MORLEY AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CADOT, M.D.

TRACY B. MALLORY, M.D., Editor

CASE 22011

PRESENTATION OF CASE

First Admission A four year old white American boy was admitted complaining of difficulty in breathing.

Since the age of two years the child had frequent spontaneous attacks of difficulty in breathing associated with wheezing respiration and cough, the character of which was not recorded. These attacks recurred every two or three weeks, each one lasting for about one or two days. There was no associated fever or emesis.

Physical examination showed a well developed and nourished boy who appeared to be comfortable. Except for the presence of harsh breathing throughout both lungs the examination was said to be negative.

The patient was skin tested and found to be sensitive to feathers, horse dander and egg. He was discharged on the eighth day.

A month later an x ray taken in the Out Patient Department showed increased density of the shadows of the lung roots. The lung fields were clear. He received a series of five x ray treatments to the chest with no symptomatic change. Persistent attempts at desensitization were made. Another x ray taken one year after the first exhibited the same increase in hilar markings as well as a decrease of radiance at the left apex. The attacks of asthma continued to occur at frequent intervals thereafter.

Second Admission, nine years later, at the age of thirteen.

For the past few years he had been having asthmatic attacks associated with cough at intervals of two to fourteen days. There was no cyanosis. No note was made of the presence of expectoration. Each episode lasted for about two or three minutes occurred suddenly with out relation to activity and subsided either spontaneously or after inhalation of fumes of burning powder. There were about three such spells a day during the attacks but in the interval between attacks he felt quite well. Two weeks before admission he developed malaise, chilly sensations, and fever. Thereafter he felt fairly well but continued to have an evening rise of temperature to 101° or 102°. He had

no night sweats, ready fatigue or hemoptysis. There was no cough except during the attacks.

Physical examination showed a poorly developed and nourished thirteen year old boy. The larynx and sinuses were negative. There was slight scoliosis to the right in the lumbar region. The patient was pigeon breasted and had a barrel shaped chest. There was slight impairment of resonance at both apices anteriorly and posteriorly. A moderate number of squeaks, wheezes, and musical rales were heard in the right chest. Expiration was not markedly prolonged. The heart was negative. The blood pressure was 100/40.

The temperature was 100°, the pulse 130. The respirations were 30.

Examination of the urine was negative. The blood showed a red cell count of 4,650,000, with a hemoglobin of 80 per cent. The white cell count was 22,000, 84 per cent polymorphonuclears. There were no eosinophils. Repeated examinations of the sputum were negative for tuberculosis. The stools were negative.

X ray examination showed considerable increase in the density and size of the abnormal area in the lung roots. The dense area was mottled and extended from the hilus well beyond the midchest bilaterally. The heart shadow was negative.

The patient had a rather croupy expiratory cough which became productive of thick mucopurulent material with subsequent treatment. The temperature exhibited daily fluctuations reaching 102° and 105° in the evening until the end of the second week, when it began to subside. Thereafter it remained between 98° and 100°. The severity of the cough and attacks of asthma lessened and he was discharged on the twenty third day.

Third Admission, eight years later, at twenty one years of age.

The patient had been treated at the Out Patient Department for a year after his last discharge and then, being somewhat improved, he did not return for six years. During this interval he had infrequent attacks of asthma but shortly before his return he began to have paroxysmal morning cough. Wheezing respiration became fairly constant but was of slight severity. He suffered from no acute attacks at this time. He was treated at the clinic for about a year with little change. There was no evident relationship to season or contact nor had there been any previously. Two days before entry he developed a tickling sensation in his throat and on the following day had several shaking chills, after each of which he felt feverish. There was no exacerbation of his previously existing symptoms.

Physical examination showed a poorly nourished patient with slightly labored and somewhat noisy breathing. There was slight cyanosis of the acral parts. The throat was injected and there was considerable postnasal mucoid

discharge As a result of the scoliosis previously noted there was increased prominence of the left chest posteriorly. The heart was rapid but otherwise negative. The blood pressure was 110/70. The lungs showed normal resonance. There was prolonged expiration, and at the left base posteriorly a slight exaggeration of the breath sounds. Many inspiratory and expiratory musical râles and a few scattered coarse moist râles were audible generally.

The temperature was 103°, the pulse 110. The respirations were 25.

Examination of the blood showed a white cell count of 12,000, 82 per cent polymorphonuclears, 14 lymphocytes and 4 eosinophils. The sputum consisted of mucoid material and repeated examinations for tubercle bacilli were negative. The sedimentation rate was 121 millimeters per minute.

X-ray examination showed that the previously observed lesion had spread to involve both upper lobes. There were some changes in the left lower lobe as well.

Following symptomatic treatment the temperature and pulse returned to normal on the fifth day and there was improvement in the patient's general condition. He was discharged on the tenth day.

Final Admission one month later

Following his last discharge the patient was troubled with a severe racking morning cough which lasted for about half an hour and was productive of large amounts of foamy watery material occasionally thick and mucoid in character. There was no blood present. He felt well at the end of two weeks, but shortly thereafter he became nauseated and vomited twice. He remained in bed for ten days preceding his final admission and his cough became more frequent. His pulse became quite rapid and his temperature often rose to 103°. He felt quite weak but there were no other complaints.

Physical examination showed a sick looking young man sitting up in bed with slightly labored breathing. There was moderate cyanosis but no clubbing of the fingers. The skin was hot and moist. The throat was red and there was a marked mucopurulent postnasal discharge. Chest expansion was forced and there was bulging of the interspaces with expiration. There was dullness over the left chest at the level of the angle of the scapula. The lungs were full of asthmatic wheezes, but no fine râles were audible. The heart was very rapid and there was marked gallop rhythm best heard at the apex. There were no murmurs. The blood pressure was 120/80.

The temperature was 102.6°, the pulse 144. The respirations were 32.

Examination of the urine showed a slight trace of albumin but was otherwise negative. The blood showed a red cell count of 4,000,000, with a hemoglobin of 70 per cent. The white cell count was 23,000, 88 per cent polymorphonuclears. The sputa were mucopurulent and

no tubercle bacilli were found. The nonprotein nitrogen of the blood was 27. Intracutaneous injections of 1, 20,000 old tuberculin showed a negative reaction in forty-eight hours. An electrocardiogram showed a slight inversion of T₁, prominent P₂ and P₃, and a diphasic Q-R-S. There was right axis deviation.

X-ray examination of the chest showed no change from that previously described.

The temperature remained elevated and at the end of the first week it rose to 105°. The throat and tonsils remained inflamed and a slight nonfluctuant bulge appeared on the right side of the pharynx. Respirations were markedly asthmatic and the patient remained cyanotic. Increasing cyanosis was relieved temporarily by an oxygen tent, but the patient failed rapidly and died on the eighth hospital day, sixteen and a half years after the first admission.

DIFFERENTIAL DIAGNOSIS

DR DONALD KING I do not know just why the x-ray treatments were given. In a child of this age with dyspnea an enlarged thymus may have been considered. I do not believe that treatment was given for enlarged hilum glands. I am inclined to assume that at the time of this patient's first admission x-ray treatment was being tried out as a form of treatment of asthma.

At the time of the second admission it is of interest to note that the record says that the musical râles were limited to the right side. It is conceivable that there was at this time localized pressure on the right bronchus from an enlarged gland, but I am assuming that this was a case of bronchial asthma with a bilateral and not a "unilateral wheeze."

At the first admission skin tests were found to be positive, but we are led to believe that these tests did not help in treatment.

The history then is that of a boy who was followed from the age of four to his death at the age of twenty-one. He first came in with what seems to be typical bronchial asthma of two years' duration. There is no evidence of enlarged thymus or inhaled foreign body or enlarged glands pressing on the bronchi. Skin tests showed the patient to be allergic.

He comes back to the hospital at the age of thirteen. He had had fairly severe asthma during the interim and now has a definite barrel chest and pigeon breast deformity. He is brought in because of an acute respiratory infection, with fever, purulent sputum, and an increased white count with a high percentage of polymorphonuclears. Eight years later at the age of twenty-one he comes back again. During six of these eight years he has been comparatively free from asthma. He now returns with an acute infection of the upper respiratory tract as shown by the redness of the throat and the marked postnasal discharge. There were chills at the onset and without much question there was also infection.

lower respiratory tract. The white cell count was 23,000. Following this he was discharged and came back in a month with another acute respiratory infection. The temperature was markedly elevated. There is cyanosis and a red throat. The cyanosis increased definitely, the temperature rose to 105°, and he died a few days after he was admitted for the fourth time.

This is the history then of a severe case of bronchial asthma that went on between the ages of two and twenty-one and was accompanied by spells of acute upper respiratory infection as well as bronchial or bronchopneumonic infection.

In the laboratory there were repeated attempts to prove a diagnosis of pulmonary tuberculosis. Many specimens of sputum were examined for tubercle bacilli but none were found. A tuberculin test with a 1:20,000 dilution was negative. One might wish that the sputum had been examined by special concentration methods, but with as much sputum as was present in this case the chances are overwhelmingly in favor of the usual method of examination being positive if tubercle is very present. From the laboratory standpoint we can consider tuberculosis to be ruled out.

The most interesting part of the history is the description of the x-ray films. The only films available for examination at the present time are the ones taken on his third and fourth admissions. From the description in the history at the age of four years the film showed definite bilateral changes at the hilum. At the age of five years the hilar shadows had increased and the left apex was also somewhat involved. At the age of thirteen years the process had spread out from the hilum beyond the midlung field. At the age of twenty-one both upper lobes were involved and there was also an area of increased density in the left lower lobe. Let us look at the x-rays. I shall give you my interpretation and then let the x-ray department tell you what is wrong with this interpretation. The film taken on the third admission shows definite changes through the upper part of both lungs with pathology also at the left base. This other film is a portable taken at the last admission four weeks later.

DR. AUDREY O. HAMPTON: That was taken two months later.

DR. KING: Is it a portable?

DR. HAMPTON: Yes.

DR. KING: If one had to make a decision from this film alone, I believe that the diagnosis of pulmonary tuberculosis would be justified although the picture is not quite typical of this disease. At the left base I believe there are changes characteristic of bronchiectasis. Can all or most of these changes be due to tuberculosis persisting for seventeen years? Personally, I do not believe so. The x-ray changes seem to me consistent with what we might expect in a very severe asthmatic, and I shall be much interested to see whether this is true.

Dr. Hampton has been much interested in this problem of nontuberculous pulmonary fibrosis, and will, I know, discuss this problem for you.

May I show a few other cases, all of whom had asthma with definite x-ray changes and postmortem examinations. The first case is that of a woman of forty-five. Her asthma began at the age of twelve, but she had no severe symptoms until a year before her death. The x-ray changes are much like those seen in the case under discussion today. Autopsy showed extensive pleuritis, marked nontuberculous pulmonary fibrosis and emphysema. There was no histological evidence of tuberculosis.

The next case had asthma starting at the age of thirteen and continuing until her death at the age of fifty-five. At the last admission her symptoms were largely cardiac. Autopsy showed extensive sclerosis of the pulmonary vessels with marked thickening of the intima. There was also marked nontuberculous pulmonary fibrosis. The heart was very large and was definitely a cor pulmonale. There was a very large liver and massive edema of the extremities. In the oblique film many large emphysematous blebs are shown. It is interesting to speculate as to whether the boy in today's discussion would have developed these blebs and definite blood vessel changes if he had lived longer. There is no x-ray evidence of emphysematous blebs in his lungs at the time of his death.

The next case is a man of fifty-five whose asthma began at the age of thirteen. At the time of examination the x-ray showed marked fibrosis, and the question was raised as to the diagnosis of tuberculosis. The ordinary sputum examination showed no tubercle bacilli and special concentration methods failed to reveal their presence. Finally, however, the sputum was injected into a guinea pig and tubercle bacilli were found. Since this time there has been a definite increase in the pulmonary process and the x-ray now shows a large tuberculous cavity at the left apex. This then is a case of pulmonary fibrosis which is probably on a tuberculous rather than an asthmatic basis. No autopsy has been performed.

The final case is one of nontuberculous fibrosis and there was no history of asthma. As you will see, the film shows marked fibrosis in the upper lobes and the autopsy report was extensive bronchiectasis with nontuberculous pulmonary fibrosis.

Returning now to the patient whom we were considering, I will ask Dr. Hampton to demonstrate the x-ray changes.

DR. HAMPTON: The first thing that occurred to me after viewing these films was that the epiphyses had not closed. He is twenty-one. He must have been a cretin. He also had a very queer back. I do not understand it at all. It looks as though he should have had some type of arthritis but I see no mention of that. His joint spaces in all the dorsal vertebrae were

markedly narrowed and coming down to the lumbar area he shows the same thing. That may be congenital, just as the failure of closure of the epiphyses of the vertebrae may be due to congenital defect.

I would follow Dr King's reasoning exactly. If I had just this film I would say tuberculosis and bronchiectasis. If I had fluoroscoped him I should probably also add that he had emphysema, that is, if I saw the typical diaphragmatic excursion of emphysema, or asthma, and then I would say he had an enlarged heart.

The scoliosis here prevents one from interpreting the exact shape of the heart, but certainly the right border is prominent, so I might assume that the right side was enlarged. The cardiac change is more obvious in a later film. This film looks as if it were taken back down and the heart is magnified, but the right curve is definitely more prominent than it should be.

DR KING: So you think it is right-sided enlargement?

DR HAMPTON: Yes, probably.

DR KING: If any of the cardiac men are here it would be interesting to have them speak about the electrocardiogram and state whether they think this is definitely a cor pulmonale. I think it is unusual to get a cor pulmonale without more in the lung fields. My feeling is that there will be some but not very marked right-sided cardiac hypertrophy.

DR HAMPTON: I might add that enlargement of the right side could be due to congenital heart disease. I have no definite differential point from the study of these films.

DR KING: You think the picture from the beginning may be congenital heart, or do you think there is bronchial asthma without congenital heart?

DR HAMPTON: I think your previous opinion is more correct.

DR KING: Dr Hampton probably knows something about this case and is a little cautious. Besides the bronchial asthma and fibrosis I should say there was bronchiectasis.

DR HAMPTON: I agree.

DR KING: At the same time there is probably pneumonia to account for the fever and other symptoms.

Are there any other conditions we have to think about? I do not believe so. Malignancy, fungus infection, syphilis, and silicosis are thrown out. As far as we know there is no sign of thrombi emboli or infarcts coming into the picture at the end. So that my diagnosis would be bronchial asthma. I expect that Dr Mallory will find the changes consistent with bronchial asthma, thickening of the bronchi with narrowed lumina and that some of the bronchi and many of the bronchioles are plugged by the definite asthmatic secretion. Then I should think there was emphysema, bronchiectasis of the left lower lobe, bronchopneumonia, probably and perhaps some acute infection in

the upper respiratory tract. I do not believe there is enough to make a diagnosis of retropharyngeal abscess, although there is mention of some bulging in the right pharynx.

DR HAMPTON: Would you like to localize the disease a little more? Do you think it was definitely within the upper lobes?

DR KING: Yes.

DR HAMPTON: With emphysema in the lower lobes? The fibrosis is more localized to the upper lobe than most of our fibrosis cases have been. The right upper lobe should be very small and sclerosed with fibrous tissue and this apparent localization is the only out, as far as I can see. It is too sharply localized for those cases which we have been studying and I am wondering if Dr Mallory will not say that the dullness represents unresolved pneumonia or fibrous organized pneumonia.

DR KING: He has had these changes going on from four years old.

DR FRANCIS M. RACKEMANN: This x-ray picture is not typical of the ordinary asthmatic. I should say that there was some local process going on in the upper lobes to account for the fibrosis. The history suggests to me one of repeated respiratory infection and I should suppose that Dr Mallory would find (I agree with Dr Hampton) more or less bronchopneumonia in these upper areas. Furthermore, I do not believe Dr Mallory will find much plugging of the bronchi. The boy was pretty sick and I think his death was from pneumonia rather than asthma.

To change the subject a little, this boy was rather a pet of the clinic. My impression is that when he came to the clinic as a young boy, he had a marked deformity of his chest and a deformity in the spine as well. He was always cyanotic, always had a wet nose, and was always a little short of breath. So far as his asthma goes, he has behaved fairly typically. He had positive skin tests and in the hospital he was relieved promptly so that he could be discharged in eight days. He responded well to changes in his environment. The interesting point is that at twenty-one his asthma was much improved and that is more or less the rule with people who begin to have asthma early. They outgrow it.

CLINICAL DIAGNOSES

Asthma
Emphysema
Secondary polycythemia
Cor pulmonale

DR DONALD KING'S DIAGNOSES

Bronchial asthma
Bronchiectasis
Bronchopneumonia

ANATOMIC DIAGNOSES

Emphysema, focal
Bronchiectasis
Pulmonary fibrosis
Bronchopneumonia

the allergic state may also predispose to organization rather than resolution

DR HAMPTON Do you make any differentiation of the bronchiectasis at the left base and that within the upper lobes? Is there any difference in the character of the bronchial disease? For instance, do you not show dilatation of the bronchi due to fibrosis just as you showed ruptured alveoli due to fibrosis? Is this bronchiectasis an indication of the fibrosis?

DR MALLORY I think that is one of the not infrequent backgrounds of bronchiectasis

DR HAMPTON It is the cause of bronchiectasis?

DR MALLORY It is one of the causes, not the only one, but I feel sure it is one cause

DR HAMPTON We would have seen the blebs if lateral and oblique views had been taken Examination of this type of patient is not complete until these views have been taken

CASE 22012

PRESENTATION OF CASE

Eight months before entry the patient a thirty-one year old American housewife, gradually developed frontal headaches, occurring at first at infrequent intervals, usually in the morning, and becoming more frequent and more severe At about the same time she noted a diminution in vision, at first transient but for the past six months permanent She had some difficulty in reading, but could read fine print for a short time She noticed that she could not see so well out at the side of her eyes Her headaches continued and for the past three months were constant, being present both day and night During the past two months she had some nausea and vomiting She developed weakness and for three weeks before admission remained in bed because of her headaches

Her family and marital histories are non-contributory

Two years before entry her menses, which had been perfectly regular and normal, stopped Since then she had occasional hot flashes There were no other menopausal symptoms

Physical examination showed a well-developed and nourished woman complaining of frontal headache Her chest and abdomen were negative

Neurological examination showed a bitemporal hemianopsia There was no disturbance in smell Reflexes were active on both sides and perhaps slightly more so on the right

The temperature was 98°, the pulse 78 The respirations were 20

Laboratory examination of the urine was negative Examination of the blood showed a red cell count of 4 000 000 with a hemoglobin of 60 per cent The white cell count was 8200, with 68 per cent polymorphonuclears A Hinton test was negative A lumbar puncture showed an initial pressure of 340 which went down to 200 after 10 centimeters were removed

The fluid showed 4 lymphocytes, positive alcohol and ammonium sulphate tests, a total protein of 103 milligrams, and 56.7 milligrams of sugar The gold sol was 0011233310

On the third day while being examined she had a sinking spell during which she became unconscious It was later found that she had had these attacks before On the fourth day a right transfrontal craniotomy was performed

Her condition on the day following operation was quite precarious She had sugar in her urine which was controlled by insulin She received constant intravenous 5 per cent glucose Her temperature rose to 104°

Lumbar punctures performed on the fourth and sixth postoperative days revealed grossly bloody fluid The pressure reached as high as 550 She rapidly failed and died on the sixth postoperative day

DIFFERENTIAL DIAGNOSIS

DR EDWIN M COLE The history is of a young woman who began having headaches which became ever more frequent and severe and eventually were associated with vomiting Such a story is consistent with gradually developing increased intracranial pressure At the time that the headaches started she noted a diminution of vision This symptom often, or one might say regularly, follows increased intracranial pressure of long standing where there has been papilledema for a long time, and a consequent secondary optic atrophy In this case, however, the visual disturbance seems to have started almost as soon as the increase in intracranial pressure, suggesting a direct or primary interference with the visual mechanism, rather than one secondary to pressure of long standing Moreover, according to the history, the patient noticed that she particularly found it hard to see out to the side, which suggests a bitemporal hemianopsia This suggestion is borne out by such a finding in the neurological examination We know that a lesion causing bitemporal hemianopsia must be at or near the optic chiasm.

In considering visual disturbances we must always think of syphilis as an etiological agent The history of gradually failing vision is not infrequently met with in central nervous system syphilis It is occasionally associated with increased intracranial pressure, as in rather acute syphilitic meningitis In such cases, however, there is usually a rather widespread cranial nerve involvement which is notably lacking here, and the visual field changes are those of concentric constriction of the fields rather than a bitemporal hemianopsia Moreover, the spinal fluid of syphilitic meningitis has a high cellular content and a positive Wassermann reaction, which is not true in this case Therefore, I do not think that syphilis need be seriously considered

Of course, the most common cause of bitem-

poral hemianopsia is enlargement of the pituitary itself, as in tumors of the pituitary gland, or the much rarer tumor arising from the sella tureica. Such patients often complain of visual failure, though occasionally a bitemporal hemianopsia of fairly long standing is overlooked by patients. In addition, they often have considerable headache. They do not have however, an increase in intracranial pressure except in those rare cases of rather long standing in which the tumor extends upward into the third ventricle. Thus, from the usual pituitary tumor, we would not expect the increased intracranial pressure and vomiting which are important features of this case. The x ray findings in pituitary tumors are typical in showing definite distortion of the sella tureica. In this case the x rays are said to be somewhat suggestive of some enlargement of the sella but apparently there has been no destruction of bone no erosion of the floor of the sella or of the clinoids. Moreover, the presence of increased intracranial pressure suggests that the pituitary is not primarily at fault. I should feel then that a tumor of the pituitary gland or sella tureica is unlikely in this case.

We still must explain then bitemporal hemianopsia associated with a lesion causing increased intracranial pressure which is not inflammatory. A neoplasm involving the stalk of the pituitary, thus pressing on the optic chiasm and also extending upward into the third ventricle so as to block the escape of spinal fluid from the third or either of the lateral ventricles, would, it seems to me, best account for the picture we have here.

A few other findings may throw light on this case. The increase in total protein in the spinal fluid is consistent with neoplasm. An interesting finding is the glandular disturbance suggested by the cessation of the patient's menses, and possibly by the glycosuria before death. These may be sequelae of involvement of the hypothalamus, thus reinforcing our feeling that the lesion may spring from the floor of the third ventricle. Finally we learn that the patient had had periods of unconsciousness during her illness, and though such are met with in many cases of brain tumor they are very frequently associated with tumors of the third ventricle.

In this region cystic tumors possibly springing from embryonal rests, as Rathke pouch tumors, are fairly common. This may be such a one.

CLINICAL DIAGNOSIS

Brain tumor

DR EDWIN M. COLE'S DIAGNOSIS

Cystic tumor of the floor of the third ventricle.

ANATOMIC DIAGNOSES

Pituitary adenoma
Operative wound Craniotomy
Hydrothorax, bilateral
Bronchopneumonia.
Pulmonary atelectasis
Pulmonary congestion
Cholelithiasis
Follicular cysts of the ovary, multiple
Cystitis, acute

PATHOLOGIC DISCUSSION

DR CHARLES S. KUBIK. The tumor in this case was a large encapsulated one 4 by 4 by 3 centimeters. It extended upward from the sella between the subthalamic structures of the two hemispheres, spreading them apart and obliterating the third ventricle. Its upper portion covered the foramina of Monro. The lateral ventricles were enlarged to about twice the normal size. This enlargement was obviously the result of almost complete obstruction to the flow of cerebrospinal fluid between lateral ventricles and aqueduct. The findings explain the elevation of intracranial pressure, which as Dr. Cole has remarked, is not often observed with tumors in this region. It occurs only when the tumor is unusually large and may fail to occur with tumors not very much smaller than this one.

The optic chiasm, anterior to the tumor, was very badly damaged and I should suspect that all the decussating fibers were destroyed. The sella was enlarged and the floor destroyed so that nothing but the dura separated the tumor from the sphenoid sinus. These changes in the sella were so marked that it is most surprising that the x ray plates of the skull were not more definite. Without definite x ray evidence Dr. Cole naturally came to the conclusion that the affair was probably a suprasellar cyst, a tumor which usually does not produce enlargement of the sella.

Microscopic examination revealed pituitary adenoma.

DR. TRAUB B. MALLORY. Very little of importance was found outside the head. There was marked pulmonary congestion and edema with a slight bilateral hydrothorax. A terminal bronchopneumonia was just beginning to be evident. The gallbladder contained a stone and there was an acute hemorrhagic cystitis of the urinary bladder. The ovaries were examined with some care and showed very numerous follicular cysts many primordial follicles and several follicles in various stages of ripening. No corpora lutea were found. The endometrium appeared to be in the resting phase, showing neither proliferation nor secretion.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$5.00 per year in advance postage paid
for the United States Canada \$7.04 per year \$8.52 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass.

WHAT SCHOOLS SHOULD BE APPROVED?

In the Division of Civil Service and Registration at the State House in Massachusetts there are eleven licensing groups, the activities of whose licentiates extend from massage of the scalp to chiropody, with intermediate fields more or less comprehensively included, overflowing into pharmacy, veterinary medicine, embalming and certified accounting.

Competence in some of these fields is tested by examination only, as in pharmacy, veterinary medicine and accounting. Admission to examination for licensure to practice in the other fields must be preceded by attendance at an educational institution, a "school" which gives special preparation for the practice in that field.

It is worth while to notice the kind of school from which candidates will be accepted in each case. For chiropody, it must be a "reputable" school, but what is meant by a reputable school is not defined in the statute. For dentistry, the school must be "reputable" and the statute defines what is to be regarded as a reputable dental school, for optometry, the school must be "approved by the board", for nursing, the

school must be "approved by the board", for embalming, the school must be "approved by the board". Even for the latest field for which a board of registration was set up in 1935, hairdressing, the school must be "approved by the board". For barbering, the school must be "properly equipped and conducted" and requires for its establishment a permit from the board which may be revoked if the board sees fit. For medicine only, the school may be conducted without any regard to the approval or disapproval of the board. Why is it that all these other groups have been able to secure from the legislature this protection for the public in the field in which they are interested, and medicine year after year asks protection for the public and cannot get it? It is the right of every physician and of every citizen to know why, and if the answer does not lie on the surface it should be dragged out into the light of day.

Is medicine the least in importance of these groups? Is the field of medicine one in which the issues are of slight significance in the welfare of the state? Other groups indeed, have to do with the health of the people, but who needs more knowledge, who requires greater skill, who has a heavier responsibility than the physician? Who, in his field, has greater power in the matter of life and death than the physician? Yet the embalmer and the hairdresser must come from schools approved by their respective boards. Not so the physician, a diploma mill will do for him.

The answer is not far to seek. In states in which there are no medical schools there has been no hesitation on the part of the legislature in giving the protection which has been sought. It is in states in which there are medical schools that there has been legislative hesitation, but except in Massachusetts the protection of the people has been paramount. Here the delay, and it is merely delay though all too long drawn out, is due to the presence in the state of medical schools which claim it is to their interest that this protection of the public should not be given. The issue is clear, this fact is known, the public must be informed as to what is at stake. It is the duty of the physicians to make clear to the legislature their desire for the protection of the people in the field in which they are practicing. It is their duty to insist on this protection.

Article XIX of the Declaration of Rights of the Constitution of the Commonwealth reads as follows: "The people have a right, in an orderly and peaceable manner, to assemble to consult upon the common good, to give instruction to their representatives, and to request of the legislative body, by way of addresses, petitions, or remonstrances, redress of the wrongs done them, and of the grievances they suffer." No one knows as do the physicians how much suffering unqualified practitioners cause. If they know, let them speak.

JAMES HENRY BREASTED

On December 2, 1935, in New York, died a man of particular importance to students of the early history of medicine—James Henry Breasted. Long regarded as an authority on the history of the ancient peoples of the Near East, particularly those of Egypt, Breasted reached a high point in his long academic life with his translation of the *Edwin Smith Surgical Papyrus*. From the viewpoint of the Egyptologist, this work threw new light on Egyptian philology and confirmed the impression, gained by scholars of the past that the people of the Nile were empiricists. For the medical historian, Breasted's brilliant translation completely revolutionized all previous concepts of pre-Hippocratic surgery. For the contents of the *Edwin Smith Papyrus* were disclosed, no one knew that scientific surgery existed in the IV Dynasty (2900 B.C.) or that men of that period could think clearly and rationalize their ideas in the spirit of modern times. The fine orderliness of the case histories surprised even the learned Egyptologist as is evinced by Breasted's remarks in his preface:

"I felt as if I had been peering through a newly revealed window, opening upon the once impenetrable gloom enveloping man's earliest endeavors to understand the world he lived in. Were it not for Breasted, the knowledge of our medical 'Oriental Heritage' might for years have been delayed.

The translator, in dealing with an obscure language, has several courses open to him. He may give a literal rendition, translate the original idea into what he conceives to be a current meaning, or he may transliterate into correct but, nevertheless, unimpaired modern colloquial English. All have their faults and Breasted, in his translation of the *Edwin Smith Surgical Papyrus*, avoided each of them. Not only did he summon technical help in regard to particular words from his friends in the medical profession, but he culled the "Ancient Records of Egypt" and made full use of the great Berlin 'Wörterbuch der ägyptischen Sprache' in order to arrive at more precise meanings. In spite of this meticulousness, he retained a remarkable atmosphere of the ancients, not unlike that of the King James version of the Bible. Instead of, "If you examine anyone with a dislocation," he makes the unknown Egyptian surgeon a more vivid personality: "If thou examinest a man having a dislocation." The illusion of sitting at the feet of the "Ancient Teacher" is thereby retained. Breasted did for the *Edwin Smith Surgical Papyrus* what Edward Fitzgerald did for the "Quatrains" of Omar Khayyám.

Thus is ended the career of a scholar and scientist, and, we might add, a poet. During the Middle Kingdom in Egypt, a certain noble in

enumerating his own virtues, inscribed on the walls of his tomb "I gave bread to the hungry, beer to the thirsty, clothes to the naked." Could there not as well be inscribed on James Henry Breasted's "House of Eternity" "I gave to them the wisdom of the past?"

THE ONE HUNDRED AND FIFTY FIFTH
MEETING OF THE MASSACHUSETTS
MEDICAL SOCIETY JUNE 8, 9 AND 10,
1936

For the third time in its history the annual meeting of the Massachusetts Medical Society will be held in Springfield. This is especially gratifying because the Hampden District Medical Society with a membership of well over three hundred maintains high standards of professional and civic activities and the city is noted for its hospitality. The hospitals which represent in a definite way the standing of its physicians have over eleven hundred beds and will provide abundant material for clinics.

The hotel accommodations are ample and the local committee of arrangements together with the state society officials are developing programs of great excellence for the instruction of the doctors and the entertainment of the guests. When the 1926 meeting was held in Springfield the Society elected for its president, for the then ensuing two years, Dr. John Matthews Birnie. His administration made a notable contribution to medical history in Massachusetts in the creation of an endowment for a home for the Society. In course of future years, this will grow under the able management of our treasurer, Dr. Charles S. Butler. The fund now amounts to about fifty thousand dollars and will be available whenever the Boston Medical Library is in a position to utilize the rooms now occupied by the Society.

Another interesting feature of the meeting in 1926 was the realization of the ambition of Dr. James S. Stone, who, in association with Dr. David Parker of Manchester, New Hampshire, devised the plan for the New England Medical Council which was worked out during this session. This organization was the constructive factor in bringing the several New England State Medical Societies into more harmonious relations. For several years meetings were held for the discussion of problems of common interest. One result was the association of New Hampshire and Vermont in the publication of the proceedings of these two state societies in *The New England Journal of Medicine*.

Springfield doctors are progressive and resourceful and may be considering the adoption of plans which will give to the parent society suggestions for other methods to increase the influence of the medical profession in this part of the country. The year 1936 will be an important period in the history of Springfield, for in May the city will celebrate the three

hundredth anniversary of its founding, and there will be at hand much of interest to visitors

The doctors have been studying the medical history of the city. Some papers have been written and others are in preparation which when published will be noteworthy. This work has been sponsored by the Springfield Academy of Medicine.

These references to the Springfield meeting will be followed by a series of editorials, prepared by the Chairmen of the Scientific Sections, which will inform the Fellows of the character and scope of the scientific papers and discussions. These men are leaders in their several departments and their announcements warrant careful attention.

The Committee of Arrangements will give detailed accounts of the social features of the meetings.

Two addresses will be of particular interest. The Annual Oration by Dr. Reginald Fitz will cover significant phases of medical history. His reputation is a guarantee of the entertainment in store.

The Shattuck Lecture has always been an important contribution to the program. Although no announcement of the speaker has been made, the committee in charge of the selection has always provided an eminent contributor to medical literature. As soon as the committee releases this information, it will be published.

The Committee of Arrangements will publish from time to time details of what is being prepared. Read the *Journal* for this information and set aside June 8, 9, and 10 for a three days' vacation and postgraduate instruction.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

SWETT, PAUL P. M.D. University and Bellevue Hospital Medical College 1904. F.A.C.S. Attending Orthopedic Surgeon, Charlotte Hungerford Memorial Hospital, Torrington. Consulting Orthopedic Surgeon, Hartford Hospital, Hartford, Newington Home for Crippled Children, Newington, Litchfield County Hospital, Winsted, Manchester Memorial Hospital, South Manchester, Bristol Hospital, Bristol, Rockville Hospital, Rockville, Windham Community Hospital, Willimantic, Backus Memorial Hospital, Norwich. Consulting Surgeon, New Britain General Hospital, New Britain. His subject is "A Form of Sclerosing Osteomyelitis Following Fractures of the Long Bones." Page 1. Address 4 Atwood Street, Hartford, Connecticut.

JOSLIN, ELLIOTT P. B.A., M.A., M.D. Harvard University Medical School 1895. Medical

Director, George F. Baker Clinic, New England Deaconess Hospital. Address 81 Bay State Road, Boston. Associated with him is

LOMBARD, HERBERT L. A.B., M.P.H., M.D. Bowdoin Medical School 1915. Director, Division of Adult Hygiene, Massachusetts Department of Public Health. Assistant Professor of Hygiene and Public Health, Tufts College Dental School. Address 100 Nashua Street, Boston. Their subject is "Diabetes Epidemiology From Death Records." Page 7.

HERRICK, JAMES B. A.B., M.A., LL.D., M.D. Rush Medical College 1888. Professor of Medicine Emeritus, Rush Medical College of the University of Chicago. Consulting Physician, Presbyterian Hospital, Chicago. Formerly, Attending Physician, Presbyterian Hospital and Cook County Hospital, Chicago. His subject is "The Successful Doctor and the Human Side of Practice." Page 9. Address Peoples Gas Building, Chicago, Illinois.

LEARY, TIMOTHY A.M., M.D. Harvard University Medical School 1895. Medical Examiner, Suffolk County. Professor of Pathology, Tufts College Medical School. His subject is "The Death Rate from Alcoholism." Page 15. Address 784 Massachusetts Avenue, Boston.

CHAPMAN, EARLE M. B.S., M.D. Johns Hopkins University Medical School 1929. Member of Staff, Massachusetts General and Chelsea Memorial Hospitals. Assistant in Medicine, Harvard University Medical School. His subject is "Further Experience with the Fractional 'Phthalein Test'." Page 16. Address 66 Commonwealth Avenue, Boston.

PHANEUT, LOUIS E. Ph.D., Ph.C., (Hon.) Sc.D., M.D. Tufts College Medical School 1913. F.A.C.S. Professor of Gynecology, Tufts College Medical School. Gynecologist and Obstetrician-in-Chief, Carney and Malden Hospitals. Surgeon, Department of Gynecology, New England Medical Center. Consulting Gynecologist, Beth Israel Hospital, Boston, Leonard Morse Hospital, Natick, Henrietta D. Goodall Hospital, Sanford, Maine, Noble Hospital, Westfield, and Attleboro Hospital, Attleboro. Consulting Gynecologist and Obstetrician, Fall River General Hospital, and St. Anne's Hospital, Fall River. His subject is "The Teaching of Gynecology at the New England Medical Center." Page 19. Address 270 Commonwealth Avenue, Boston.

SIMMONS, NATHANIEL J. M.D. Tufts College Medical School 1926. Assistant Surgeon, Out-Patient Department, Beth Israel Hospital. Assistant Instructor, Tufts College Medical School. His subject is "Elimination of Postoperative Pain Following Hemorrhoidectomy." Page 20. Address 371 Commonwealth Avenue, Boston.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNICOLOGY*

C. J. KICKHAM M.D., Chairman
54 Commonwealth Ave., Boston Mass.
R. S. TITUS M.D., Secretary
472 Commonwealth Ave., Boston, Mass.

THE VALUE OF ROENTGENOGRAPHY IN ADVANCED STAGES OF PREGNANCY

Roentgenology has made rapid strides within recent years and has become a valuable adjunct in the diagnostic armamentarium of the obstetrician also a therapeutic guide. The value derived is proportionate to the extent to which it is utilized and is enhanced by the cooperation of the Clinical Staff with the roentgenologist.

We may divide the problems requiring the aid of roentgenology into two groups both particularly important in the latter stages of pregnancy

- 1 Maternal
- 2 Fetal

1 Maternal

A Pelvic

Types of pelvis
Injuries
Infections
Neoplasms involving the bones
Separation of the symphysis pubis
Measurements

B Uterine

Tumors
Placenta praevia
Hydramnios

C Urinary

Pyelitis
Pregnancy, hydronephrosis
Calculi
Congenital abnormalities and other conditions

D Pulmonary

Tuberculosis
Congestion
Nontuberculous lesions

E Cardiovascular

Decompensation
Valvular lesions
Congenital anomalies

F False pregnancies

The roentgenographic study of the pelvis reveals the type of pelvis with which we are dealing. Caldwell and Molloy classify the pelvis on a morphological basis into the four following groups

- 1 Gynecoid
- 2 Anthropoid
- 3 Android
- 4 Platypelloid

They believe that all of these types bear a definite relation to the engagement of the fetal head and have a resultant effect on labor.

Deformities resulting from congenital abnormalities or metabolic diseases such as rickets, osteomalacia and hyperparathyroidism (osteitis fibrosa cystica) are easily recognizable.

Posttraumatic changes in the pelvis and the results of inflammation and neoplastic changes are encountered. Among these may be mentioned old fractures healed and active tuberculosis, especially of the hip joint, osteomyelitis of any of the pelvic bones, primary or metastatic neoplasms.

The demonstration of the separation of symphysis pubis or of abnormal mobility of the pubic bones is of great value to the obstetrician.

Roentgenographic methods of measuring the female pelvis are well recognized procedures and have proved more accurate than the external measurements. These methods are of two types, (1) linear, which is at present the one most commonly used and (2) the volumetric method advocated by Dr. R. P. Ball.

From my observations the roentgenologist by stereoscopic study can usually determine the relation and proportion of the fetal head to the pelvis without the aid of direct measurements.

Uterine tumors and ovarian cysts are often demonstrated but with greater difficulty than in nonpregnant individuals because the use of opaque media is restricted during pregnancy.

Several methods are employed to determine the presence of placenta praevia. This condition can occasionally be demonstrated in the plain film by the presence of a semilunar area of increased density in the lower portion of the uterus. The injection of a small amount of sodium or strontium iodide (two and a half per cent) in the bladder will reveal a distinct displacement of the fetal head away from the bladder due to the interposition of the placental mass. This is a very helpful and harmless procedure.

Amniography The injection of strontium iodide into the amniotic fluid advocated by Menees, Müller and Holly is regarded as a dangerous procedure, although it beautifully outlines the placenta. By this method the sex of the fetus can sometimes be determined.

Hydramnios is characterized roentgenographically by the disproportionate enlargement of the uterus compared with the size of the fetus. Intravenous urography has simplified and

* Series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

expanded the study of the physiological changes of the urinary tract during pregnancy. These are enlargement of the kidneys, dilatation of the renal pelvis and calices, more common on the right side, dilatation, kinks, outward displacement of the middle third of the ureters and pressure on the bladder. From these physiological changes various pathological conditions may result.

Pyelitis is a common complication of pregnancy. Although this condition cannot be readily recognized on the roentgenogram, frequently a diagnosis can be made from the characteristic fuzziness in the outlines of the calices and pelvis. It is important to note the normal involution of the urinary tract which takes place promptly after delivery.

Congenital anomalies, the presence of calculi, tuberculosis and tumors of the urinary tract merit the same consideration as in the non-pregnant individual.

Pregnancy has a deleterious effect on pulmonary tuberculosis and roentgenology undoubtedly is the most reliable method we have in following the progress of the infection. The same applies to nontuberculous lesions as well, such as bronchiectasis, lung abscess, etc. One should not misinterpret the physiological increase in the pulmonary markings during pregnancy.

Changes in the cardiac measurements whether resulting from progressive failure or improvement following cardiac therapy are noted. The effect of the elevated diaphragm on the contour of the heart is still a disputed question.

Occasionally anxious women present themselves with all the signs of an advanced pregnancy. A simple radiographic examination will indicate that the pregnancy was falsely suspected.

2 Fetal

With the progress of pregnancy to the latter stages, the fetus itself presents a group of problems:

- A Single and multiple pregnancies
- B True position and presentation of fetus
- C Disproportion of the head
- D Malformations and maldevelopments
- E Size of fetus and its relation to viability
- F Intrauterine death of fetus

Roentgenographically it is simple to differentiate the various positions. Prior to the engagement of the presenting part the position of the fetus may change at any time. We have observed a fetus change position five to six times within one hour during a pyelographic examination.

Stereoscopic examination assists in further visualizing the position of the presenting structures as they engage in the pelvis. Thus the head may be seen engaged in any one of the oblique diameters, anterior or posterior position.

The same applies to the various other presentations. The only time the fetal head is permanently engaged is during active labor.

Malformations of the fetal skeleton are sometimes demonstrated in utero.

Monstrosities are easily discernible, the most common, anencephalon, is characterized by the absence of the normal contour of the head which is small and deformed with a rudimentary cervical and shortened thoracic spine.

In hydrocephalus the head is very large, the cranial bones are thin, the sutures considerably widened, and the fontanelles indistinct.

In breech presentations where the head lies in the fundus it may appear abnormally large. This apparent enlargement is a photographic illusion because the head in the abdomen lies at a greater distance from the film, as compared with the head lying in the pelvis. This may simulate hydrocephalus which can easily be ruled out, however, by observing the sutures which are not widened and the presence of clearly outlined fontanelles.

As previously pointed out, stereoscopic studies and measurements are of considerable value in deciding the question of disproportion in which the obstetrician is vitally interested.

Death of the fetus. Fetal death is indicated by the overlapping of the cranial bones ("Spaulding's Sign"), the head is small and the vertex is pointed. These changes are due to intrauterine cranial postmortem changes, which can be demonstrated roentgenographically twenty-four to seventy-two hours after the death of a fetus.

When the fetus is macerated the small parts are disorganized, the fetus appears to be in a crouched position, and the spine shortened. When looking for "Spaulding's Sign" one must be certain that the patient is not in labor as the uterine contractions will produce overlapping of the bones during moulding of the head.

The size of the fetus and *pari passu*, its viability can be established by measuring the fronto-occipital diameter as was recently emphasized in an excellent contribution by Stewart Clifford. He has pointed out that if this diameter was between eight and nine centimeters the baby was found to weigh less than three pounds. An occipital frontal diameter of less than ten centimeters indicates that the weight of the baby is less than four pounds, occipital frontal diameter 10.5, the minimum weight is four pounds, with a diameter greater than eleven centimeters the minimum weight is five pounds.

His experience further shows that the mortality for infants of less than five pounds was between 29 and 48 per cent. The mortality for infants weighing from five to six pounds was less than 3 per cent.

Since the fetal mortality is thus co-related with fetal weight, we have a valuable criterion

in determining the probable viability of the fetus when the question of interruption of pregnancy arises. Recent studies have indicated that the normal fetus gains weight in utero at the rate of five to six ounces per week during the seventh and eighth lunar months and eight to twelve ounces per week in the last two months of pregnancy. In view of this accelerated gain in weight during the last trimester any delay in the interruption of pregnancy deliberately occasioned without adding to the maternal danger will tend to insure viability.

In addition, prematurely induced termination of pregnancy in appropriate cases when the viability of the fetus is anticipated may be a definite factor in reducing maternal morbidity and may even avoid mortality.

The indications for the interruption of pregnancy such as toxemia, cardiac decompensation, uterine bleeding, active pulmonary lesion, urinary tract infections, etc., are well known.

Thus cephalography and cephalometry play important roles in aiding the obstetrician in the conduct of labor with due consideration to the fetus as well as the mother.

The question of danger associated with the use of roentgenography during pregnancy is often raised. If due precautions are taken against excessive exposure no untoward effects are to be expected.

In the author's experience at the Boston Lying In Hospital, and in his own practice he never encountered any effect to contraindicate its use during pregnancy.

CORRESPONDENCE

THE REPORTING OF ANTERIOR POLIOMYELITIS

The Commonwealth of Massachusetts
Department of Public Health
State House Boston

December 26 1935

Editor *New England Journal of Medicine*

During recent years much confusion has arisen regarding the actual prevalence of poliomyelitis due to the fact that no differentiation has been made in the official reports between paralytic and nonparalytic cases. The better recognition of the nonparalytic type of case and its inclusion today in the reports as contrasted with its noninclusion in former years have given a false impression as to the prevalence of the disease as compared with these other years.

In order to avoid so far as possible further confusion, the Public Health Council has voted that effective January 1 1936 all cases of anterior poliomyelitis shall be reported as "paralytic" or nonparalytic (preparalytic) cases. This means that all reports of infections to the boards of health should be made under one or the other of these classifications and that if a nonparalytic or preparalytic case subsequently develops a paralysis a

supplemental report should be made to the board of health in order to change the classification.

May I through your columns request the hearty cooperation of the medical profession in making such a classification of their reports in order that a more nearly accurate picture of the current prevalence of the disease may be available in the future.

Very truly yours

HENRY D CHADWICK M.D.

Commissioner of Public Health

ELECTRO-CHOLECYSTECTOMY

December 18 1935

Editor *New England Journal of Medicine*

In this *Journal* October 1930¹ and again in September² and October³ 1935 were published descriptions of an operation which I have termed electro-surgical cholecystectomy.⁴ Briefly The gallbladder is split to the cystic duct, which is tied if this can be done safely the redundant portions are trimmed away with the electrosurgical cutting current, and the remainder treated by fulguration or light contact coagulation with the bitermal coagulating current. Drainage is used. This is a modification of a procedure devised by Pribram⁵ which he termed "mukolasec". The gallbladder is split to the cystic duct which is tied and cut, and the whole mucosa treated with the actual cautery (hot iron) the leaves of the vesicle are then sewed together and the abdominal wound closed without drainage. It has occurred to me that instead of the term "electrosurgical cholecystectomy" a simplified compound word descriptive of the process would be preferable. I suggest *electro-cholecystectomy*.

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1. Whitaker L. R. Surgical management of gallbladder disease. *New Eng. J. Med.* 213: 718 (Oct. 9) 1935.
2. Idem. Electrosurgical cholecystectomy. I. Experimental observations. *New Eng. J. Med.* 213: 836 (Sept. 26) 1935.
3. Idem. Electrosurgical cholecystectomy. II. Clinical application. *New Eng. J. Med.* 213: 874 (Oct. 3) 1935.
4. Pribram B. O. Mukolasec and drainage. *Gallenchirurgie Zentralbl. Z. Chir.* 63: 172 (March 21) 1935.

LESTER R. WHITAKER, M.D.

41 Bay State Road Boston

DISCUSSION ON THE ANNUAL REGISTRATION OF PHYSICIANS

December 10 1935

Editor *New England Journal of Medicine*

It is unfortunate when a certain few take it upon themselves and prematurely discuss in the newspapers the annual registration of physicians. That topic should first be settled by the members of the medical profession as it concerns solely the licensed physicians of Massachusetts.

The subject is not new because several years ago the writer advocated such annual registration of physicians, which article was printed in *The New England Journal of Medicine* but no one paid any attention to what was said. Recently in the issue of December 14 1935 the State of New York was mentioned as having benefited from such a law. Since New York is being used as an example why

not include other legislation that has been passed in New York which certainly has benefited the medical profession, namely, (a) permitting the designation "Doctor" to be used only by physicians (b) good Workmen's Compensation laws whereby the insurance companies don't have the upper hand but the medical society has it, (c) last but not least, the medical school is not mentioned on the certificate of registration, which is absolutely not necessary

Also in the above-mentioned issue of *The New England Journal of Medicine* a \$2 00 yearly tax was advocated although it was felt that some physicians might object to it. If money raised by such a law should be used for the appointment of "Inspectors" who should be registered physicians in Massachusetts, and such appointments should be made only after passing a competitive Civil Service Examination, and whose duty should be that of checking up on all persons who are practicing medicine illegally such as is now being done by pharmacists, chiropractors, chiropractors, optometrists and many others, then the registered physicians would be glad to pay such a tax

In addition, the money so collected should also be used to acquaint the public with the use and meaning of the designation "Doctor" and also with the significance of those big signs, "Foot Specialist," "Podiatrist," etc It is time something was done to eliminate these misleading terms Passage of another law limiting the use of the term "Doctor" to registered physicians only and passage of better Workmen's Compensation laws are more important than the annual registration of physicians

Should the General Court or medical profession object to a \$2 00 annual tax, then the extra expense could be met by increasing the fee for those taking the licensing examinations and those seeking reciprocity

Very truly yours,

BERNARD ZUCKERMAN, M.D

978 Blue Hill Avenue,
Dorchester, Mass

NOTICES

WORCESTER STATE HOSPITAL,
WORCESTER, MASS

6 PSYCHIATRIC INTERSHIPS OF 12 MONTHS TO BEGIN
JULY 1, 1936

A rotating service on medical and surgical wards, male and female psychiatric wards

Organized instruction in eleven courses

Registration before March 1, 1936

Examination date March 15, 1936, at 9 A.M at the hospital

The hospital provides maintenance

Graduates (unmarried men) of Class A Medical Schools who have completed an accredited internship in medicine are eligible

Applications should be addressed to the

DIRECTOR OF CLINICAL PSYCHIATRY

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P M on Thursday, January 9, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr Henry A Christian, Physician-in-Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic To it are cordially invited practitioners and medical students

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr Christian

REPORTS AND NOTICES OF MEETINGS

FAULKNER HOSPITAL CLINICAL MEETING

The December clinical meeting was held at the Faulkner Hospital on Thursday afternoon, December 5, at 5 00 P M

Two unusual cases that had come to autopsy were presented The first one was a case of encephalomalacia widely scattered over the surface of the brain Clinically the case had been obviously one of some disturbance in the central nervous system The spinal fluid was negative Although suspicion was aroused of a tumor of the corpus callosum, this was finally ruled out and a diffuse vascular lesion of the brain was diagnosed It happened that the patient had a leukocyte count of 25,000 without any evidence of infection The red blood count was 6,500,000 It was thought that possibly there might be a polycythemia with multiple thrombi in the cerebral vessels The striking feature at autopsy was the fact that there was no vascular lesion of any sort to account for the multiple areas of softening of the brain and the etiology of the cerebral lesion still remains obscure

The other case was apparently a simple one of bronchopneumonia which in the course of three weeks went to a fatal termination The interesting feature in this case was the fact that during life it was suspected that he might have the epidemic disease which overran this country in 1918 1919 This suspicion was aroused because the leukocyte count was not elevated and the x ray picture of the chest showed a bilateral bronchopneumonia starting in the hilus of both lungs In addition at the right base, the process extended to the periphery in the x-ray picture which may have been due to a secondary invading organism or an extension of the epidemic disease This suspicion was confirmed at autopsy by the finding of the hyaline-like membrane in the alveolar spaces of the lung which has been described by Wolbach as peculiar to this disease

Opportunity was taken with the presentation of this case to emphasize the fact that the designation *influenza* is unfortunate in regard to this epidemic disease The cause of the epidemic disease has never been ascertained It is a disease which is very apt to have secondary invading organisms, such

as the influenza bacilli the streptococcus or the pneumococcus which produce lesions in the lungs and may cause death. These secondary invading organisms mask the lesion produced by the epidemic disease by the time the case comes to autopsy. In 1926 a case of the epidemic disease suspected by x-ray examination and confirmed at autopsy by the presence of the hyaline membrane developed in Petersham Massachusetts and now this case has been discovered in Boston this autumn. Each winter cases are spoken of by practitioners as influenzal pneumonia. Probably many of these are not the epidemic disease but it seems likely that some of them are the epidemic disease which became so universal in 1818 and 1919.

Following the presentation of these two cases Dr Tracy J. Putnam gave a splendid presentation of the surgical treatment for athetosis. He showed some lantern slides and moving pictures of cases of athetosis before and after operation and also showed a case which had been operated on at the Faulkner Hospital a few weeks before with very decided improvement.

He called attention to the fact that the disease consists of degenerative changes in certain areas in the brain. The etiology of this degeneration is not clear, but may be due to asphyxia at birth as many of the cases are congenital. On the other hand some of the cases develop in adult life which makes the etiology of these cases more obscure. The areas of the brain which degenerate send fibers down the cord in areas which have been localized and the surgical treatment consists in cutting these fibers as high up in the cord as possible not with the idea of curing the condition but with the idea of interrupting the distressing muscular movements which are produced by the degenerative changes in the brain which send impulses down along these fibers. In order to eliminate as many of the abnormal muscular movements as possible the fibers in the cord must be cut as high as is practicable in the cervical region. Torticollis is one of the distressing symptoms in some of these cases and to correct this the spinal accessory nerves are cut. This operative procedure offers great relief to many of the distressing symptoms in these exceedingly unfortunate individuals.

GREATER BOSTON MEDICAL SOCIETY

The monthly meeting of the Greater Boston Medical Society was held in the auditorium of the Beth Israel Hospital Tuesday evening December third. Dr Harry Linenthal President of the society presided. The evening was devoted to a consideration of liver function tests and the dietetic treatment of liver disease and hypercholesterolemia. Dr Sieg of liver disease and hypercholesterolemia. Dr Siegfried J. Thannhauser Chief of Research at the Boston Dispensary and Associate Professor of Clinical Medicine at Tufts Medical School, was the principal speaker.

Dr Thannhauser began his address by citing the manifold functions of the liver in anabolism

and katabolism. He stressed the multiplicity of functions the organ has in relation to protein, fat, carbohydrates, cholesterol, bile phosphatase, etc. In addition he mentioned the detoxifying function and the rôle the organ plays as an important subdivision of the reticulo-endothelial system. The first test of function discussed by the speaker was the galactose tolerance test. Forty grams of galactose are given by mouth and all but three grams of this should be absorbed and not appear in the urine in the following twenty-four hours. This test fails in many cases and is not a good one where there is early cirrhosis or circumscribed liver disease. It is a good test when there is severe general disease of the liver and it often helps to distinguish simple catarrhal jaundice or acute yellow atrophy from obstructive jaundice. Other tests, depending on the liver's detoxifying function were next discussed. The liver is supposed to deaminate amino-acids and there is an increase in these substances (tyrosine, leucine, etc.) in blood and urine in severe diseases of the liver. An amino-acid tolerance test has also been devised but the liver is not the only deaminizer (the kidneys can also perform this function and most all organs can do it to greater or lesser extent). The liver forms urea from ammonia and is the only organ that does this and a rise in the amount of ammonia in the blood denotes liver damage. This test for ammonia has to be done immediately on taking the blood. The Takata-Ara test (reading of a serum flocculation reaction with mercuric chloride) was next mentioned. The difficulty with this test is that it is said to be occasionally positive in nephritis as well as in cirrhosis of the liver. The cholesterol-cholesterol-ester ratio (in blood serum) is an excellent test for liver function, cholesterol esters being markedly lowered in severe parenchymal liver damage, whereas in obstruction the ratio remains the same even though the total of the two is increased. Dr Thannhauser also mentioned the bromsulphalein and other dye tests which are essentially measures of secretory function and added that they are not very sensitive. In summary he stressed the importance of doing several tests with all the varied functions of the liver in view and he believes that the galactose ammonia in the blood and the cholesterol-cholesterol-ester ratio are the best tests.

Dr Thannhauser pointed out that the dietetic treatment of diseases of the liver is not employed as a matter of course as in Bright's disease. It is probably advisable to give at least 70 per cent of the calories as carbohydrate and restrict protein (even to forty grams a day) and fat. Small doses of insulin before the carbohydrate meal are of doubtful value. Marked protein limitation (especially because of the lack of urea formation by the sick liver) is necessary in acute disease and a wise preventive in chronic diseases of the liver. There is a difference between animal and vegetable protein in that the latter is better to use because no autolysis

takes place preliminary to eating, whereas in animal proteins autolysis before ingestion is the rule. Restriction of fat is also very desirable, and vegetable fats, the speaker believes, are to be used entirely, and garlic and onions, which increase bile secretion, can be used to advantage. The ideal diet thus embraces a rich content of carbohydrate plus small amounts of vegetable protein and fat. Sample diet sheets were demonstrated and passed around.

In discussing the pathogenesis of hypercholesterolemia Dr Thannhauser demonstrated the analogy and the difference between this disease and gout, in both diseases a physiological substance of intermediary metabolism becomes a cause of morbidity because of its retention. In so-called essential xanthomatosis (demonstrated by the presence and microscopic appearance of so-called "foam cells") cholesterol is stored, destroys the cell, and finally leaves a granulomatous scar. Cases of this disease naturally improve on a cholesterol free diet. Inasmuch as animal cholesterol is the only one absorbed as such, vegetable oils are the only ones permitted. A pure vegetable diet is not a source of absorbable sterols. Improvement takes place in four to eight weeks. Hypercholesterolemia from other causes (hyperthyroidism) may also be benefited by an animal-cholesterol free diet.

Dr Chester Jones, of the Massachusetts General Hospital, opened the discussion. His attitude about liver function tests is that of a conservative. Except in rare cases, liver function tests are no better than experienced clinical judgment. As far as diagnosis is concerned such tests are usually disappointing, and they frequently are found wanting in critical cases. The speaker mentioned a severe case of yellow atrophy due to arsenic where the patient had always taken care of galactose. The diagnostic value of all such tests is overrated and a plea was made for intelligent use of simple tests that are combined with clinical judgment. As far as prognosis is concerned, however, the tests are of very definite value. For a repetition of them may show a trend, which is always important. A simple good practical test is recording the urinary output. If this rises spontaneously, the prognosis in acute liver disease becomes better. The risk of hemorrhage, a very important consideration if surgery is contemplated, is a hard one to evaluate. A study of coagulation time, sedimentation rate, and so-called "venous stasis bleeding time" sometimes helps. As far as treatment is concerned, Dr Jones wishes to emphasize the value of carbohydrate. Insulin is a very doubtful adjunct. Parenteral as well as enteral administration of sugar is often necessary or at least wise. Rectal administration is of little practical value. Although fat and protein intake should be kept at a low level, in chronic longstanding disease, Dr Jones believes many patients suffer from protein lack, because of anorexia and because of the loss of protein into the ascitic

fluid if that is present. Milk and liver protein (shown by Whipple to be of value in raising serum protein) are indicated in such instances.

Dr I. R. Jankelson wished to stress the value of icteric index and van den Bergh reactions. He has also been doing some work on the intravenous galactose tolerance test, bilirubin tests, and tyrosine-content of the blood. He pointed out the two great difficulties encountered in liver function studies, namely, the great reserve of the liver and its great recuperative power. Insulin may be of definite value, if only because it increases the appetite. Dr Jankelson asked about insulin in hypercholesterolemia, but Dr Thannhauser said he had had no experience with it.

Dr Benjamin Banks cited some of his experimental work on dogs in which he showed conclusively that the liver stores more glycogen when glucose is given by vein than by other routes.

In closing, Dr Thannhauser emphasized the fact that function tests are never good in themselves but are only to be considered in connection with clinical facts. Hypercholesterolemia secondary to chronic biliary cirrhosis must be distinguished from essential or primary xanthomatosis with hypercholesterolemia. Dr Thannhauser would restrict protein more vigorously than Dr Jones, even in chronic liver disease.

The interesting meeting was adjourned by the president shortly after ten o'clock.

CARNEY HOSPITAL CLINICAL MEETING

The last clinical meeting of the Carney Hospital was held on December 2, 1935, at 8 30 P M. The entire meeting was given over to a symposium on back pain.

Dr A. R. MacAusland presented the various orthopedic conditions which could be considered the etiological agent for such pain. He stressed the importance of consultations with specialists in those fields in which conditions arise which produce back pain.

Dr W. J. Mixter presented the differential diagnosis from a neurosurgical point of view. He emphasized the use of the lumbar puncture and the lipiodol injection. He also stated that the chemistry of the spinal fluid in many cases makes the diagnosis.

Dr R. J. Heffernan presented back pain from the gynecological aspect. He also stressed the need for consultation and said that fibroids per se do not necessarily cause pain in the back, but that the accompanying congestion of the pelvic organs is probably the main factor.

The urological point of view was presented by Dr Roger Graves. In his opinion, kidney disease rarely gives the type of pain that was under discussion. He also brought out that congestion of the pelvic organs was certainly a factor to be considered and that such things as a full bladder and an infected and congested prostate could cause

pain in the lumbosacral region Metastatic implantations from the prostate to the vertebrae were emphasized. A general discussion by members of the staff and visitors followed

BOSTON PATHOLOGICAL SOCIETY

The stated meeting of the Boston Pathological Society was held in the Pathological laboratories of the Children's Hospital on Friday evening December 6. Members and guests gathered early to have the opportunity of examining interesting specimens and microscopic sections from the pathological department of the hospital and to allow informal study and discussion of these cases. The meeting was called to order at eight forty five by Dr Shields Warren.

The first talk was by Dr Ralph Miller of Dartmouth College Medical School on Secondary Nodules of Lymphatic Tissue. These nodules have been given a variety of names: central regions of lymphatic tissue, germinal centers, degeneration centers, or white centers of peripheral nodules. They are most prominent in childhood and are of commonest occurrence in areas where there is inflammation or necrosis. The various types of these nodules (active necrotic epithelioid, hyaline and reticular) were discussed and depicted on lantern slides made from microscopic sections. The speaker discussed the relation of these nodules to immunization (especially so-called cellular immunity) and summarized the indirect evidence which seems to link them with this function of the body—their location in sites of inflammation, their appearance only after contact with an external agent, and their increase in number where bacteria are most numerous. In response to a question about their vascular supply the speaker added that, so far as he can tell, their circulation is not an open but a closed one.

Dr Mortimer Warren of the Maine General Hospital next discussed two interesting cases of leukemia. The first was of the chronic lymphatic type in a sixty-six year old Indian male and the second was of an acute type in a nine months old female infant. There was considerable question concerning the latter as to whether it was an acute myeloid type or perhaps monoblastic (endothelioid type of cell) in origin. In the discussion of the cases the short duration of leukemia in children was brought out as well as the frequent difficulty in classification of the younger groups among the patients.

Dr Cecil Krakower of the Children's Hospital Boston gave the final paper on the program a discussion of 'Unusual Terminations of Leukemia in Childhood'. Dr Krakower's presentation was limited to six cases of the forty seen in the past ten years at the Children's Hospital. All six showed very striking bone marrow pictures: hypoplasia to complete aplasia of the marrow. There was noted a marked paucity of infiltration of leukemic cells in the organs at postmortem examination apparently

due to a disappearance of the cells just prior to death.

At a business meeting following the papers, Dr Monroe J. Schlesinger was elected President, and Dr Beach Hazard Secretary of the Society. Refreshments were served.

THE CUTTER LECTURE IN PREVENTIVE MEDICINE

The Cutter Lecture in Preventive Medicine for 1935 was delivered December 4 at the Harvard Medical School by Dr Milton J. Rosenau, recently retired Charles Wilder Professor of Preventive Medicine and Hygiene at the Harvard Medical School. Dr Rosenau spoke on the subject of 'Epidemics'.

Epidemiology does not confine itself to infectious or contagious diseases, but is the study of disease as a mass phenomenon. Diseases affect the community of individuals much as they affect the community of cells which compose our bodies.

Dr Rosenau told of his 'discovery' of an epidemic of bubonic plague which occurred in Stratford-on-Avon in 1664. While in Stratford-on-Avon in 1914 at the celebration of the 350th anniversary of Shakespeare's birth he examined the parish register and found the typical rise and fall of mortality that characterize an epidemic. This was but a part of the great pandemic that swept all of Europe in the sixteenth century and cost some twenty-five million lives. Such great catastrophes as this were of great import in shaping the history of the world.

The typhoid epidemics of Chicago were cited as examples of water borne epidemics. Chicago formerly took her drinking water from Lake Michigan only a relatively short distance from the vicinity where all of the city sewage was emptied. Deaths from typhoid fever during this era were extremely numerous, averaging around one thousand each year. With the installation of the drainage canal and the disposal of the sewage into the Illinois River there was an immediate and striking decrease in the incidence of typhoid and dysenteric disease. Soon the city claimed complete freedom from the disease. Then in 1923 a cross connection between the water and sewer systems precipitated another epidemic of typhoid localized in one part of the city. Diagnoses of cases irregularly scattered throughout the city were soon made. Dr Rosenau emphasized the fact that these latter cases were not 'new' but that it had become 'unfashionable' to diagnose typhoid in Chicago, and the outbreak of the localized epidemic had merely served to 'bring under cover cases to light'.

The number of cases required to justify the designation of an epidemic is indefinite and largely a matter of relativity. Twenty years ago rates of typhoid of 15 to 20 were called 'residual' or 'normal' rates in the United States. At the same time rates in Berlin and Paris were as low as 2 and a rise to 15 or 20 would have promptly been considered

as an epidemic in those cities. The definition of an epidemic is thus seen to be largely an academic matter.

A complete understanding of a disease necessitates a knowledge of its clinical aspects, its laboratory data, and its epidemiology. Epidemiology's contributions to our knowledge of a disease are exemplified by the researches of Peter Parnum in an epidemic of measles which occurred in the Faroe Islands in 1846. Previous to that date there had been no measles on these islands for a period of sixty-five years, a fact that showed there was no chronic carrier of the disease. Then a person left Copenhagen in the incubation stage of the disease, and arrived on the islands while in the infectious period, with the result that 6000 persons were involved in an epidemic. Only those persons over sixty-five years of age, and those in isolated districts escaped infection. Parnum determined by epidemiological studies that there is no inherited immunity, that one infection produces life-long immunity, that the incubation period is fourteen days, and that all ages are susceptible. (Later studies have shown that new-born babies of mothers who have had the disease are immune for a period of several months after birth, due to passage of antibodies through the placenta.) He learned that the disease is infectious in the pre-eruptive period, and that it is not communicable in the desquamative stage. Its highest fatality is in the aged and young.

Errors have been made in epidemiology as in most other sciences. Malaria was first believed to be a water-borne disease by Ronald Ross, all materials brought through the port of San Francisco were put through sterilizing processes during the bubonic plague, while rats were completely disregarded, letters coming from yellow fever districts were sterilized for years. Pettenkofer believed in miasmata as the cause of cholera, and installed a remarkable sewage disposal system in Hamburg, which failed completely to reduce the incidence of the disease. Koch applied his knowledge of the cholera vibrio to the problem, installed an adequate water system, and abolished the disease from the city. Koch also made mistakes, and although all of his work on the bacteriology of tuberculosis was correct, some of his epidemiological work was wrong.

Weber found that diphtheria first appeared in Europe in the sixteenth century at about the same time as potatoes, that its incidence increased with increasing use of potatoes, and that the rate was high in cities using many potatoes and low in cities using very few potatoes. He mistakenly concluded that the use of potatoes caused the disease in some way.

Farr's second law that disease increases with increasing density of population is now known to be false, and in reality dwellers in large cities are less smitten by disease than those in rural communities. It is true that some diseases, such, for example, as diphtheria and scarlet fever, are more prevalent in

cities and may be considered as "herd diseases." On the other hand diseases such as malaria and hookworm infestation are mainly rural in distribution.

Dr. Rosenau illustrated some epidemiological methods by telling how an epidemic of hoof and mouth disease was traced to some impure vaccine virus which had been imported from Japan for use in inoculating calves in the preparation of vaccines.

Epidemics are greatly influenced by movements of the population. Because of this mobility the amebic dysentery epidemic of 1933 was spread over a three thousand mile area from its source in Chicago. This epidemic was also the first example of a water-borne epidemic of amebic dysentery, the mass infection of about 1000 cases being due to inadequate plumbing, and the existence of cross connections between the sewage and water systems.

The advent of the airplane, and the rapidity of travel between widely separated areas have raised the serious possibility of initiating widespread epidemics of hitherto comparatively local diseases.

GREATER BOSTON MEDICAL SOCIETY

The next meeting of the Greater Boston Medical Society will be held in the Auditorium of the Beth Israel Hospital, Boston, Mass., Tuesday, January 7, 1936, at 8:15 P.M.

PROGRAM

- 1 The Effect of Intestinal Enzymes on Insulin, Prevention of Digestion of Insulin with Alcohol. Harry Blotner, M.D.
- 2 Visualization of Postgonorrheal Complications. Boris Greenberg, M.D.
- 3 Studies in Gout. B. M. Jacobson, M.D.
- 4 A Method for the Prolongation of the Effect of Medication. H. L. Naterman, M.D.
- 5 Some Effects of Diet Restriction in Patients with Heart Disease. S. Proger, M.D.
- 6 The Quantitative Study of Nasal Obstruction. H. J. Sternstein, M.D.
- 7 The Prevention of Anemia in Pregnancy. M. B. Strauss, M.D.

Physicians and medical students are invited to attend.

H. LINENTHAL, M.D., *President*,
D. B. STEARNS, M.D., *Secretary*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, January 14, at 8:15 P.M.

PROGRAM

Presentation of Cases
The Physiology of the Elephant. By Dr. Francis G. Benedict.

Medical students and physicians are cordially invited to attend.

MARSHALL N. FULTON, M.D., *Secretary*

MASSACHUSETTS GENERAL HOSPITAL

A Clinical Meeting of the Staff of the Childrens Medical Service will be held in the Ethor Dome on Friday January 3 at 12 noon Dr Tofft will preside

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held Friday January 10 in the Auditorium of the Beth Israel Hospital Boston at 8 00 P.M.

PROGRAM

Speaker Dr H. Houston Morrill Instructor in Neuropathology Harvard Medical School
Subject Syphilis of the Nervous System.
Chairman Dr Abraham Myerson Professor of Neurology Tufts College Medical School.

THE EXECUTIVE BOARD OF THE CATHOLIC HOSPITAL ASSOCIATION

The Officers and Executive Board of the Catholic Hospital Association of the United States and Canada announce that the Twenty-First Annual Convention of the Association is to be held at the Fifth Regiment Armory Baltimore Maryland, June 15 to 19 1936 under the patronage of His Excellency The Most Reverend Michael J. Curley Archbishop of Baltimore.

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY JANUARY 6 1936

- Monday January 6—
8 15 P.M. New England Heart Association. Peter Bent Brigham Hospital.
- Tuesday January 7—
2 30 P.M. Pediatric Ward Visit Massachusetts Eye and Ear Infirmary
7 4 P.M. Gardner Auditorium, State House, Boston Psychoanalysis and Mental Health. Jacob Kasanin, M.D.
8 15 P.M. Greater Boston Medical Society Auditorium Beth Israel Hospital Boston.
- Wednesday January 8—
11 A.M. Clinico Pathological Conference Childrens Hospital
- Thursday January 9—
* 8 30 to 9 20 A.M. Clinic Surgical Staff of the Peter Bent Brigham Hospital at the Peter Bent Brigham Hospital
** 30 P.M. Medical Clinic at the Peter Bent Brigham Hospital.
- Friday January 10—
8 P.M. William Harvey Society Auditorium Beth Israel Hospital Boston
- Saturday January 11—
7 10 P.M. Staff rounds at the Peter Bent Brigham Hospital.
- Sunday January 12—
4 P.M. Free Public Lecture Harvard Medical School, Building D Longwood Avenue. Cosmetology Safe and Dangerous by J. H. Blaisdell, M.D.
- Open to the medical profession.
Open to Fellows of the Massachusetts Medical Society
- January 2—Faulkner Hospital Clinical Meeting at 5 P.M.
January 3—St. Elizabeths Hospital Infantile Paralysis Vaccine Meeting at 8 15 P.M.

January 3—Massachusetts General Hospital. Clinical Meeting of the Staff of the Childrens Medical Service See notice elsewhere on this page.

January 6—New England Heart Association, Peter Bent Brigham Hospital at 8 15 P.M.

January 7—Greater Boston Medical Society See page 40

January 8—Fitchburg Cancer Clinic Burbank Hospital, 9 A.M. to 12 M.

January 9—Medical Clinic at the Peter Bent Brigham Hospital. See page 14.

January 10—William Harvey Society See notice elsewhere on this page.

January 14—Harvard Medical Society See page 40

January 27—Springfield Medical Association

February 24 to May 15—International Medical Post-graduate Courses in Berlin. See page 111 Issue of December 12, 1935

June 15 1936—The Executive Board of the Catholic Hospital Association See notice elsewhere on this page

September 1936—First International Conference on Fever Therapy See page 135 Issue of December 6 1935

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

January 8—Meeting at the Riverside Tavern, Haverhill, at 1 30 P.M.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

January 8—Wednesday Danvers State Hospital Hathorne Clinic 5 P.M. Dinner 7 P.M. Speaker Dr Hoskins.

February 5—Council Meeting Boston.

February 12—Wednesday Addison Gilbert Hospital, Gloucester Clinic 5 P.M. Dinner 7 P.M. Speaker and subject to be announced later

March 4—Wednesday Lynn Hospital, Clinic 5 P.M. Dinner 7 P.M. Speaker Dr Timothy Leary Subject Arteriosclerosis.

April 1—Wednesday Essex Sanatorium, Middleton Clinic 6 P.M. Dinner 7 P.M. Speaker Dr Richard H. Overholt of the Lahey Clinic. Subject Chest Surgery

May 7—Thursday Censors Meeting

May 13—Wednesday Annual Meeting Salem Country Club. Dinner at 7 P.M. Speaker Dr Paul White Subject to be announced later

R. E. STONE, M.D., Secretary

88 Lothrop Boulevard Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings are held on the second Tuesday of January March and May at the Weldon Hotel Greenfield, at 11 A.M.

CHARLES MOLINE, M.D. Secretary

Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings to be held at the Bear Hill Golf Club at 1.15 P.M.

January 8, March 11 May 6.

R. L. MACLACHLAN, M.D., Secretary

1 Bellevue Avenue Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

January 23—Hotel Kenmore at 8 P.M. Subject "Compulsory Sicklers Insurance." Speakers to be announced.

February 25—Massachusetts Memorial Hospitals at 8 P.M. Papers by the staff.

March 31—Hotel Kenmore at 8 P.M. Dr. Benedict F. Boland—"Cauterization of the Cervix Uteri Using Various Electrical Methods" Illustrated with lantern slides.

May—Annual Meeting (Place date and subject to be announced.)

The censors meet for the examination of candidates May 7 1936 November 5 1935

FRANK S. CRUICKSHANK, M.D., Secretary

1.15 Beacon Street, Brookline.

PLYMOUTH DISTRICT MEDICAL SOCIETY

January 16—Goddard Hospital. Subject and speakers to be announced later

March 19—Plymouth County Sanatorium South Hanover.

April 16—Brookton Hospital

May 21—Lakerville State Sanatorium

G. A. MOORE, M.D. Secretary

167 Newbury Street, Brockton.

SUFFOLK DISTRICT MEDICAL SOCIETY

January 29—Joint Meeting with the Boston Medical Library at 8 Fenway Observations Around the World, Dr Walter B Cannon

March 18—Meeting at the Boston Medical Library "The Laboratory and Clinical Story of Fatigue, Dr Arlie V Bock and Dr David B Dill Discussion Dr Donald J MacPherson and Dr Augustus Thorndike, Jr

April 29—Annual Meeting at the Boston Medical Library "The Treatment of Septicaemia, Dr Champ Lyons "The Pleurality of Scarlatinal Streptococcus Toxin, Dr Sanford B Hooker Discussion Dr Hans Zinsser

The medical profession is cordially invited to attend all of these meetings

ROBERT L DeNORMANDIE, M.D., President,
CHARLES C LUND, M.D. Secretary,
FRANCIS T HUNTER, M.D.
Boston Medical Library

WORCESTER DISTRICT MEDICAL SOCIETY

January 8—Worcester City Hospital Thayer Hall 6 15 P M Buffet supper 7 30 P M Business session and scientific program

February 12—Wednesday evening Worcester State Hospital, Worcester, Mass Dinner and scientific program. Subjects of program to be announced later

March 11—Wednesday evening Memorial Hospital, Worcester Mass Dinner and scientific program Subjects of program to be announced later

April 8—Wednesday evening Hahnemann Hospital, Worcester Mass Dinner and scientific program Subjects of program to be announced later

May 13—Wednesday afternoon and evening Annual Meeting of Society Time, place and details of program to be announced in an April issue of the Journal.

ERWIN C MILLER, M.D., Secretary
--27 Elm Street, Worcester

BOOKS RECEIVED FOR REVIEW

Diseases of the Skin Frank Crozer Knowles
Third Edition 640 pp Philadelphia Lea & Febiger \$6 50

Thérapeutique Hydro-Climatologique des Maladies du Foie et des Voies Biliaires. Paul Carnot, Maurice Villaret, and René Cachera. 152 pp Paris Masson et Cie 20 fr

Appareil Circulatoire Ch Laubry 186 pp Paris Masson et Cie 22 fr

Pathologie Digestive P Harvier 162 pp Paris Masson et Cie 22 fr.

The Diagnosis and Treatment of Diseases of the Heart Henry A. Christian 373 pp New York Oxford University Press \$6 00

The Diagnosis and Treatment of Disorders of Metabolism James S McLester 328 pp New York Oxford University Press \$5 00

The Diagnosis and Treatment of Variations in Blood Pressure and Nephritis Herman O Mosenthal 616 pp New York Oxford University Press \$9 00

Tumors of the Urinary Bladder Edwin Beer 166 pp Baltimore William Wood & Company \$3 50

A Marriage Manual A Practical Guide-Book to Sex and Marriage Hannah M Stone, and Abraham Stone 334 pp New York Simon & Schuster \$2 50

The Treatment of Acute Poisoning H L Marriott 45 pp London John Murray 5s net

Classical Contributions to Obstetrics and Gynecology Herbert Thoms 265 pp Springfield and Baltimore Charles C Thomas \$4 00

BOOK REVIEWS

New Pathways for Children with Cerebral Palsy Gladys Gage Rogers and Leah C Thomas 167 pp New York The Macmillan Company \$2 50

In this small book a new note of hope is sounded for children disabled by the various forms of cerebral palsy There is so much more that can be done The authors have not only given us a vision of this but also have outlined a practical and comprehensive program Dr Robert B Osgood, in speaking of the inadequacies of the usual methods of therapy in the introduction to the book states "Equanimity and the banishment of fear and discouragement are immensely more important in rehabilitation than drugs which lessen anxiety, and operations which diminish spasticity" Optimism tempered with common sense radiates from every page For, as the authors state again and again, these patients rarely can be returned to normal physical function. With intelligent guidance, however, all of them can obtain much physical improvement, education in its truest sense and a satisfactory adjustment in the present day world with its modicum of enjoyment and accomplishments This book with its description of games, physical exercises, apparatus, pedagogic methods and lists of books and toys particularly adapted to this group of handicapped children, can be recommended without reservation to physicians, physiotherapists, teachers, and especially parents, who are challenged by the problem of cerebral palsy The authors at their special camp, "Robin Hood's Barn", have to a large part developed the methods described, and in their work have grown in ripe experience and that breadth of soul which this book epitomizes

A Text Book of Fractures and Dislocations Covering their pathology, diagnosis and treatment Kellogg Speed Third Edition, Thoroughly Revised 1000 pp Philadelphia Lea & Febiger \$11 00

The Third Edition of Kellogg Speed's "Fractures and Dislocations" indicates the continued usefulness and popularity of this volume of exactly 1000 pages and over a thousand illustrations The First Edition was published nearly twenty years ago The revision has apparently been thorough and it has been hard for the reviewer to find any of the newer operative or nonoperative methods of proved worth in the treatment of fractures or dislocations (with which he is familiar) which have not been mentioned and usually described The author frequently gives his own opinion as to the efficiency of these methods and the wisdom of their conception. Dr Speed's wide experience and dispassionate attitude make us wish that this personal touch appeared more often The indications for or against open operative attack and the general plan of operative procedures are all sound and well set forth The limits of the book apparently precluded the inclusion of many of the finer details of technique

upon which so much of the complete success of bone and joint surgery must depend. The bibliographical references following each chapter make it possible, however, for the surgeon to acquaint himself with these details. It would be wise for him to acquire this knowledge before he essays to perform for the first time an operation on the bones following a fracture or to open a joint for the purpose of repairing an internal derangement.

The first three chapters comprising about one hundred pages discuss the general principles underlying the treatment of fractures by both closed and open methods and the mechanism and treatment of dislocations. The remaining twenty-one chapters are arranged under anatomical headings.

The amount of the text and illustration in relation to clinical importance and frequency of lesion seems well allotted. The format of the book as to headings and subheadings is excellent; the index is inclusive and the clarity of type and illustrations confer credit on the publishers.

Poliomyelitis. A handbook for physicians and medical students. Based on a study of the 1931 epidemic in New York City. John F. Landon and Lawrence W. Smith. With a section on the orthopedic after-care of the disease by Garry DeN. Hough, Jr. 275 pp. New York: The Macmillan Company. \$3.00.

This handbook based on a study of the 1931 epidemic of poliomyelitis in New York City is primarily a record of the observations of the authors on a large amount of clinical and pathological material comprising approximately 1,000 cases admitted to the Willard Parker Hospital with thirty-one autopsies together with an analysis of some 1,400 additional cases in other communicable disease hospitals.

The volume contains the usual historical review giving the landmarks in the development of our present clinical concept of the disease with bibliographical references. The chapter on etiology and pathogenesis is perhaps too largely devoted to earlier theories and beliefs which have not materialized. The pathological and clinical sections are the best portions of the book. They include comprehensive descriptions of material from the cases studied with original observations. The restriction of the investigations to the single outbreak doubtless accounts for the limitations of the chapter on epidemiology. It does not appear particularly useful to devote a separate chapter to nomenclature and classification. The symptomatology is well written and supported by numerous individual case histories which clearly portray the disease especially in its early stages. One cannot but feel that the authors' views on prophylaxis and specific treatment are based to a considerable extent on material which is hardly ready to be incorporated in a handbook. The book ends with a suitable outline of the essentials in the after-care of the disease.

Diseases of the Thyroid Gland. Arthur E. Hertzler. Third Edition. Entirely Rewritten. 348 pp. St. Louis: The C. V. Mosby Company. \$7.50.

As stated by the author, this book represents the expression of an individual opinion and experience. One who is interested in goitre cannot always agree with Dr. Hertzler in some of his conclusions. It is but fair to say, however, that these conclusions have been arrived at after a large personal experience, a close contact with the cases both before and after operation and a laboratory study of the material. Dr. Hertzler has written profusely on the subject of thyroid disease and has interested himself particularly from the histological and pathological viewpoint.

The book is written in simple English. All phases of goitre and the complications of thyroid disease are considered. A section is included on the hospital management of goitre patients and a chapter on the technique of the operation upon the thyroid gland is included. The illustrations are good and anyone who is interested in the subject of goitre will find the perusal of this book practicable.

I'd Live It Again. E. J. O'Meara. 324 pp. Philadelphia: J. B. Lippincott Company. \$2.50.

O'Meara has given us in his memoirs a vivid story of the life of an officer in the Indian Medical Service. An old Guy's man he fortunately retained his first pictures of India and his ability to put them on paper. To those familiar with Baden Powell, Curzon and Younghusband much of the content will have a familiar ring. One can but conclude that after years of ardent service he is certainly one of those fortunate persons who have found life something to be enjoyed rather than simply endured.

Living Along with Heart Disease. Louis Levin. 128 pp. New York: The Macmillan Company. \$1.50.

This short volume is one of the best books written for the lay public that has appeared in recent years. There are many physicians, including the reviewer who doubted the value of the wave of popularization of medical knowledge that has swept over our country. However, one cannot have much doubt about the merits of this treatise for general lay consumption. In fact, it can be profitably read by most practitioners. Although the point of view expressed is an optimistic one, the subject matter is treated in a most interesting and truthful fashion. There are very few patients with heart disease who could be harmed by reading this book, and many to whom it would be very profitable. The style of the book has an unusual charm which is possessed by too few of our current medical writers. It outlines in simple form and in interesting language the various problems concerning heart disease. This is done so that the average reader can understand its full significance. It can be highly recommended to both the lay public and the medical profession.

Transactions of the American Gynecological Society Edited by Otto H. Schwarz Volume 59 for the Year 1934 St. Louis C V Mosby Company

This volume of the Transactions of the American Gynecological Society is a collection of all the papers presented at the regular meeting for the year 1934 As would be expected these transactions present a cross section of the best American achievements in the fields of gynecology and obstetrics The reading of such a collection of papers each year would repay any physician interested in either of these fields

Medical Practitioners in the Diocese of London, Licensed under the Acts of Henry VIII, C II An Annotated List 1529-1725 J Harvey Bloom and R Rutson James 98 pp Cambridge The University Press \$1.75

This is an annotated list of the physicians and surgeons licensed as medical practitioners in England by the various bishops of London under an Act of Parliament in the reign of Henry VIII By this act bishops were empowered to license practitioners after recommendation by three qualified medical men, and examination Lists of those so registered between 1529 and 1725 are given In many cases there are brief notes about the individual compiled from well known sources These lists are valuable as a matter of record and should prove most useful for reference As an appendix, various forms of certificates used are given and there is a list of the bishops during the period of these registrations The little book is carefully indexed and finely printed

Many of the names listed are of well known physicians and surgeons William Clowes, William Gale, John Fryer, William Cheselden, John Choke, a chemist and a notorious quack, Thomas Saffold, another well known charlatan, and names of lesser importance

In general, the system of licensing seems to have been efficient With few exceptions, only those men who had had a long apprenticeship were recognized The certificates of competency were often signed by important individuals, among whom may be mentioned Sir Hans Sloane and John Evelyn, the diarist

Clinical Tuberculosis Edited by Benjamin Goldberg Volumes I and II M 19 pp Philadelphia F A Davis Company \$22.00 net.

This work which the reviewer believes well merits the adjective "monumental" consists of two large volumes, the total weight of which is over eight pounds, with nearly 2,000 pages replete with many illustrations, descriptive diagrams, tables, cuts, etc., and a thirty-eight page index. The list of contributors contains many names with whom the reviewer does not happen to be familiar but others representing the best that there is in the field of tuberculosis Among these might be mentioned Drolet,

Alexius Forster, the late Carl Hedblom, Ralph Matson and the late Ray Matson, Edgar Mayer, George Ornstein and others

In the first volume, which consists of twenty-two chapters, is a most important contribution by Godias Drolet on the "Epidemiology of Tuberculosis," and another, "The Pathologic Physiology of the Tuberculous Lung" by Pol N Coryllos which is divided into five sections with a particularly valuable one on intrapleural pressures and their effects on the tuberculous lung, which subject is all important in pneumothorax work. Ornstein and Ulmar discuss the physical diagnosis of tuberculosis and its classification in three chapters, Hollis Potter continues on the x-ray findings and Dr Goldberg himself its differential diagnosis, prognosis, prophylaxis, home treatment, treatment by rest, exercise and occupation, diet, medicinal, symptomatic and tuberculin therapy in separate chapters Edgar Mayer discusses the salt restricted dietaries in tuberculosis and Matson takes up pneumolysis and with his brother, Ray, oleothorax and other operations

In the second volume, containing twenty six chapters and an index, Hedblom discusses the extra pleural thoracoplasty and Dr Mayer, as is to be expected, takes up the question of sunlight treatment Alexius Forster of Colorado Springs writes on the subject of climatotherapy Tuberculosis of other organs and parts of the body is taken up by authoritative writers on the subject The final and particularly important chapter in the second volume is the one on "The Psychopathology of the Tuberculous" by Clarence Neymann

This work of Dr Goldberg's contains almost too much information to be of value for students and general practitioners, but it certainly should be on the shelves of all sanatorium libraries and will be invaluable for specialists and students in this particular subject. It is a distinct and worthy contribution to the already enormous literature on tuberculosis

Diseases of the Nervous System A text book of neurology and psychiatry Smith Ely Jelliffe and William A White Sixth Edition, Thoroughly Revised 1175 pp Philadelphia Lea & Febiger \$9.50

This well known textbook, considered by the reviewer to be the most complete book of its kind current in neurological literature, has been revised for a new edition, six years after the previous issue The bulk of the book has not been increased, in spite of many additions, due to a clever device of making each page somewhat longer, so that there is more material in an equal number of pages New methods of examination have been added and there are many changes in the chapters on the vegetative nervous system and the endocrinopathies This book, which has been strongly endorsed by the medical profession in the past, should be welcome in its new dress

The New England Journal of Medicine

VOLUME 214

JANUARY 9, 1936

NUMBER 2

BLOOD IODINE STUDIES IN RELATION TO THYROID DISEASE*

Basic Concept Of The Relation Of Iodine To The Thyroid Gland, An Iodine Tolerance Test

BY H. J. PERKIN, B.S.,† FRANK H. LAHEY, M.D.† AND RICHARD B. CATTELL, M.D.†

PART I

INTRODUCTION

IF some of the fundamental facts regarding thyroid secretion are discussed before the preliminary report of our experiences with blood iodine determinations and the iodine tolerance tests are recorded by H. J. Perkin, it will make it more readily possible for readers who have not been particularly interested in thyroid conditions to comprehend the remarks about blood iodine.

We have known now for a great many years that the secretion and secreting activity of the thyroid gland are intimately linked with iodine that during its stages of overactivity the thyroid gland is in a state of hyperplasia and that during that stage there is an abnormally low content of iodine within the thyroid gland itself (Marine and Lenhart¹, Cattell²).

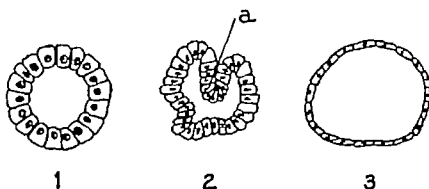
It is possible now to extract by hydrolysis and precipitation a crystalline substance known as thyroxine (Kendall³) which has all of the physiological properties of thyroid extract. This active principle of the thyroid contains sixty five per cent iodine and it is now quite generally accepted that the effectiveness of thyroid material to be employed therapeutically is proportional to its iodine content. It is, therefore, evident that the iodine content of the thyroid is related to the activity of that gland and is a probable indication as to whether the thyroid is storing its active principle or is pouring it out into the blood stream to stimulate the rapid heart action and increased metabolism observed in hyperthyroidism.

To understand the reasons why blood iodine is usually elevated in patients with excessive thyroid secretion (hyperthyroidism) and to grasp the basis of the blood iodine tolerance test as developed by Mr. Perkin, it is necessary to review some of the changes which take place in the thyroid during its secreting activity in

hyperthyroidism (hyperplasia), the histologic and chemical changes which take place in the gland as the result of the administration of iodine (Lugol's solution) at this time (involution) and the relation of the histology in the normal gland to the iodine content.

The glandular unit of thyroid activity is a ring of epithelial cells surrounding an acinus overfilled (involution), moderately filled (normal) or scantily filled (hyperplastic—hyperthyroidism) with what probably represents the vehicle (colloid) containing the active principle of the thyroid secretion.

When the thyroid gland is secreting normally, it appears as shown in Figure 1. The epithe-



Diagrams 1, 2, 3
a. Papillary Projection

FIGURE 1. Diagrammatic representation of the normal thyroid unit. The acinus filled with a moderate amount of colloid and lined with normal cuboidal epithelium.

FIGURE 2. Diagrammatic representation of the thyroid unit in hyperthyroidism. Note the small amount of colloid within the acinus, the papillary projection (a) into the acinus and the columnar type of epithelium lining the acinus.

FIGURE 3. Diagrammatic representation of the thyroid unit of a patient with hyperthyroidism after treatment with iodine. Note the change designated as involution, a large amount of colloid in the acinus dilatation of the acinus and flat inactive epithelium lining the acinus.

lum lining the acinus will be flat cuboidal in character. There will be a moderate amount of colloid material within the acinus and the iodine content of the gland in terms of milligrams of iodine per gram of dried gland will be found to be within normal limits (Approximately 20 milligrams).

When a patient develops primary hyperthyroidism or exophthalmic goitre, then certain histologic and chemical changes take place within the thyroid gland and the epithelium surrounding the acinus becomes high columnar in char-

From the Lahey Clinic; The Baker Memorial Clinic of the New England Deaconess Hospital, and The New England Baptist Hospital.

†Perkin, H. J.—B.S., Research Fellow in Biochemistry, Lahey Clinic. Lahey, Frank H.—M.D., Director, Lahey Clinic. Surgeon-in-Chief, New England Baptist Hospital. Cattell, Richard B.—M.D., M.D., Surgeon, Lahey Clinic, New England Deaconess Hospital and New England Baptist Hospital. For records and addresses of authors see "This Week's Issue," page 32.

aceti, its acinar margin becomes crinkled and projects into the acinus in a papillary-like form and the amount of colloid in the acinus is impressively diminished, as shown in figure 2

During this stage of hyperplasia and glandular activity, the iodine content of the thyroid drops strikingly in terms of milligrams of iodine per gram of dried gland until it is often as low as 0.4 of a milligram per gram of dried gland (Mairne and Lenhart¹, Cattell²). It is during the stage of excessive and abnormal thyroid activity that the thyroid gland discharges its contained iodine and it is in this state of thyroid abnormality that high values of iodine are found in the blood stream

Since the iodine fraction of thyroxine is necessary to make it active since the amount of colloid in the thyroid in the patient with hyperthyroidism is strikingly diminished, since the blood iodine in this state is found elevated and the iodine content of the thyroid low, one can, of course, theoretically assume that the increase in blood iodine is evidence of an increase in circulating thyroxine. That this is possibly so is made further probable by the information presented by Mr. Perkin in chart 3 in which the drop in blood iodine value, similar to the drops in metabolisms are shown before operation, three months after operation and six months after operation

If one now administers iodine (Lugol's solution) to the patient with excessive thyroid activity (hyperthyroidism) at this time very definite changes take place in the patient clinically, in the blood iodine, in the histologic appearances (involution) of the gland and in the iodine storage in the thyroid gland as shown in figure 3. The epithelial cells lining the acinus are flattened and within the acinus there accumulates a large amount of colloid material (involution). The blood iodine drops and the amount of iodine within the thyroid gland rises sharply until it may be as high as 80 milligrams of iodine per gram of dried gland. During this stage of involution there are, usually in 90 per cent of the cases (Cattell-) clinical evidences of relief as indicated by a drop in basal metabolism and pulse rate and a gain in weight. Having operated upon several thousands of thyroid glands during this stage of involution, we know also that there are gross changes in the gland at the time which as the result of the accumulation of such large amounts of colloid in the acinus are quite obvious to anyone experienced with thyroid surgery. The gland becomes strikingly firm the vascular and lymph channels between the lobules as the result of acinar distention become for a time obstructed (Mairne and Lenhart¹) the vascularity of the gland diminishes and its diffusion of thyroxine through the lymphatics because of their obstruction also

limited. This plus the possible mechanical effects of the pressure of excess colloid in the distended acinus upon the epithelial cells lining the acinus (Mairne and Lenhart¹) is the probable reason why involution as brought about by Lugol's solution or any other form of iodine results in such a prompt but temporary improvement in the clinical symptoms in patients with hyperthyroidism.

We have for years appreciated and maintained that the effects of iodine upon patients with hyperthyroidism were not to cure them of hyperthyroidism but to bring about a temporary improvement during which time surgery can be more safely carried out.

It is probable from the clinical course of patients with hyperthyroidism on iodine that the thyroid gland adapts itself to the distention of its acinus with colloid, that the temporarily restricted blood supply partly resumes its abnormal amount and that temporarily obstructed lymph channels as they adapt themselves to the new conditions are reopened (Mairne and Lenhart¹). This results then in a return of the severe symptoms of hyperthyroidism, increasing tachycardia, weight loss and increases in basal metabolism. Iodine becomes less effective in maintaining this clinical remission and the patient is then, so-called iodine fast. The period of improvement during which the operation could have been more safely done has been lost, and it is not possible again to get the same striking iodine improvement in the patients even though they be taken off iodine for several weeks and put back on it again after this interval.

It is for the above reasons that we have always urged upon physicians that if their patients are not to be operated upon, they may give them all the iodine they choose, but if they are to be operated upon that they be sent to the surgeon not having had iodine, in order that he may give it to them, observe the period of maximum improvement and operate upon them thus with greater safety at that time.

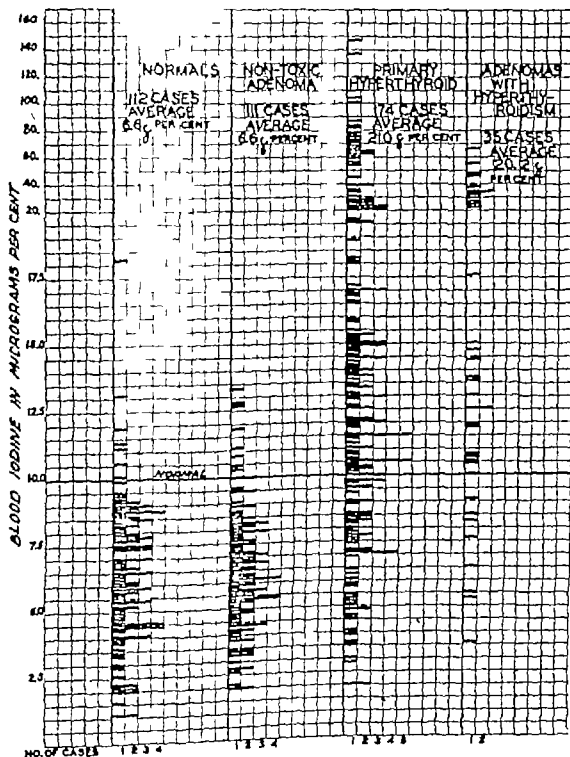
To epitomize then our knowledge of iodine in hyperthyroidism exclusive of blood iodine. When we have hyperthyroidism with hyperplasia there is a low iodine content within the thyroid gland. At this time the gland leaks its iodine into the blood stream and is unable to store it. This hyperplastic gland of hyperthyroidism has, however, a tremendous thirst or affinity for iodine and if iodine, usually Lugol's solution in any form be given at this time, it will promptly (literally within an hour or an hour and a half, see iodine tolerance charts) be accepted and stored in the gland as shown by the iodine tolerance curve. Following this within four to ten days, there will be a marked change in the thyroid gland (involution) which will result in a temporary improvement in the clinical picture of hyperthyroidism.

PART II

Biochemical investigation has done much to elucidate more clearly some of the physiological factors associated with thyroid disease. Of recent years, improved methods of quantitative blood iodine estimation have more firmly established the presence of an abnormal iodine metabolism associated with increased physiological activity of the thyroid gland. In clinical hyperthyroidism, there usually exists a de-

with primary hyperthyroidism, thirty five patients with adenomatous goitre and secondary hyperthyroidism and thirty two patients checked three and in some instances, six months following subtotal thyroidectomy for hyperthyroidism. Patients having other conditions known to influence the blood iodine level such as gallbladder disease, elevated temperature or treatment with iodides for conditions other than thyroid disease, were not included. All other cases were included. Except in the group of

CHART 1



crease in the iodine of the thyroid gland concomitant with an increase of iodine in the blood and urine. In order to place the relationship of the blood iodine to thyroid disease on a firmer basis the present study was undertaken.

The group of cases studied to date and recorded herewith, number four hundred and sixty-six. This group included blood iodine estimations on one hundred and twelve normal individuals, one hundred and eleven patients with adenomatous goitre and no clinical toxicity, one hundred and seventy four pa-

tients with primary hyperthyroidism, thirty five patients with adenomatous goitre and secondary hyperthyroidism and thirty two patients checked three and in some instances, six months following subtotal thyroidectomy for hyperthyroidism.

The method of blood iodine analysis developed by one of us (H. J. P.) and reported elsewhere¹ has been used with success, to an error of less than ten per cent in over eight thousand analyses.

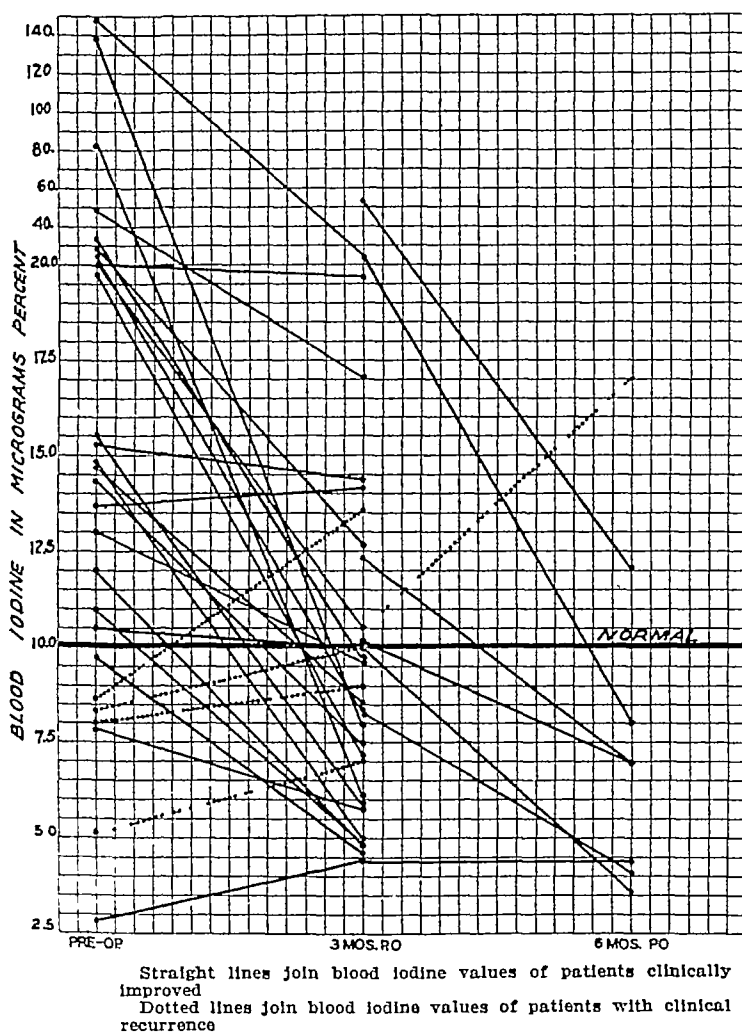
The blood iodine range on one hundred and twelve normal individuals was

18.3 gamma per cent with an average of 6.6 gamma per cent. One gamma is synonymous with one microgram and is equivalent to 0.01 milligrams. Seven normal individuals had a blood iodine concentration in excess of ten gamma per cent. Two of these individuals were surgeons whose frequent contact with iodine might account for the increased blood concentration. One individual was of the nervous Latin race and temperament and consistently

patients were nontoxic, the surgically removed thyroid showed secondary hyperplasia. In the remaining four cases there was no evidence of thyroid toxicity (See chart 1).

In one hundred and seventy-four cases of primary hyperthyroidism, the blood iodine range varied from 2.0 to 14.9 gamma per cent with an average of 21.0 gamma per cent. Of this group fifty-two cases or 30 per cent had a normal blood iodine in the presence of clinical

CHART 2



showed an elevated blood iodine concentration. The elevation of blood iodine in the other four cases could not be explained. Irrespective of this group we have tentatively adopted ten gamma per cent as the upper normal limit by our methods (See chart 1).

The blood iodine of one hundred and eleven clinically nontoxic adenomatous goitrous individuals was found to vary from 2.0 to 12.8 gamma per cent with an average of 6.6 gamma per cent. Of this group, there were eight cases in which a blood iodine concentration of 10 gamma per cent was exceeded. In four of these eight cases, although clinically the

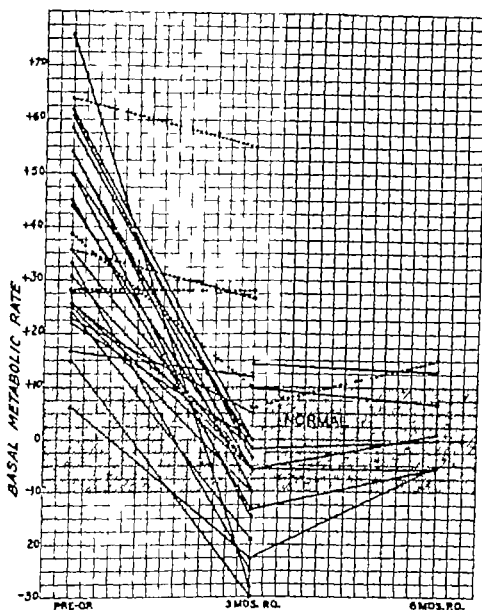
and microscopical evidence of hyperthyroidism. Six of these fifty-two patients were in iodine remission but had no iodine therapy for at least one week prior to the test. While we are unable to satisfy ourselves as to the reason why 70 per cent of this entire group of cases should present an elevated blood iodine and 30 per cent a normal blood iodine, there are certain features of this latter group which have attracted our attention. In this 30 per cent group fall the more severe cases of the entire group in that they usually did not appear to respond so effectively to iodine therapy preoperatively, and as a result, two-stage operative procedures were

more often necessary. Such operative procedures were required in nineteen cases or 36.5 per cent of this latter group while in all hyperthyroid patients passing through the Clinic, 22 per cent require two-stage operations. Primary hyperplasia with irregular involution of the excised thyroid was a consistent finding in patients from this group.

The blood iodine range of thirty-five individuals having adenomatous goitre associated with clinical toxicity varied from 3.6 to 66.5

Although three months after operation, the blood iodine in seven patients was still elevated above the upper normal limit, it was markedly decreased, relative to the preoperative blood iodine. Six patients had an elevated blood iodine three months postoperatively and four of these six cases had clinical evidence of persistent hyperthyroidism (Dotted lines—charts 2 and 3). All the cases of persistent hyperthyroidism were observed three months after their first operation, before which they had

CHART 2



Straight lines join B. M. R. values of patients clinically improved. Dotted lines join B. M. R. values of patients with clinical recurrence. Please note how drop in blood iodine in chart 2 parallels drop in basal metabolism in this chart.

gamma per cent with an average of 20.2 gamma per cent (chart 1). Of this group eight cases or 23 per cent had a normal blood iodine in the presence of clinical hyperthyroidism. Four of these eight cases were serious enough to warrant two-stage operative procedures.

In twenty-six patients who had subtotal thyroidectomy for hyperthyroidism, a striking decrease in blood iodine concentration, paralleling the decrease in basal metabolic rate, was found three months postoperatively in those cases where clinical improvement was present. The blood iodine relationship is shown graphically in chart 2 and the corresponding basal metabolic rates of the same patients in chart 3.

normal blood iodines. In view of this, we shall be interested to observe in further studies whether the tendency toward recurrence is consistently greater in those cases of clinical hyperthyroidism with a normal blood iodine.

A further decrease in blood iodine concentration was found six months postoperatively in seven cases, two of which had been followed since the preoperative period. One case (dotted line 3-6 months P. O.) had clinical evidence of recurrent hyperthyroidism at six months which was confirmed at the nine months checkup. The blood iodine (dotted line) was elevated at the six months' period preceding the patients' clinical manifestations of hyperthyroidism but de

creased to a normal blood level at the nine months' period when the presence of hyperthyroidism was evident. Thus one case reassures us of the real probability of a normal blood iodine in the presence of clinical hyperthyroidism and lends credence to the results of the hyperthyroid group shown in chart 1 with a normal blood iodine.

The presence of excess amounts of iodine in the blood of individuals with clinical hyperthyroidism has been reported by Dodds⁶ and others^{6, 7}. No reference, however, has been made to the possible presence of a normal blood iodine in hyperthyroid individuals except by Turner⁸ and Perkin⁹ who independently reported that 20-30 per cent of the cases studied by them had a normal blood iodine. This study confirms our former observations. These hyperthyroid patients with a normal blood iodine, as previously stated, did not appear to respond so effectively to preoperative Lugol's therapy, two stage operative procedures were more frequently employed, and as suggested by the post-operative observations, the tendency toward persistent hyperthyroidism was greater.

We offer two possible explanations, based on clinical observations for the presence of a normal blood iodine in hyperthyroidism.

(a) In long-standing cases of hyperthyroidism which have not had iodine therapy, the thyroid gland becomes deficient in iodine as indicated histologically by the marked reduction of colloid material and chemically by iodine analysis³. In the earlier stages of the disease there is an excess of iodine in the blood⁶ and urine¹⁰, the urinary iodine being a direct loss to the body. It is reasonable to assume therefore, that a time would be arrived at when the thyroid could no longer sustain the excess iodine of the blood and urine and these values would then fall to a normal or even subnormal level. In support of this viewpoint is the fact that in the toxic adenomatous group, who had not had iodine therapy, there were no cases with a normal blood iodine. On such a hypothesis the size of the thyroid gland at the initiation of hyperactivity would prolong the time that an elevated blood iodine could be maintained.

(b) Study of the remaining fifty cases of hyperthyroidism with a normal blood iodine revealed that they had all received repeated iodine treatment prior to hospitalization. The greater number of cases receiving therapeutic x-ray treatment for hyperthyroidism were also within this group. The increased severity of this clinical state has been pointed out above. This confirms the observation made by others^{11, 12} that intermittent iodine therapy in hyperthyroidism may be a very unwise procedure.

The blood iodine studies on the group of patients before and after subtotal thyroidectomy for hyperthyroidism with clinical improvement

in most cases and recurrence in a few, definitely illustrate, we believe, a relationship between clinical hyperthyroidism and the blood iodine level. It is not to be inferred that we believe iodine to be the sole factor in the etiology of thyroid disease but we do feel that it is a primary one.

PART III

AN IODINE TOLERANCE TEST

In view of the findings that single blood iodine estimations were not always capable of differentiating toxic and nontoxic goitre, we have, by frequent blood iodine estimations following the ingestion of a fixed dose of Lugol's solution, established the blood iodine curve in a given time period and called this the blood iodine tolerance curve. It is hoped that this test will be an objective criterion by which the presence of hyperplasia in the thyroid gland may be predicted in any particular patient.

The technique of the test may be reviewed briefly as follows. 10 cc of blood is withdrawn from the patient, following which a known amount of iodine as Lugol's solution (37.5 milligrams iodine used at present) in milk is given orally. At one-half hour, one hour, one and one-half hours and at two and one-half hour periods, two cc blood samples are taken. The morning of the test, no breakfast is given. All other meals are allowed. Iodine estimations are carried out on the separate samples of blood. The blood iodine curve with respect to time is graphically plotted.

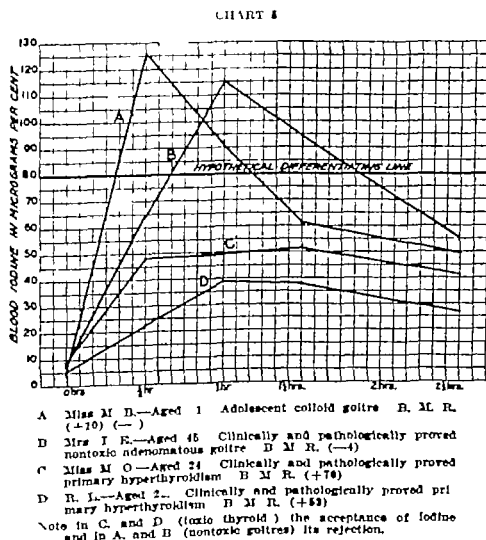
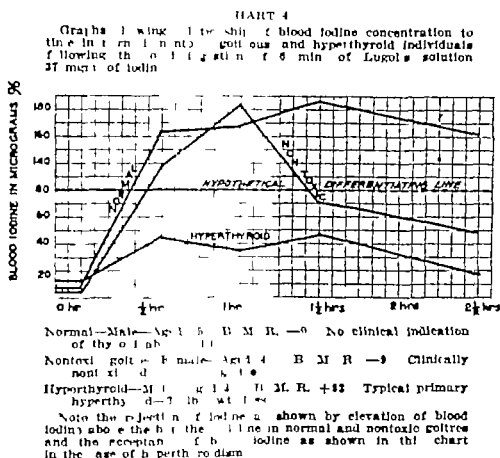
The difference in blood iodine curves between the normal nontoxic adenomatous and hyperthyroid individual is illustrated in chart 4.

From the above chart it may be seen that the blood iodine curve does not rise to such a high level in the hyperthyroid individual as in the normal or nontoxic goitrous patient. It is reasonable to assume that a hypothetical line exists differentiating the normal and nontoxic goitric whose blood iodine curve rises above and the individual with hyperthyroidism whose blood iodine curve falls below this line. This hypothetical line is tentatively placed at 80 gamma per cent in the above chart. Obviously, the height of the differentiating line would be dependent on the amount of iodine ingested and the differentiating principles obliterated when very large or very small doses of iodine were given. Thus an optimum dosage of iodine exists whereby the greatest variation between the normal and abnormal is obtained. Our work to date indicates that this optimum dosage varies in different geographical regions since 75 milligrams of iodine was differentiating at Toronto, Canada⁹ while 37.5 milligrams appears to be closer to the optimum in this area. The relatively larger number of cases with nodular goitric in the Toronto area in contrast to the greater proportion of primary hyperthyroid

eases seen at the Lahey Clinic may account for this difference or there may be other variable factors which at present are not clear.

It would appear from our work to date that the differentiating principle in these tests

individuals following the injection of 1300 gamma of iodine as potassium iodide. The blood iodine curves of four typical cases with thyroid enlargement are shown in chart 5. The level to which the blood iodine rises dependent upon



may be attributed to the degree of physiological and pathological activity of the thyroid gland. The work of Elmer^{12, 14} lends support to such a hypothesis by his method of tracing the blood iodine curve and urinary excretion of iodine in myxedematous, normal and hyperthyroid indi-

viduals following the injection of 1300 gamma of iodine as potassium iodide. To date we have effected iodine tolerance tests on about sixty individuals and our results with a few idiosyncrasies are essentially the same as those reported

These iodine tolerance curves are, however, subject to variation. At present they must be interpreted in the light of the clinical picture as a whole. Further study will clarify the irregularities that occur and make their correct interpretation more possible. It is hoped that the iodine tolerance test may prove diagnostically valuable in a manner similar to that which sugar tolerance curves have in diabetes.

SUMMARY

- 1 Some of the fundamental facts regarding iodine and thyroid secretion are discussed.
- 2 Blood iodine ranges have been established on normals, nontoxic adenomatous goitrous and hyperthyroid individuals in the New England area.
- 3 The presence of an elevated blood iodine in all cases of clinical hyperthyroidism is not absolute. Twenty-nine per cent had a normal blood iodine.
- 4 An elevated blood iodine in hyperthyroidism appears to be compensatory and desirable, if not present it at least suggests an intense state of thyroid intoxication.
- 5 Following subtotal thyroidectomy for hyperthyroidism, when clinical improvement is present, the blood iodine is decreased in relation to the preoperative blood iodine, and elevated when persistent or recurrent toxicity is present, although in

extreme cases, it may remain unaffected by the surgical procedure.

- 6 An iodine tolerance test is described which may prove to be a valuable asset in establishing a diagnosis of hyperthyroidism.

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MORTALITY FACTORS IN ACUTE APPENDICITIS*

Study of 1,000 Cases

BY EDWARD D. LEONARD, M.D., † AND SIDNEY DEROW, M.D. †

ONE thousand consecutive cases of acute appendicitis operated upon at the Newton Hospital have been studied in an effort to determine the possible factors influencing the mortality rate. Fourteen hundred and two cases (1923-1933) reported as clinical acute appendicitis were reviewed. Four hundred and two of this number, although presenting clinical pictures of acute appendicitis, were not included in this series, because of the pathological reports which did not confirm this diagnosis. The remaining 1,000 cases were positive acute appendices and their complications. There were forty-seven deaths in this group giving a mortality rate of 4.7 per cent.

The factors which appear to affect the mortality rate are individually discussed below.

Sex. Five hundred and forty of the patients were males and four hundred and sixty were fe-

males. The former group accounted for twenty-five deaths (4.6 per cent) and the latter group for twenty-two deaths (4.8 per cent). The disease was more prevalent in males, but the difference in the mortality rates between the two was negligible.

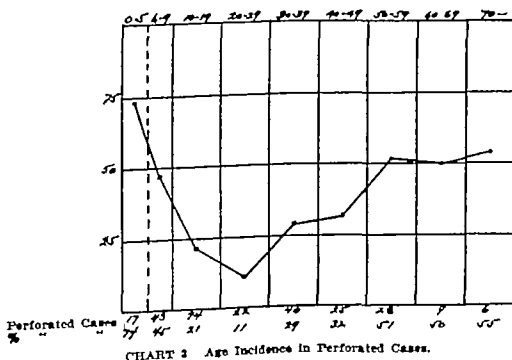
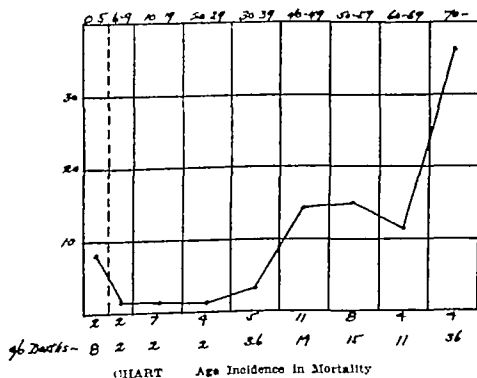
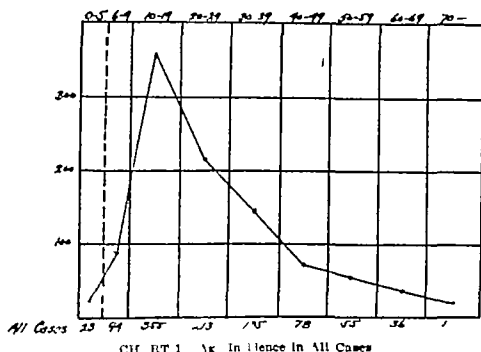
Age. As the accompanying graph (chart 1) illustrates, the condition is most common in the second and third decades of life (57 per cent of all the cases fall in this period). Fortunately, the mortality rate is lowest (2 per cent) in these cases (see chart 2). The death rate during the first five years of life is relatively high (8 per cent). Beginning with the end of the fourth decade there is a steady rise in the mortality rate. The percentage of perforated cases (chart 3) in the different age groups runs a course parallel to the death rate. Seventy-four per cent of all the patients under five years of age in this series showed free pus at the time of operation. Fifty per cent of the cases over fifty years of age had peritonitis or abscess formation. The above findings emphasize the importance of early diagnosis and operation in these age groups.

*From the Surgical Service of the Newton Hospital, Newton, Massachusetts.

†Leonard, Edward D.—A.B., M.D., Surgeon in Chief, Newton Hospital, Newton. Derow, Sidney—M.D., Junior Surgeon, Newton Hospital, Newton. For records and addresses of authors see "This Week's Issue," page 83.

Duration Charts 4 and 5 illustrate vividly the relationship of duration of the disease before operation to the mortality. Eighty-four cases

the mortality rate after operation increases steadily reaching a peak (13.9 per cent) on the fourth and fifth days after the onset of symp-



of acute appendicitis five of which had perforated, were operated upon within ten hours after the onset of the symptoms without a single death. Following this relatively safe period,

Operation done after this period shows a slight but definite drop in the mortality rate. The death rate on the fourth and fifth days without doubt placed that group of

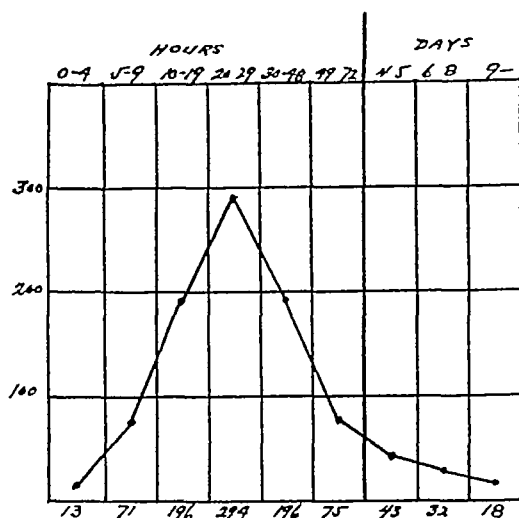


CHART 4 Duration and Incidence

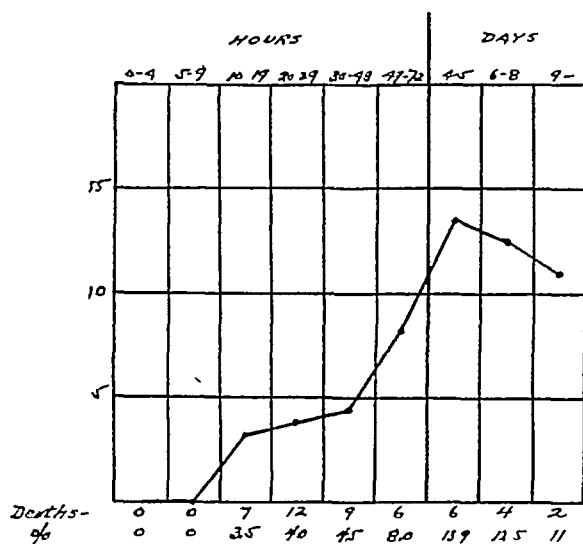


CHART 5 Duration and Mortality

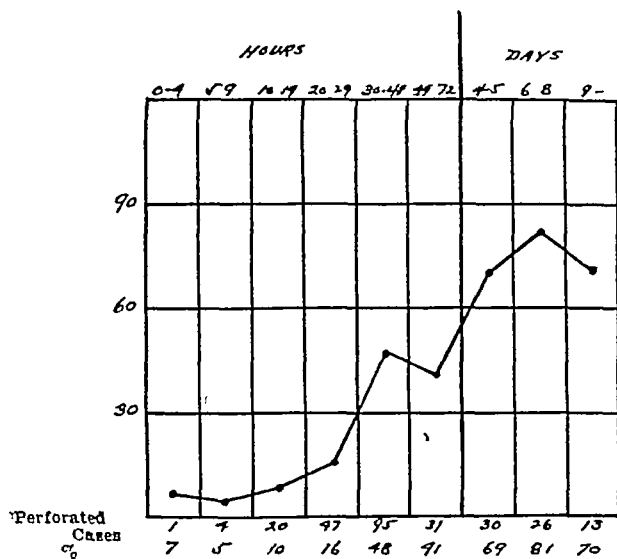


CHART 6 Duration and Perforation

cases which are "too late for early surgery and too early for late surgery" Findings similar to these have been discussed by Walker, Collier and others. The percentage of cases of perforation varies directly with the duration of the symptoms before operation (chart 6)

CATHARSIS

	All Cases (1,000)	Perforated Cases (274)	Deaths (47)
History of Catharsis	103	50	7
Per cent of Patients who took Cathartic	10.3	18	15

Forty-eight per cent of all the patients who gave a history of catharsis had ruptured appendices at operation. Fifteen per cent of all the deaths were patients who took cathartics. These figures show another strong influence on the death rate before the patient actually comes to operation. It is therefore apparent that operation in itself will never lower the death rate sufficiently until the laity is taught not to treat all "stomach aches" with cathartics and waiting for symptoms to cease.

PREVIOUS ATTACKS

	All Cases (1,000)	Perforated Cases (274)	Deaths (47)
History of Previous Attacks	234	42	5
Per cent of Patients having Previous Attacks	23.4	15	10.6

Conclusions have not been drawn from these figures because many past histories were brief. However, they do stimulate interest in future studies and show that one attack of appendicitis does not immunize against future attacks. A number of patients who died undoubtedly would be alive now if the appendix had been removed during the interval rather than to have waited for another acute attack. The quality of surgical service undoubtedly has a definite relation to mortality statistics in this disease.

ANESTHESIA

	No of Cases	Deaths	Per Cent Deaths
Gas Oxygen Ether	961	40	4.1
Gas Oxygen	7	1	14.2
Spinal	25	5	20
Local	7	1	14.2

Throughout this entire series ether was the anesthetic of choice. Gas oxygen and local anesthetics were used in cases gravely ill at time of operation. Spinal anesthesia was employed in some elderly patients with pulmonary compli-

cations There were two definite spinal deaths on the operating table. Gas oxygen ether and thesia in itself was not the cause of any deaths in this series

OPERATIVE PROCEDURES

a Incision

Type of Incision	No of Cases	Deaths	Per Cent
Right Rectus	900	41	4.5
McBurney	65	2	3.0
Midline	84	4	11.9

One case presented as a strangulated hernia and the operation included the removal of an acute appendix through a right inguinal incision. The inadvisability of midline incisions for this condition is apparent, they were used in this series in a few cases presenting a question of diagnosis in a female. Although McBurney incisions were used in only sixty five cases the low death rate is worthy of note and future study. Reid has reported interesting results with the use of this incision. (At present the Service is running a series of McBurney incisions since a comparison between the results of right rectus and McBurney incisions will be of instructive interest.)

b Drainage

Four hundred and eighty-six cases were drained and forty-three of the deaths were in this group. In recent years drainage in early spreading peritonitis has been instituted more infrequently than in the past. Many surgeons strongly advise against drainage in these early cases. In this series drains were used rather often. Except for possibly a more prolonged stay in the hospital we do not feel that drainage in itself contributes very strongly to immediate mortality in acute appendicitis. It is however, an important factor in postoperative late complications such as hernia and intestinal obstruction. Various writers have proved the inadequacy of drainage and we drain at present fewer cases than we did in the past. It is difficult to forget the old dictum "When in doubt, drain."

c Disposition of Appendix Stump

The stump was inverted in 582 cases. No relation between inversion of the stump and mortality could be ascertained.

The great majority of drainage cases showed peritonitis or abscess at operation. Appendectomy with appendicostomy or cecostomy was done in seven cases with no deaths, although this is a small collection of cases, it is of significance. Some writers advise routine appendicostomy or cecostomy in all cases of spreading peritonitis.

d Type of Operation

	Cases	Deaths
Appendectomy without Drainage	512	2
Appendectomy with Drainage	436	39
Incision and Drainage		
Appendix not removed	40	2
Appendectomy with Drainage and Ileostomy	1	0
Appendectomy with Drainage and Cecostomy	6	0
Appendectomy with Drainage and Appendicostomy	1	0
Incision and Drainage and Ileostomy (Both patients moribund)	2	2

COMPLICATIONS OF ACUTE APPENDICITIS FOUND AT OPERATION

Complication	Patients	Deaths	Per Cent
General Peritonitis	138	25	19
Local Peritonitis	48	4	8
Appendix Abscess	82	5	6
Pelvic Abscess	4	1	25
Pelvic Peritonitis	8	1	12
Total	274	36	13.1

The death rate in acute nonruptured appendicitis was 1.5 per cent.

The case listed as a death from Pelvic Abscess was a woman seven months pregnant who came into the hospital ten days after onset of symptoms. She was moribund and had intestinal obstruction. Her prognosis was hopeless from the beginning.

POSTOPERATIVE COMPLICATIONS IN PATIENTS DISCHARGED AS RECOVERED

Complications	Number of Patients
Scarlet Fever	1
Wound Sepsis	35
Fecal Fistula	5
Hematoma of Wound	1
Delayed Wound Healing	5
Paralytic Ileus (Intestinal Obstruction)	7
Acute Pharyngitis	2
Pelvic Abscess	10
Postoperative Hemorrhage	1
Retropharyngeal Abscess	1
Upper Respiratory Infection	3
Acute Bronchitis	3
Lobar Pneumonia	3
Bronchopneumonia	3
Hemolytic Streptococcus Septicemia	1
Phlebitis	1
B. Coll. Bacteremia	1
Rheumatic Heart Disease	1
Pyelitis	2
Abdominal Wall Abscess	6
Acute Cystitis	1

SECONDARY OPERATIONS ON PATIENTS DISCHARGED
AS RECOVERED

Complications	Number of Patients
Incision and Drainage Abdominal Wall Abscesses	9
Abdominal Drainage Pelvic Abscess	3
Rectal Drainage Pelvic Abscess	1
Vaginal Drainage Pelvic Abscess	1
Secondary Wound Suture	3
Ileostomy	8
Transfusion	3

CAUSES OF DEATH AS LISTED ON HOSPITAL
RECORDS

Complications	Number of Patients
Peritonitis	29
Intestinal Obstruction	4
Paralytic Ileus	12
Acidosis	1
Pulmonary Embolus	6
Hemolytic Streptococcus Septicemia	2
Bronchopneumonia	1
Circulatory Failure (Old Age)	3
Spinal Deaths	2

SECONDARY OPERATIONS ON PATIENTS THAT DIED

Complications	Number of Patients
Enterostomy	6
Transfusion	1
Multiple Incision and Drainage of Abdominal Abscesses	1

CONCLUSIONS

Mortality, in the average cases of acute appendicitis, is not the result of a single factor, but is due to a combination of factors. Of prime

significance in the causes of mortality are the following

- 1 Age of the patient
- 2 Duration of Symptoms before operation
- 3 Catharsis
- 4 Type of Anesthesia
- 5 Type of Operation
- 6 Postoperative Care
- 7 General Condition of patient before operation
- 8 Skill and Judgment of each individual Surgeon

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SYMPTOMATIC PSYCHOSES WITH BROMIDE INTOXICATION*

Their Occurrence in Southern New England

BY PAUL WILLIAM PREU, M D, † JOHN ROMANO, M D † AND WARREN T BROWN, M D †

INTRODUCTION

CASES of bromide intoxication with symptomatic psychosis have been reported from Maryland by Wuth¹ Diethelm², and Wainwright³ a series from Colorado has been described by Wagner and Bunbury⁴, cases from Texas have been described by Harris and Hauser⁵ from Pennsylvania by Levin⁶, and from North Carolina by Craven⁷ In spite of the wide distribution and the obviously increasing recognition of this condition, cases have been seen

with such frequency in New Haven that it seems justifiable to call to the attention of the physicians of New England certain dangers in the use of bromide, and to point out the specific methods for the diagnosis and treatment of bromidism

Credit should be given to Wuth for awakening interest in bromide intoxication in this country He devised a simple laboratory method for the quantitative estimation of bromide in the blood, which will be described below Since the publication of his paper in 1927, knowledge of psychoses with bromide intoxication has been extended by other investigators, until at the present time this group of mental disorders is one of the best understood psychiatric conditions

*From the Department of Psychiatry Yale University School of Medicine

†Preu Paul W—BS MD Chief of Clinic Psychiatric Clinic, New Haven (Conn) Hospital Romano John—BS MD House Officer and Fellow in Psychiatry Colorado Psychopathic Hospital, Denver Colorado Brown Warren T—MD Instructor in Psychiatry Yale University School of Medicine For records and addresses of authors see "This Week's Issue" page 83

PHARMACOLOGY

The principal action of bromide is its depressing effect upon the central nervous system. Because of this valuable sedative action it has been extensively employed in the treatment of nervous and mental diseases. Many consider it the most effective drug for the treatment of idiopathic epilepsy. It is a valuable aid in the management of tensional states accompanied by anxiety and insomnia. In suitable cases, if the patient remains under constant medical supervision, the use of bromide is safe. Bromide is readily absorbed from the stomach when given by mouth and appears in the urine within a few minutes after ingestion. The elimination of the drug from the body proceeds slowly, however. Bromide tends to displace chloride in the blood and other body fluids where it may accumulate to such an extent that a state of intoxication is produced. The chloride which is displaced is excreted by the kidney in preference to bromide.⁴ The interchange of chloride and bromide apparently involves equilibrium reactions since the administration of large amounts of chloride accelerates the elimination of bromide. It follows that the danger of intoxication is diminished by a generous chloride intake, and is exaggerated in states of malnutrition, cachexia, and dehydration in which the intake of fluids and chlorides may be limited or the stores of these substances in the body depleted. Impairment of renal function in nephritic and arteriosclerotic conditions may also enhance the risk of intoxication.

SYMPTOMATOLOGY

If the accumulation of bromide in the blood and tissues continues, definite intoxication develops. Several authors recently have described the symptoms of bromide intoxication in detail with special reference to the psychiatric manifestations. Diethelm, Wainwright,² and Levin,³ have published excellent descriptions of the clinical pictures they observed. The symptomatology will be reviewed here briefly in order to call attention to two points which are of special importance to the internist: first, the delirious or "symptomatic" character of the mental disturbances; and secondly the apparent independence of the psychiatric and dermatologic symptoms of intoxication.

The early symptoms of bromide intoxication are an exaggeration of the therapeutic sedative effect. Definite retardation of thought, speech and action appears together with anorexia, constipation, weakness and drowsiness. This stage of intoxication is seldom dangerous if it is recognized before the appearance of frank psychosis and the symptoms clear up gradually when the administration of bromide is discontinued. If this is not done, however, and the drug continues to accumulate, outspoken psychosis, which may cause serious difficulty,

frequently occurs. Drowsiness and lethargy may be replaced by insomnia and irritable restlessness. The patient refuses food and fluids and may become severely dehydrated. Dry mucous membranes, furred tongue, foul breath, dilated pupils, ataxia and tremulousness are typical symptoms of the more severe states of intoxication. Symptomatic or delirious psychotic manifestations appear.

A disturbance of consciousness, the characteristic feature of symptomatic psychosis,⁴ is manifested by the primary symptoms of delirium: disorientation, fluctuation of the level of awareness and disturbance of memory. These symptoms are directly dependent upon an organic disturbance of cerebral function. On the basis of this organic disturbance of the sensorium, the patient usually develops more elaborate secondary symptoms which are colored by constitutional and personality factors and by his way of experiencing the organic delirium. Delusional trends, hallucinations and emotional disturbances are produced which complicate the clinical picture.

In some cases, for reasons which are not entirely understood, skin lesions appear. The eruption usually is pustular, acneiform in type, indistinguishable in appearance and distribution from acne vulgaris. These cutaneous eruptions generally appear only after prolonged administration of bromide⁵, thus differing from the exanthems of drug idiosyncrasy. A preëxisting seborrheic tendency is said to predispose to bromide acne. No published studies of blood bromide with reference to the dermatologic lesions have been found, but it has been our experience that extensive skin eruptions may occur with relatively low blood bromide levels. Severe skin eruptions are found in the absence of psychosis, while the skin may be normal in the presence of outspoken mental disturbance. This point demands emphasis because some physicians prefer to wait for the appearance of a skin eruption before making a diagnosis of bromide intoxication. Dependence upon the bromide eruption as a diagnostic aid is one of the chief reasons why symptomatic psychoses due to bromide pass unrecognized. A blood bromide level of 250 mg. per cent or higher will account for a delirious psychosis in a patient who is in fairly good physical condition. Stated in another way, severe intoxication will usually be produced by a displacement of more than 30 per cent of the blood chloride by bromide. The delirious condition is due to the presence of bromide, however, not to the deficiency in chloride.

The existence of bromide intoxication is suggested therefore by psychiatric or dermatologic symptoms which may be found alone or in combination.

DIAGNOSIS

Most patients to whom bromide is given are suffering from some neuropsychiatric illness

which causes its own symptoms, so that if bromide delirium is superimposed a very complicated psychiatric picture is produced. If the characteristic symptoms of delirium are recognized, there is usually little difficulty in making the differential diagnosis, for disorientation, clouding of consciousness and memory defects cannot be attributed to a preexisting mild neurologic or psychiatric condition or to a functional psychosis. If the bromide was given to allay the symptoms of an organic mental illness, such as psychosis with cerebral arteriosclerosis or delirium accompanying an infectious disease, the symptoms caused by bromide intoxication are sometimes indistinguishable from the symptoms of the original mental illness. Even in such cases, however, the presence of bromide intoxication may be suspected if there is a sudden exacerbation in the mental disturbance which is not accounted for by a change in the physical condition.

The skin lesions produced by bromide are not specific, but are of some diagnostic importance if a history of the administration of sedatives can be obtained, particularly if the eruption is associated with delirium.

A definite diagnosis of bromide intoxication can be made only by the identification of bromide in the blood or urine. Wuth's modification of the Walter-Hauptmann method is the standard laboratory test for bromide, and is sufficiently accurate for clinical purposes. Since the urine may be free of bromide when the blood bromide is high¹¹, the blood should always be examined. Either whole blood or serum may be used, the serum yielding lower readings, especially at low blood bromide levels. The test may be carried out readily in a small laboratory or physician's office. The blood protein is precipitated by trichloroacetic acid, the mixture is filtered and gold chloride added to the clear filtrate. A reddish brown color develops if bromide is present. The mixture is then compared with a standard in a colorimeter or by means of a colorimeter*. The method is fully described by Wuth¹ and Diethelm². It is well to determine the blood chloride simultaneously

TREATMENT

The treatment of bromide intoxication consists of general supportive measures plus the administration of chloride to eliminate bromide from the tissues.

Since almost all the patients are admitted in a malnourished or dehydrated condition, steps should be taken to insure an adequate intake of food and fluid. It is our practice to give a high caloric soft diet rich in vitamins and a minimum of 4000 cc of fluid a day to severely intoxicated patients. In psychotic cases feeding by gavage is frequently necessary. Repeated

enemas should be given to combat the intestinal sluggishness.

Approximately ten grams of chloride a day should be given in addition to the salt contained in the ordinary diet. Except in emergency, parenteral saline is contraindicated, as Wile¹¹ has shown that the rapid elimination of bromide may cause damage to the kidney.

Chemical sedation is contraindicated and usually ineffective⁷, although drugs are occasionally required to combat extreme excitement and noisiness. Continuous tubs and cold wet sheet packs are the best means of combating insomnia and excitement.

The intoxication can usually be controlled in less than three weeks by the methods described. The underlying illness, for which bromide was given, of course demands its own treatment.

CASE REPORTS

CASE 1 E W, aged fifty three, a single business woman, was admitted on February 12, 1934. Twenty years previously she had experienced a depression with complete recovery. The present illness had begun early in 1933 and had been characterized by increasing depression and agitation. Her family physician had administered an unknown quantity of bromide for several weeks before hospitalization in an attempt to quiet her. For a week before admission she had eaten poorly and had been increasingly drowsy.

On admission the vital signs were normal. There was a diffuse acneform eruption on the face and chest. The tendon reflexes were hyperactive. The patient was disoriented for time and place, showed fluctuation of the level of awareness and had auditory hallucinations. Her speech was slow, thick, and incoherent.

A soft diet was given, plus 3,000 cc of fluid and eight grams of sodium chloride daily. After ten days the delirium subsided, revealing an agitated tensional depression. No further improvement in her condition occurred, and she was discharged against advice on March 26, 1935.

The serum bromide on February 12, 1934 was 125 mgm per cent (15.5 mM/L*). On February 27, 1934 the serum bromide was not detectable.

Comment Bromide was given in an attempt to manage an agitated depression in the home. A sedative effect was obtained, but the patient could not be fed properly, and within a few weeks became intoxicated.

CASE 2 M M, aged thirty five, a housewife, was admitted on December 21, 1934. Six years previously, following the birth of her first child, she had experienced a depression with complete recovery. A second child had been born in July, 1934, and a few weeks later she had again become retarded, depressed and hypochondriacal. At home, under the care of her family physician, she had eaten poorly and her mental condition had not improved. A suicidal attempt led to her admission to the Psychiatric Clinic.

On admission her physical status was not remarkable. Symptoms of a retarded depression were present, but there was no evidence of a symptomatic psychosis. She was discharged against advice, somewhat improved, on December 30, 1934.

*Manufactured by LaMotte Chemical Company, Baltimore, Md.

*Millimols per liter.

At home she became agitated and on January 11, 1935 her family physician began the use of five grams of bromide daily in an attempt to quiet her. On January 18 she had hallucinations of giant Negroes armed with knives and of large dogs about to attack her. She struck at these imaginary enemies with household utensils. Her husband who was with her constantly maintained that she was always correctly oriented during the periods of hallucination.

She was readmitted on January 21 1935. Her physical status again showed no abnormality. There was no skin eruption. She was retarded and depressed but was correctly oriented and displayed no fluctuation of the level of awareness. There was no evidence of hallucinations in any of the sensory fields. When asked to recount her previous hallucinatory experiences she said she had not been confused but had been frightened by the sudden appearance and disappearance of the hallucinatory images which had seemed quite real to her.

No special treatment for bromide intoxication was given. Her depression did not improve and she was again discharged against advice on March 9 1935.

The serum bromide on readmission January 11 1935 was 200 mgm per cent (25 mM/L). On January 27 the serum bromide was 75 mgm per cent (9.3 mM/L) and on February 13 bromide was not detectable.

Comment Although the patient was already eating poorly, bromide was given in an attempt to manage an agitated depression in the home. An intoxication quickly developed. The patient was not seen by a psychiatrist during the hallucinated period, but the history suggests a pure hallucinosis, not a delirium. Only three cases of bromide hallucinosis have previously been reported¹.

CASE 3 C B, aged thirty-seven a policeman was admitted on January 19 1935. He had been addicted to alcohol for over fifteen years. Early in December 1934 after a prolonged alcoholic debauch during which little food was taken an upper respiratory infection occurred followed by a delirium with disorientation and visual hallucinations. He was restless ate poorly and attempts to quiet him with opiates and chloral hydrate were unsuccessful. He had been given six grams of bromide daily for eighteen days before admission to the Psychiatric Clinic.

On admission the vital signs were normal. He was markedly dehydrated and there was a diffuse acneiform rash on the face and shoulders. Speech was slow and thick. A high caloric diet rich in vitamins was given with 5000 cc. of fluid and ten grams of sodium chloride daily. In four weeks the delirium subsided and there was marked improvement in his physical condition. He was discharged on February 23 1935.

On admission January 19 1935 28 per cent of the total serum chloride was displaced by bromide. The serum bromide was 285 mgm. per cent (27.2 mM/L). On January 27 the serum bromide was 125 mgm per cent (15.0 mM/L) and on February 1st serum bromide was not detectable.

Comment Although the patient was already suffering from a toxic delirium and had been eating poorly, bromide was given in an attempt to control psychotic symptoms. Bromide in

CASE 4 C M., aged forty-nine a widowed hair dresser was admitted on March 7 1935. In August 1934 she had complained of fatigue, insomnia, palpitation and nervousness. She ate very poorly. She refused to consult a physician until February 1935 and at that time refused hospitalization. Four grams of bromide were administered daily since February 14 1935. After two weeks her speech became thick, and her actions sluggish and she became restless and hallucinated. She was then hospitalized for nine days with continued bromide medication. Her condition did not improve and she was transferred to the Psychiatric Clinic.

On admission the vital signs were normal. There was no skin eruption. A fine tremor of the outstretched hands and a suggestive bilateral lid lag were observed. A severe symptomatic psychosis was present with disorientation, fluctuation of the level of awareness, auditory hallucinations and periodic attacks of low grade panic.

Elimination of the bromide was facilitated by hydration, and the administration of ten grams of sodium chloride daily. In two weeks the delirium subsided. Definite signs of thyrotoxicosis were then seen. The sleeping pulse rate varied between 100 to 120 per minute and the basal metabolic rate varied from +25 to +35 per cent. After two weeks administration of Lugol's solution a subtotal thyroidectomy was done on April 9 1935. The post operative course was uneventful. The basal metabolic rate varied from -2 to +6 per cent and the sleeping pulse rate was 70 to 90 per minute. Her symptoms improved slowly and she was discharged on May 6 1935.

On admission 30.2 per cent of the serum chloride was displaced by bromide. The serum bromide was 225 mgm per cent (28.1 mM/L). On March 16 1935 serum bromide was 60 mgm per cent (7.5 mM/L) and on March 25 serum bromide was not detectable.

Comment Symptoms of thyrotoxicosis were not recognized. Although the patient was already eating poorly, bromide was given in an attempt to control supposedly functional symptoms. Intoxication quickly developed. The correct diagnosis of the underlying condition was possible only after the bromide had been eliminated.

CASE 5 S K, aged forty-seven a housewife, was admitted on March 25 1935. About one year previously she had begun to complain of depression retardation and irritability. She resorted to drinking large quantities of alcoholic beverages took little food and after a few months developed a severe polyneuritis. She became bedridden and several physicians considered her condition grave. The administration of bromide was begun on March 10 1935 and she received approximately 120 grams of sodium bromide in two weeks.

On admission the patient was stuporous. The vital signs were normal. The tendon reflexes of the arms were hyperactive. Both legs showed diffuse muscular atrophy absent tendon reflexes and suggestive foot drop. There was a slight acneiform rash on the face and back.

Eight grams of sodium chloride were given daily with a diet high in caloric and vitamin content. Fluids were forced. After a few days the stupor cleared and disorientation fluctuated. Awareness and hallucinations were observed. The delirium and the neuritis improved rapidly under treatment. After the delirium subsided an irritable hypomanic condition was left, which disappeared within a week.

On admission 48 per cent of the serum chloride was displaced by bromide. The serum bromide was 350 mgm per cent (43.7 mM/L). On April 8, 1935 the serum bromide was 100 mgm per cent (12.5 mM/L), and on April 18, the serum bromide was 50 mgm per cent (6.25 mM/L).

Comment Although the patient was already in a critically malnourished condition, and had an alcoholic avitaminotic neuritis, bromide was used in an attempt to quiet her. Severe intoxication quickly developed.

CASE 6 S W, aged forty one, a housewife, was admitted on April 6, 1935. Four years previously a diagnosis of parenchymatous neurosyphilis had been made and confirmed by cerebrospinal fluid serology, pleocytosis, and increased protein content. She had received no specific treatment. For the past six years she had complained of irregular periodic girdle pains which had been interpreted as "heart attacks". The pain always began suddenly, bore no relation to exertion, and was not associated with dyspnea. Opiates had relieved it. A number of weeks before admission, bromide had been prescribed in an attempt to relieve one of these attacks. The drug had been continued indefinitely and had been purchased in pint size bottles. She became stuporous and ate very little food. No convulsions had occurred.

On admission the vital signs were normal. The pupils were fixed to light. There was no skin eruption. The blood Kahn was negative. The cerebrospinal fluid was under normal pressure and contained eight lymphocytes per c mm. The Pandy reaction was strongly positive. The cerebrospinal fluid Wassermann was +4, and the colloidal gold curve was 455555554.

A typical delirium was present with disorientation, fluctuation of awareness, and restlessness. The patient's general condition was poor, and parenteral saline was given to hasten the elimination of bromide. Because of extreme noisiness, morphine and hyoscine had to be given on several occasions. Her condition did not improve. She became stuporous, developed bronchopneumonia and died on April 24, 1935.

On admission the serum bromide was 350 mgm per cent (43.7 mM/L). This was one week after bromide had been discontinued.

On April 2, 1935 the serum bromide was 150 mgm per cent (18.7 mM/L).

Comment Excessive quantities of bromide were given in an attempt to relieve attacks of tabetic pain. No attempt was made to control the chloride-bromide balance. A severe intoxication developed and the patient died of an intercurrent bronchopneumonia before the intoxication could be controlled.

Postmortem examination of the brain The gross appearance of the brain was entirely normal excepting the cerebral meninges, which appeared slightly thickened and cloudy. The Turnbull test for iron in the cerebral cortex was negative. Microscopic examination showed the cerebrospinal meninges infiltrated with small numbers of lymphocytes and plasma cells. This exudate was most marked in the meninges at the base of the brain and around the brain stem. There were none of the stigmata of general paresis. Sudan III and Weigert preparations

of the spinal cord failed to reveal any evidence of tabes.

Throughout both occipital lobes were found numerous small patches of necrobiosis. These had a focal distribution and were limited to the cortical grey matter. None of the large pial or parenchymal vessels showed organic change. The cortical capillaries revealed marked endothelial swelling. Both temporal lobes showed a similar picture to a lesser extent. These changes resembled in all respects those found in functional vascular disease, having been described following epileptiform attacks.

CASE 7 A M, aged twenty four, a single man was admitted on April 21, 1935. Seven weeks previously he had fallen, striking his head and suffering concussion with hemorrhage from the mouth and right ear. He had been hospitalized, and had remained unconscious for five days. Roentgenograms of the skull were negative for fracture at that time. During the next few days he became restless and unmanageable. He was placed on a dehydration diet and six grams of bromide were administered daily in an effort to combat the post-traumatic excitement. He became stuporous, and then after three weeks became overactive, talkative, disoriented and hallucinated. On April 12, 1935 he was discharged from the hospital unimproved, with instructions to his family to continue the administration of three grams of bromide daily. At home he continued confused and restless, and admission to the Psychiatric Clinic was advised.

On admission the vital signs were normal. Severe dehydration was present. There was a diffuse acne-form rash on the face and back. Neurologic examination was negative except for a right lower facial weakness. The cerebrospinal fluid pressure, color, protein and cell content were normal. The cerebrospinal fluid Wassermann was negative. A typical symptomatic psychosis was present with fluctuation of awareness, disorientation, confabulation, visual hallucinations, and restlessness. Speech was thick and slurred.

He was given ten grams of sodium chloride daily and a diet high in caloric and vitamin content. Fluids were forced. Wet sheet packs were used for sedation. In four weeks the delirium subsided, and his general physical condition showed great improvement, although the right facial weakness persisted. He was discharged on May 19, 1935 with instructions to return to the Neurologic Outpatient Clinic.

On admission 47 per cent of the total serum chloride was displaced by bromide. The serum bromide was 350 mgm per cent (43.7 mM/L). On May 6, 1935 the serum bromide was 200 mgm per cent (25 mM/L), and on May 13, 1935, the serum bromide was 60 mgm per cent (6.25 mM/L).

Comment Bromide was given in an attempt to control a posttraumatic delirium, and the patient was simultaneously given a dehydrating diet. Severe intoxication quickly developed. Hydrotherapy produced an excellent sedative effect.

CASE 8 S H, aged thirty one, a single man, was admitted on May 8, 1935. He had had petit mal attacks since fourteen and grand mal attacks since twenty-eight years of age. Phenobarbital and a low protein diet had been administered in an attempt to control the convulsive state. During March and April, 1935, the attacks had become more fre-

quent, and five grams of bromide had been administered daily. After about ten days of bromide treatment he had become sluggish in speech and action. On April 28 1935 a consultant diagnosed his condition as an organic psychosis and advised withdrawal of the drug. At that time the serum bromide was 300 mgm per cent (375 mM/L). Fluids were forced and sodium chloride was administered but the patient remained sluggish. Admission to the Psychiatric Clinic was suggested.

On admission the vital signs were normal. There was a diffuse chronic acne vulgaris on the face, shoulders and back that had recently become more severe. No other physical abnormalities were noted. No evidence of delirium was observed but there was definite mental sluggishness.

After ten days of hydration and increased sodium chloride intake the sluggishness disappeared. The patient then had a major convulsive attack and was given phenobarbital daily. He was discharged on May 18 1935 with instructions to continue the use of phenobarbital.

On admission 30 per cent of the serum chloride was displaced by bromide. The serum bromide was 225 mgm. per cent (281 mM/L). On May 11 1935 the serum bromide was 75 mgm per cent (93 mM/L).

Comment. Large amounts of bromide were given in an attempt to prevent epileptic convulsions without any attempt to control the chloride-bromide balance. Moderate intoxication quickly developed, which fortunately was recognized before it became severe.

CASE 9. H. H., aged sixty-three, a widowed housewife was admitted on May 27 1935. For five years she had complained of attacks of precordial pain radiating to the left arm sometimes associated with dyspnea and pulmonary edema. During the past two years these attacks had become more frequent, and the patient had become more garrulous, circumstantial and irritable. In February 1935 she was hospitalized and a diagnosis of general coronary and cerebral arteriosclerosis was made. A diet low in fluid and sodium chloride was ordered. In May 1935 after an anginal attack bromide was prescribed and she received seventy-five grams of the drug in two weeks. On May 16 1935 she complained of poor vision and in a few days became confused, disoriented and hallucinated.

On admission the vital signs were normal. The tendon reflexes were hyperactive. There was a slight acneiform rash on the back. Disorientation, fluctuation of awareness, and visual and auditory hallucinations were present.

She was digitalized, fluids were forced and she was given eight grams of sodium chloride daily. The delirium subsided after three weeks, her general condition improved and she was discharged on June 24 1935.

On admission the serum bromide was 300 mgm. per cent (375 mM/L). On May 31 1935 the serum bromide was 175 mgm per cent (219 mM/L). On June 11 1935 the serum bromide was 50 mgm per cent (625 mM/L).

Comment. Bromide was given, in an attempt to control anginal pain to an arteriosclerotic patient who was already on a restricted fluid and chloride intake. Severe intoxication quickly developed.

DISCUSSION

Cases of bromide intoxication with symptomatic psychosis have been seen surprisingly frequently in southern Connecticut. Two and seven tenths per cent of the patients admitted to the Psychiatric Clinic at New Haven Hospital during the past year have shown signs of definite intoxication with bromide. The nine cases reported here illustrate various aspects of the clinical problem.

The administration of bromide is clearly indicated only in the treatment of certain patients with organic convulsive diseases. Notkin¹² has shown that fairly large amounts of bromide may safely be administered indefinitely to epileptics if the chloride-bromide balance is carefully controlled, and if occasional determinations of the blood bromide content are made. Bromide in doses of one to two grams a day is sometimes useful in the management of mild nervous and mental symptoms although in most cases a rapidly acting barbiturate such as sodium amytal is more effective. In the presence of renal damage, however, barbiturates are more dangerous than bromide. It must be kept clearly in mind that bromide must not be administered over any prolonged period unless an adequate intake of fluids and chloride is maintained, and the physician should be constantly alert for symptoms of bromide intoxication.

Bromide should not be employed in states of severe excitement and agitation because it is not effective unless dangerously large doses are given. Paraldehyde is not only more effective but is much safer in such states. Bromide should never be used in cases of delirium due to either toxic or infectious causes. It should be used with caution in cases of arteriosclerosis, since delirium is readily produced if cerebral arteriosclerosis is present. Nephritis is a definite contraindication to the use of the drug.

Bromide should not be used in cases of dehydration or severe malnutrition, in which the body fluids and chlorides are low.

In eight of the nine cases reported, deficient diet and dehydration seemed to play a definite rôle in the development of bromide intoxication. This fact has not been sufficiently emphasized in the literature.

An inadequate intake of fluids and chloride would seem as important a factor in producing bromide intoxication as the actual amount of bromide taken. The experience of Notkin¹² with epileptics illustrates this point clearly.

The skin eruption is not a reliable criterion of bromide intoxication. The question of bromide exanthems will be discussed in greater detail in a subsequent paper. A skin eruption was present in six of the nine cases in our series but in no case was it considered severe enough to be in itself an indication for treatment.

The management of psychiatric illnesses in the community is no simple problem. Sedatives are often necessary, and the patient or his family may refuse to consider hospitalization. The attending physician has to make the best of the situation.

More general appreciation of the importance of the recent studies of bromide intoxication, however, will facilitate the successful management of such cases.

SUMMARY

1 Nine cases of bromide intoxication with symptomatic psychosis are reported.

2 The pharmacology of bromide is summarized, and the symptomatology, diagnosis, and treatment of bromide intoxication are briefly reviewed.

3 The frequency of bromide intoxication in southern New England is noted.

4 Reasons for the occurrence of bromide

intoxication are advanced, and suggestions for its prevention are offered.

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AN ANALYSIS OF THREE HUNDRED CASES OF ASTHMA IN CHILDREN*

BY EDWARD SCOTT O'KEEFE, M.D.†

THE bulk of the work upon asthma deals with groups composed either solely or in a large part of adults. The problem of asthma among children is sufficiently different to warrant its separate consideration. This series is

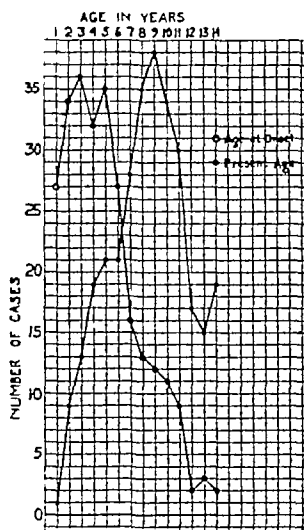


CHART 1 The Age at Onset of 300 Cases of Asthma in Children

composed of 300 children, under fourteen years of age, who have been seen by me at the Massachusetts General Hospital during the last three years. The average age of the patients at the time of examination was seven years and nine months.

*From the Anaphylaxis Clinic and the Children's Medical Service of the Massachusetts General Hospital.

†O'Keefe Edward S.—A.B. M.D. Associate Pediatrician, Massachusetts General Hospital. For record and address of author see "This Week's Issue" page 53.

Between twenty and fifty protein tests were done upon each child, the common food, animal and pollen allergens being used. The scratch test was most commonly employed, although in the last year, many of the pollen and animal emanation tests were done by the intradermal method as well. The combined methods gave a much higher percentage of positive tests in pollen disease than we had secured by using the scratch test alone¹.

The age of the onset of asthma was first considered and is shown in graphic form in the accompanying chart. The exact time of onset is often difficult to determine with any degree of accuracy since the early attacks are frequently mistaken for respiratory infections. However, one case in the series began as early as the second month, two in the third month, one in the fourth, and one in the fifth month. Cases having their onset after the sixth month were not infrequent. About 10 per cent had their onset in the first year, and 12 per cent in the second year. Sixty-six per cent began during the first six years. After the sixth year a sharp drop occurred in the incidence of new cases. The average age of onset for the entire group was 4.6 years.

Results not markedly at variance with these figures were reported by Chobot and by Peshkin. Chobot² in a series of 100 children found that 10 per cent of the cases had their onset in the first year and 19 per cent in the second year. Peshkin³, in a group of 100 children, states that he found the commonest age of onset to be the second year.

There is a general impression that an allergic

family tendency influences the time of onset of asthma. A series of adults reported by Spain and Cooke⁴ showed the average age of onset for patients with a positive family history to be twenty five years. Those having a negative family history had an average age of onset of thirty five years. The allergic families developed asthma much earlier than did the non allergic families. These authors included under the heading of a positive family history those cases having a positive collateral family history as well as those having a direct family history of asthma or hay fever. Using these limitations they found that 58.4 per cent of their series of 462 cases had a positive antecedent family history. Moreover they ascertained, in a group of 115 normal individuals that only 7 per cent had such a positive history. In 52.9 per cent of thirty four cases having a bilateral family history the onset of symptoms occurred in the first five years of life and in 26.4 per cent the onset occurred in the second five years of life.

In our children's series, no such difference was found between these two groups. Children with a positive family history showed an average age of onset of 4.3 years while the children having a negative family history showed an average age of 4.4 years. The group showing a positive family history either of direct or collateral inheritance, was further analyzed. Twelve cases had a bilateral inheritance. In this group the average age of onset was 4.7 years. Fifty eight cases having a unilateral inheritance showed an average age of onset of 4.1 years. As noted above the group of 172 cases having a negative family history showed an average age of onset of 4.3 years. So it is seen that there is shown no significant difference in the age of onset of asthma in children whether the family history is negative or positive.

The influence of an allergic family tendency upon the occurrence of complicating allergic conditions was noted also its influence upon the incidence of sensitization to more than one group of allergens. Of the total 300 cases 38 per cent showed a positive allergic family history, and of these, 28 per cent showed eczema, hay fever, or other allergic conditions complicating the asthma. Of those having a negative family history, 23 per cent showed allergic conditions complicating the asthma. Individuals from the allergic families were apparently somewhat more prone to the development of complicating allergic conditions.

The question of multiple sensitization in relation to the family history is pertinent. Of the children with a positive family history, 30 per cent showed multiple sensitization. The nonallergic family group showed that 34 per cent of their number were sensitive to more than one of the four groups of allergens which

would indicate that the allergic family tendency is not a factor of importance in this connection.

Children with allergic heredity are more apt to develop allergic diseases than are children with a normal heredity, according to Bilyeat.⁵ Such children do not, however show any great difference from the nonallergic group in the age of onset of their asthma, nor in the frequency with which they manifest multiple sensitization.

An analysis of the cases from allergic families showed that one or both parents were allergic in 40 per cent of the group, in 37 per cent the grandparents had been allergic, in 16 per cent the brothers or sisters were allergic. Of 178 cases in this group, the relatives showed asthma in 53 per cent of the cases, hay fever in 26 per cent, eczema in 13 per cent, urticaria in 1½ per cent, migraine in 1½ per cent, and vasomotor rhinitis in 1 per cent. There seems to be a marked tendency for families to show the same allergic condition in succeeding generations viz asthmatic parents transmit a tendency toward asthma rather than toward one of the other allergic conditions.

The question arises as to whether the early onset of asthma has any significance in forecasting the occurrence of complicating allergic diseases. Will the patient who shows asthma in the early years be more apt to develop hay fever, for instance, than the child whose asthma appears later in childhood? A tabulation showed that there were 214 cases of asthma which were uncomplicated by other allergic conditions, and that there were 86 which were so complicated. The first group showed an average age of onset of 4.1 years, the second group showed an average age of onset of 3.2 years. This would seem to indicate that the earlier the asthma manifests itself the more likely the patient is to develop complicating allergic conditions.

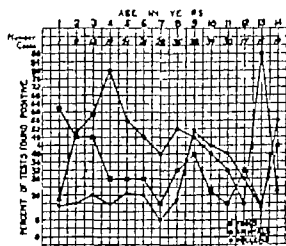


CHART 2 The Relative Importance of the Common Allergens at the Various Ages

The importance of the various groups of allergens at different ages is an interesting study. This is graphically shown in Chart 2. This chart shows foods and animal emanations to be of about equal importance during the second

year, pollens to be of but little importance, comparatively. From the second year on, for several years, the animal emanations become more important and the foods less important. Pollens remain comparatively unimportant until the ninth year, when they are found to show the highest percentage of positive tests. All the allergens show a peak during the eighth and ninth years, and again during the thirteenth and fourteenth years.

It is obviously desirable to limit as much as possible the number of protein tests when dealing with children. With this object in view, an analysis of the tests was made. Of the many food allergens for which tests were made, a small group appeared to be of primary importance. There were 155 positive tests for foods. Of these, 21 per cent were for egg, 18 per cent for wheat, 9 per cent for milk, and 6 per cent for potato. The four foods just mentioned account for 54 per cent of the 155 positive tests for foods. The remaining 46 per cent of the group was divided among the common fruits, vegetables, meats, nuts and cereals, other than wheat. Not one of the foods in this latter group was found positive in over 1 per cent of the total positive tests. Turning to the group of animal emanations we find 257 positive tests, of these 31 per cent were due to cat, 24 per cent to dog, 18 per cent to horse, 15 per cent to chicken feathers, 6 per cent to goose feathers. Cattle hair, rabbit hair, parrot feathers, wool and duck feathers occurred occasionally. The pollens gave a total of 256 positive tests. Of these tests 30 per cent were due to ragweed, 18 per cent to timothy, 17 per cent to orchard grass, 16 per cent to red top, 7 per cent to cocklebur, 6 per cent to plantain. Other pollens were included in the tests but none accounted for more than 1 per cent of the series. House dust was frequently found positive. Its clinical significance is difficult to determine. Orris powder occurred occasionally.

Of the entire 300 cases, 67 per cent were found positive to one or more allergens, 47 per cent to animal emanations, 29 per cent to pollens, 25 per cent to foods, and 5 per cent to miscellaneous factors. Comparing these figures with those reported by Rackemann⁶, for a group composed mainly of adult patients, we find that animal emanations and foods play a much less important rôle than is the case among the children.

The accompanying table shows the comparative importance of the four great groups of allergens in children and in adults. Many of the cases, of course, showed sensitivity to one or more of these groups.

A consideration of table 1 shows the foods and the animal emanations much less frequently positive among adults than is the case among the children. It seems fair to say that

this is in most instances to be attributed to natural desensitization. It indicates a better prognosis among children for the recovery from asthma due to either of these two factors than is the case in the pollen asthma, which shows as high a percentage of positive tests in the

TABLE 1

	Rackemann Adult Group 924 Cases	O'Keefe Children's Group 300 Cases
Positive tests	46%	67%
Animal emanations	17%	47%
Pollens	33%	29%
Foods	7%	25%
Miscellaneous	5%	5%
Negative	54%	33%

adult group as occurs in the children's groups.

The group reported by Rackemann is composed mainly of adults. It contains 425 cases classified as extrinsic asthma and 499 cases classified as intrinsic asthma. In the extrinsic group positive tests were found in 82 per cent of the cases, in the intrinsic group the percentage was 17. The average of these two groups as shown in our table is 46 per cent. The children's group, in table 1, is composed of extrinsic and intrinsic asthma, and shows that 67 per cent of the cases exhibited positive tests.

CONCLUSIONS

About 10 per cent of the cases of asthma in children have their onset in the first year of life, 66 per cent have their onset during the first six years.

A positive family history of allergic disease does not influence the age of onset of asthma in children, or the frequency of multiple sensitization. Individuals from allergic families are, however, somewhat more prone to the development of complicating allergic conditions than are children from nonallergic families. As originally pointed out by Adkinson⁷, there is a definite tendency to show the same allergic condition in succeeding generations.

In the first year of life the foods show the highest percentage of positive skin tests. In the second year, however, and after that the animal emanations become of chief importance, until the ninth year when they are surpassed by the pollen antigens. In the thirteenth and fourteenth years the percentage of positive tests for all the antigens shows a very marked and sudden increase. This is especially true for the animal emanations. The onset of puberty may, in some way, be responsible for this sudden change.

The most important allergens concerned in the asthma of children are as follows:

Foods	Animal Emanations	Pollens	Miscella- neous
egg	cat	ragweed	orris powder
wheat	dog	timothy	house dust
milk	horse	orchard grass	
potato	chicken feather	red top	
	goose feather	cocklebur	
		plantain	

From this group of seventeen allergens the examiner will usually obtain information as to which group or groups should be more intensively investigated

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MEDICAL PROGRESS

PROGRESS IN DERMATOLOGY, 1935

BY HARVEY P. TOWLE, M.D.* AND JACOB L. GRUND, M.D.*

ALLERGY

SOME years ago a physician in a suburb of Boston was heard to declare that syphilis had now become a routine affair. If the Wassermann is positive the diagnosis is syphilis. If the diagnosis is syphilis you give arsenphenamin. And that is all there is to syphilis now adays. It would almost seem that a similar situation is developing in regard to allergy and the food tests, if one judges by the literature. Many physicians seem to believe that if one has to deal with a skin eruption the food skin tests will absolutely reveal both diagnosis and treatment. You test the skin with various sort of food. If you get a reaction the eruption is allergic. If the eruption is allergic you take away the foods which caused a reaction and the patient gets well. That's all there is to allergic eruptions.

The editorial writer in the *New England Journal of Medicine*¹ does not think the matter quite so simple as that. He has thus to say about the allergic skin tests: "It would seem that promiscuous skin testing should become a thing of the past. Proper selection of patient and test should be made in order to gain the proper scientific data and not subject the patient to unnecessary tests and expense. At the same time thought should be given to the variations in tests from time to time. Their evaluation demands experience and common sense."

Colmes² is even more specific and emphatic. He opens his article by saying "That the diagnostic import of the protein skin test is not infallible and that frequent irregularities exist in the relationship between the skin reacting allergen and the patient's symptoms, has been recognized since the early studies on human

hypersensitiveness." In confirmation of that statement Colmes quotes a number of authors, Blackfan who has seen an "egg" eczema with a negative egg test, Walker who found that positive skin tests cannot always be incriminated as causative of the patient's symptoms, Schloss, who had the same experience as Walker, also Kern, Maytum, Rackemann, Feinberg, Stevens, Rowe, and Hill. Surely men of such repute would lend credence to any statement. After giving the tables of the results of his own studies Colmes concludes: "These results indicate that, in the study of allergic diseases, the positive skin reaction cannot be accepted as the sole basis for determining the offending factor."

Rackemann³ at a recent symposium on allergy pointed out the increasing importance of the history and the decreasing significance of the skin test. A "good allergen" gives a typical wheal in a few cases and a negative reaction in most cases of routine testing.

Schmidt⁴ brings out another point in regard to evaluating skin tests. He states that the various regions of the body do not react alike. The back reacts more strongly than the upper arm, the flexor surfaces than the extensor, the upper arm than the forearm. Hence in comparing results, one must make sure that all tests were made on the same region of the body. For instance, one should not compare a test made on the back with one made on the forearm. As to the back itself Schmidt reports that wheals induced four fingerbreadths below the spine of the scapula were only half as large as those produced in the region of the spine of the scapula itself.

Urbach⁵ has worked out a theory to explain why the allergic tests respond in one region and do not in another. The foundation of every clinical manifestation of an allergic disorder he says, is an antigen antibody reaction. In the main, the important factor in the manifestation

*Towle, Harvey P.—A.B., M.D., Consultant in Dermatology Massachusetts General Hospital. Grund, Jacob L.—M.D., Assistant Dermatologist Department of Dermatology and Syphilology Massachusetts Memorial Hospitals. For record and addresses of authors see "This Week's Issue" page 23

are those of a physical hypersensitiveness "there is no reason why it should not be regarded as allergic, since allergy is the abnormal response to a normal stimulus" Dubbs' case is that of a woman sixty-two whose skin when exposed to cold air or cold objects, developed itching and redness of the exposed parts. Perfectly typical wheals could be produced on any part of the body, at will, by the application of ice or other cold objects. If the patient walked briskly in the cold air, the skin symptoms would be accompanied by dyspnea and palpitation. The attacks never lasted more than five or ten minutes. The patient never had had any other form of allergy and her family history was entirely negative. The reporter notes that subcutaneous injection of epinephrin hydrochloride promptly relieved all symptoms and that fifteen grams of calcium lactate given three times a day caused a marked reduction in the intensity and frequency of the attacks. With the cessation of medication there was a return to the former status in quo.

Allergists have long considered asthma, eczema and urticaria as true examples of allergy and, from the study of them, have advanced various theories to explain the allergic phenomena. Now Vallery-Radot and Blamoutier¹⁴ add to the long list of investigations. They use aqueous extracts of the spleen from which all possible albumins had been removed. They report that the injections were painless and, as a rule, provoked no untoward reactions. They further report that their best results were obtained in acute vesicular eczema. The results are said to have been rapid and sometimes lasting and permanent. In some cases the pruritus was modified although the eruption was unaffected. Dry eczema did not respond to the therapy. In urticaria of digestive origin they obtained results but cases of other origin were refractory. Quincke's edema was not influenced by the treatment. They report that frequently splenotherapy acted very favorably on the general well-being. They obtained cures in twenty-one cases of eczema out of forty-nine treated and improvement in twelve others. In thirty-five cases of urticaria treated they got cures in only eight and improvement in seven. Asthma was even less influenced than urticaria for they report that only four of seventeen cases were materially modified.

Most writers have busied themselves in explaining how a given disease is related to allergy. Browning¹⁵ attacks the problem from an exactly opposite point of view in his paper on ringworm. Browning argues the thesis that ringworm of the extremities is a result of complication of hypersensitiveness rather than that hypersensitiveness is a complication of ringworm. He argues that the trichophyton finds lodgment because the "allergic balance", as he calls it, is disturbed. He asserts that when

this allergic balance is destroyed measures directed directly against the trichophyton are unnecessary. Cure follows without them. He finds support for his theory of an "allergic unbalance" in the existence of other allergic manifestations or signs, especially in the skin. By treating the allergic state rather than the trichophyton he is able to report excellent results in thirty cases. He explains the good results obtained by ordinary treatment by the supposition that such methods restore the "allergic balance" to the affected parts. As further proof that his method of attack is logical and justifiable he points to the fact that his results were obtained in the face of the fact that the microscopic search for the fungus was positive in every case reported. Improvement, he says, usually begins within two weeks if the case has been correctly diagnosed and if instructions have been followed.

INDUSTRIAL SENSITIZATION

The compensation laws of the various states and countries have given a new importance to the various forms of cutaneous disease which arise from industrial and commercial products. Particularly have they given rise to an intensive search for the exact offending substance in these processes and compounds. For example, whereas not so very long ago we were content with the diagnosis of Baker's eczema now we must know just what substance it is which causes the dermatitis. It is no longer called eczema. Zitzke¹⁶ reports that in 149 cases of Baker's dermatitis 41 per cent showed sensitivity to pure flour alone while 67.2 per cent showed sensitivity to chemically treated flour, as determined by the patch test. The chemicals used in treating flour are ammonium persulphate, calcium phosphate, and potassium bromate. Testing these three substances separately, it was found that the subjects reacted positively to the ammonium persulphate but were consistently negative to the calcium phosphate and potassium bromate. Hence Zitzke concludes that it is the ammonium persulphate which causes the dermatitis.

In view of the widespread use of hexylresorcinol by the laity there is interest in Dr. Walter's report of a case of sensitization to that remedy.¹⁷ The patient was a woman who came of an allergic family, was allergic herself to strawberries and tomatoes, and who had two daughters who were subject to attacks of asthma. The patient had used hexylresorcinol dressings on a leg ulcer for five months. Later she used hexylresorcinol to clean out a wound on the hand. The result was a tremendous swelling of the hand with the formation of vesicles and large bullae.

Balsam of Peru has been used freely in our dermatological and surgical clinics without a thought of harm resulting. Yet Engelhardt¹⁸

reports that 2 per cent of people who have never had any skin disease or used ointments are hypersensitive to balsam of Peru and that 10 per cent of those who have had skin disease and who have used ointments are also sensitive. All of the constituents of the balsam are involved for they all give positive results to test reactions. Hence Engellhardt concludes it is not advisable to continue the practice of using the balsam over large wound surfaces or in eczema. If it is desired to use it he advises that patch tests be made first.

Tobias¹⁹ writes that 'perfume dermatitis' is not common in this country when one considers that thousands of bottles of various types and grades of perfume are sold annually. Unfortunately the literature contains very few reports of true perfume dermatitis. These cases are fairly common in France, he says. Tobias describes three types of dermatitis which may be caused by perfume. The first type is dermatitis venenata which can be produced by the irritants in the perfume coming in contact with the skin at the first application without the intervention of hypersensitivity. He compares this type to the dermatitis produced by benzene or turpentine. The second type is that produced by specific ingredients of the perfume such as aldehydes, orris root, or dyes which after long use, produce a specific hypersensitization (contact or eczematous dermatitis). A third type of perfume dermatitis was first described by Freund in 1916. This one is known as *Berloque Dermatitis*. This form occurs as a streaked erythematous eruption which is followed by pigmentation. The cause is sunlight acting upon the skin through a film of the oil of bergamot, a common ingredient of toilet waters and cologne.

Tobias gives seven rules for making the diagnosis:

- 1 The location of the eruption. It occurs naturally on the regions to which the perfume has been applied.
- 2 Its sudden appearance.
- 3 Intense itching and burning. The intensity of these symptoms is usually out of all proportion to the extent of the eruption.
- 4 The time element. According to Sulzberger and Kerr there are two periods in the development of the hypersensitivity—(a) a period of incubation or formation of hypersensitivity which varies from months to years, and (b) the period of reaction which is usually constant varying from twenty-four to seventy-two hours.
- 5 The type of eruption. The berloque type is usually linear and followed by pigmentation after exposure to sunlight. The contact type is erythematous or vesicular.
- 6 The diagnosis by means of the patch test, as the sensitization is epidermal.
- 7 The history, elicited by close and repeated questioning.

Baer²⁰ in commenting upon Tobias' article

relates that in connection with his study of lip stick dermatitis he had found methyl heptene carbonate to be the specific offending substance. He states that this substance is derived from ricinoleic acid and is widely used by perfumers for its violet odor. Baer found that over 50 per cent of both men and women were sensitive to it. The patch test was the proof.

CANCER

For years the debate has been going on as to when a carcinoma is not a carcinoma. Is cancer always a cancer and if not, when does a one time benign growth become cancerous? Sutton²¹ debates these questions in a very interesting fashion. He is inclined to believe that, at least in many instances, cancer is cancer from the start. He begins his article by quoting a case to substantiate his thesis that 'cancerous lesions come into existence on sites previously normal, a common experience.' He agrees with Broda that "the entity called carcinoma regardless of etiology, is a primary disease of epithelial cells and all other phases and sequelae, though of great importance, are in reality of secondary nature."

Sutton has done an enormous amount of research on the subject but acknowledges that all such work is of necessity incomplete. In order to make such work complete one should have started with the normal skin and have followed its various changes through to actual, demonstrable cancer formation. Naturally, one can not do this. Instead one must be content to study specimens taken from various persons and from various growths. As one cannot follow through the evolution of the cell in one patient, one must be satisfied with a series of static pictures taken so nearly as one can manage, from growths of various ages. In spite of this insurmountable obstacle, Sutton has studied enough cases to have reached certain very definite conclusions.

'1 (a) Many cancers begin as de novo lesions. (b) The earliest visible lesion in these cases is a circumscribed, scaly, epithelial new growth.

'2 (a) The structure of many minute, scaly, epithelial new growths is such that it is reasonable to presume that, if not interrupted they would become obvious carcinomas. (b) It is reasonable to believe that such lesions are in fact early carcinomas. (c) If a lesion has a structure not compatible with a likelihood of its being early carcinoma, it might be called precancerous. But it would be impossible to predict that such a lesion might, if not interrupted, develop a structure such that it would be properly called carcinoma.

'3 (a) It is impossible to determine at what point in its natural history a cancerous lesion is not cancerous. (b) It is reasonable to

believe that cancer is cancer from the start

"4 The concept of precancerosis is indecisive and undefinable. It groups unrelated conditions which may or may not be early cancer. Its acceptance entails an insoluble problem of a dividing line between cancer and not-cancer, as well as a statistical assay of lesions that are strictly individual.

"5 (a) A lesion may be cancerous independently of its size and rate of growth. (b) Cancer is primarily an epithelial disease. (c) Cancer consists of mutated somatic cells. (d) The earliest visible manifestations are circumscribed, dyskeratotic lesions which microscopically are composed of polymorphous epithelial cells that proliferate, keratinize and undergo mitosis in an abnormal manner. (e) Malignancy depends on a balance between proliferative capacity of its cells and the control or resistance of its host. (f) One tumor may contain several kinds of cells as a result of mutation following on mutation."

Riecke²² describes a rare form of cutaneous carcinoma in a woman of sixty-two. The first manifestation occurred a year before when a nodule appeared on her thigh. The nodule enlarged and suppurated. An erysipelatous process developed, after which fresh nodules appeared accompanied by a severe swelling in the groin which perforated. Fresh nodules continued to appear which always followed the same course, softening, disintegration and an exudate of serous fluid. Various diseases were considered in the differential diagnosis such as syphilis, tuberculosis and blastomycosis. After observation and study these diagnoses were rejected and Riecke became convinced that the disease was an abnormal form of cutaneous carcinoma. This conclusion was confirmed by the microscopic examination which disclosed a basocellular carcinoma. Riecke has seen one similar case.

Franseen and Taylor²³ report nine cases of carcinoma unquestionably due to arsenic, five probable cases and one case in which only keratoses developed. They state that arsenic may be deposited in the skin and there manifest its carcinogenic powers as late as forty years after the exposure. In their opinion the carcinogenic property of arsenic is not properly appreciated so that cancer is sometimes produced by accident. Fowler's solution, the inorganic trivalent form of arsenic, seems to be the chief offender. Chronic arsenical lesions seem to be rare after the administration of the organic compounds. While the squamous cell carcinoma is the ordinary type, more than one third of all arsenical carcinomas are said to be of the basal cell type. Although the malignancy of the squamous carcinoma is low, metastases are not infrequent. Hence the writers advise that the regional lymph nodes should be re-

moved in all cases of growths of considerable size.

Laboratory workers have now for a long time used mice in the study of cancer and by such studies have added much to our knowledge of human cancer. Mottram's article²⁴ on the relationship and the rapidity of the growth of tar warts in mice has, therefore, much of interest to us. Analyzing the time of appearance in its relationship to malignancy, Mottram found that malignant warts appear more slowly after the tarring than do the benign. So too, he found that warts which appeared late grew faster than those which appeared early. Sessile warts are largely malign whereas pedunculated and horny warts are usually benign. Sometimes a sudden increase in growth was noted and in all such cases the wart was found to be malignant. As a rule, he states, benign warts grow slowly and malignant warts grow rapidly. Moreover he found a close relationship between ulceration and malignancy. Mottram's statement that "autografts show that there is a continuous development and change in warts from benign to semimalignant, from semimalignant to malignant" bears out Sutton's²¹ contention that cancer may arise *de novo* and that cancer is cancer from the start.

Dunn and Smith²⁵ report the unusual case of a primary squamous carcinoma which healed itself. They had had a somewhat similar case once before in which, however, the spontaneous healing was surmised but not seen as the growths were surgically excised. In the reported case a young man presented multiple lesions which had been in existence for seven years. In all that time there had been no metastasis. Sections of tumors in the early stages showed a highly malignant looking condition. Sections taken later in the disease showed an increased differentiation of cells and more complete cornification of the pearls. Finally there was healing with scarring. The writers believe that such cases as these may not truly be cancer, yet, in their early stages, they cannot be differentiated from it, either histologically or clinically.

In the field of roentgentherapy, investigation still continues as to when it can be used to the best advantage and as to method. More and more articles are written to prove that in certain types of carcinoma the reason for the failure to cure is inadequate irradiation. Hintze²⁶ is one of the more recent writers on the subject. He reports his observations on seventy-one cases of what he calls persistent carcinoma, that is to say, cases which five years after treatment by surgery or irradiation have not become free from symptoms or, having been free for a time, have relapsed. Thirty-nine of his cases had been treated first by surgery and thirty-two by irradiation. Sixty-two of the seventy-one cases were on the face. Four cases had been

treated exclusively by surgery Hintze calls attention to the fact that not one had been cured by this method. On the other hand, of thirty-five patients who had first been treated by surgery and then by irradiation nineteen were cured. Of seventeen patients who were treated by irradiation in other clinics one case was cured by surgery and four by irradiation in his own clinic. Of fifteen patients who were treated first by irradiation, in his own clinic, nine were not cured because there were multiple lesions. In six of the fifteen the primary focus persisted or relapsed. Under later treatment in his clinic eight of the nine multiple cases were subsequently cured. Two of the relapsing cases had been treated by the old method of small doses and one by medium doses. Not one had received a large dose at the very first treatment. These figures cause Hintze to say that the reason that carcinoma persists after irradiation is that the primary dose has not been large enough.

Hintze's conclusions would seem to be at variance with those of Dr. Frank.⁷ Reporting to the Vienna Society for Roentgenology Frank gave the details of his investigation. The carcinomas were large and of the pavement epithelium type. "Half of the tumor was irradiated with one large dose (1800 roentgens) while the other half was irradiated daily with a so-called fractional dose of 200 roentgens until a total of 4000 roentgens had been reached. The quality of the rays and the roentgen minute dose were the same. By the time 1000 roentgens had been administered to the side that had been given the fractional irradiations, a considerable decrease in the size of the tumor was noticeable, while the side to which the single large dose had been given showed no macroscopic signs of a change in spite of the fact that the surrounding skin, which had been exposed to this irradiation reacted noticeably. When 1800 roentgens had been reached, the same dose that the other side had had, the tumor had largely disappeared on the side irradiated with the small doses, while on the other side macroscopic changes were still lacking. In the further course it was observed that on the side to which the single large dose had been applied the tumor was still partly in evidence while it had completely disappeared on the side to which the fractional doses had been applied. Histologic studies revealed that on the side of the fractional irradiations the tumor cells were destroyed by undergoing cornification and maturation while on the side of the large dose a vacuolizing degeneration took place. Studies conducted in several other suitable cases led to the same results. In view of these observations Dr. Frank formulated the thesis that the application of a single large dose leads to a less rapid disappearance of a tumor than the fractional irradiations. This factor is important

when the danger of metastasis is considered, for it has been assumed erroneously that in cases of fractional irradiation the danger of metastasis is greater." Among the listeners to his report many agreed that fractional irradiations are generally to be preferred.

TUBERCULOSIS

The controversy as to whether erythema nodosum is of tuberculous origin goes on with unabated energy. The debate is still indecisive with, however, the weight of evidence favoring the negative side. No one has yet reported a respectable number of cases, a number large enough from which to draw many conclusions, nor has any one as yet put together all reported cases to make up an impressive total. In our search we find many papers based on one case and but one on as many as thirty.

As examples of the papers of the proponents we have chosen those of Moritz and Lederer,⁸ Deaner and Aguirre.

Moritz and Lederer⁸ imply rather than say that they believe the erythema nodosum is due to the tubercle bacilli. They base their opinion on a comparison of the capillary changes in erythema nodosum and in positive tuberculin test tissue. They found that in fifteen cases the changes were identical in the disease and in the test.

Deaner⁹ must also be classed with the proponents although he reports but one case. A woman, aged twenty-nine, had been in contact with a tuberculous sister for six months. An x-ray of this woman showed the picture of an acute disseminated tuberculosis. Occasionally she had a slight rise in temperature. The only other sign she had which pointed to tuberculosis was a well-developed erythema nodosum.

Aguirre¹⁰ reporting a series of only eight cases, draws the very definite conclusion that "the results of his work, by which the presence of tubercle bacilli in the erythematous nodules was verified, constitute the most complete bacteriological proof of the tuberculous origin of erythema nodosum." He reports that in five cases out of eight, material from the erythematous nodule yielded the tubercle bacillus on culture. The material in one of the three negative cases was taken from the nodule by biopsy fifteen days after the appearance of the nodule. The material in the second negative case was taken from a guinea pig which had been in contact six months previously. The investigation was halted in the third negative case because of infection among the animals.

Opposed to these writers are the opinions of Lemming,¹¹ of Nobecourt and Ducas and of Goldberg Curth.

Lemming¹¹ reports thirty cases of erythema nodosum all of which occurred in patients with a past history of tuberculosis and nineteen cases

of recurrent erythema nodosum. As a result of his studies he concludes that the disease is an allergic expression of an active tuberculous infection. According to him, the presence of active tuberculous disease should be ruled out by careful examination. Erythema nodosum, he elaborates, may be the exogenous reinfection with the tubercle bacillus. It may be a superinfection or it may be present as a result of a grave active pulmonary tuberculosis in which the deficient antibody formation results in a state of anergy.

Nobecourt and Ducas³² believe that the erythema nodosum lesions in a case of theirs were the result of a hyperallergic state in spite of the actual evidences of tuberculous foci in the patient. The father of the patient had died of tuberculosis. On the patient herself the tuberculin test was positive and injections of her blood into a guinea pig gave rise to tuberculosis of the inguinal glands.

Goldberg-Curth³³ does not dispute that erythema nodosum is often seen in association with positive tuberculin reaction tests and even with clinical and roentgenologic signs of pulmonary tuberculosis. Extrathoracic tuberculosis is a rather rare accompaniment of erythema nodosum, she writes. She prefers to say of erythema nodosum that it is a cutaneous reaction to an infection whose pathogenic organism is unknown. She says further, that symptomatic erythema nodosum may develop in the course of nearly every infectious disease and as a cutaneous reaction to toxic substances. She admits that, in childhood, the majority of cases, not all, are closely related to a tuberculous process. As to the demonstration of tubercle bacilli in the blood or in cultures made of material taken from the nodules she does not admit that these are definite proof of the tuberculous nature of erythema nodosum. (Compare Aguirre above.) She does think that all forms are an indication of an allergic change in the organism. In short, she rejects the hypothesis that erythema nodosum is a true form of tuberculosis but agrees that cases do occur, although rarely, which present the clinical aspect of erythema nodosum and the histopathologic aspect of tuberculid.

The same reasoning which we have just seen applied to prove that erythema nodosum is or is not a tuberculous process we also see applied to prove that other diseases which occur more or less frequently in association with admitted tuberculosis are themselves tuberculous. For instance, Dr. D. W. Montgomery publishes³⁴ a case of lichen scrofulosorum which occurred coincidentally with lupus erythematosus. The latter occurred in close proximity to typical lesions of the former. This, he believes, indicates more than mere coincidence. Therefore, as lichen scrofulosus is admitted to be tuberculous the deduction is justified in this case,

he declares, that the lupus erythematosus is also tuberculous.

MacKee and Sulzberger³⁵ have published an interesting article on one of the rarer forms of tuberculosis, the rosacea-like tuberculid of Lewandowsky. This form has been known in Europe for some time but has apparently escaped recognition in this country. It differs from rosacea in that it has a tuberculoid structure and is essentially papular, but it resembles rosacea in that it shows erythema and telangiectasia although in lesser degree. The writers report that the subjects of the disease are very sensitive to quantitative intradermal injections of tuberculin. The disease responds well to injections of gold and sodium thiosulphate, to a high vitamin diet, general tonics, generalized irradiations of ultraviolet light and to intradermal injections of tuberculin. Hence it is important that this disease should be distinguished from rosacea which it resembles.

Wile and Grauer³⁶ report five cases of the same disease all of which were in women. Histologically, the changes were, in every instance, tuberculous. Some cases presented a state of anergy. Wile and Grauer believe that the disease is a true tuberculosis of the skin and is the end result of a hematogenous spread from an underlying focus.

TREATMENT

The number of reports having to do with the treatment of disease have been so numerous during the past year as to give the impression that more attention is being paid to this important field. Then too, the wide range and great variety of diseases considered are striking.

In our last report of Progress (*New Eng J Med* 211 1200 [Dec 27] 1934) we noted that trichophytin was advocated for the treatment of dermatophytosis. Now we note that Traub and Tolmach³⁷ are not so enthusiastic about it as the earlier reporters. They studied the effect of trichophytin in 135 cases of dermatophytosis, the majority of which at the time of treatment were accompanied by dermatophytids. Fungus infection of the skin accompanied by the latter should, according to immunologic concepts, offer the most ideal means for evaluating trichophytin. The authors obtained fourteen cases of apparent cure. Some of these presented an early recurrence, in some the cure was questionable. There were varying degrees of improvement in fifty-eight cases. In sixty-three there was no change at all apparent. In those cases in which no improvement was obtained with the treatment, the application of salves such as Whitfield's ointment, etc., was followed by results. The authors conclude that trichophytin exerts little if any effect on the course of trichophytosis.

So, too, we find that dermatologists are awake

to the newer results in other fields of medicine Pusey and Rattner¹⁸ describe a dermatosis which closely resembled discoid lupus erythematosus in which they used organotherapy. It occurred in a woman and became especially pronounced with the menses. Based on evidence indicating that the adrenal cortex has a decided influence on the gonads 2 grains of desiccated whole substance (adrenal) was given tid. Improvement of the lesions followed and the exacerbations during the menses were no longer apparent.

Sézary and Horowitz¹⁹ report their investigation of the therapeutic effect of an ovarian extract mixed with the patients' own blood. The extract is added to 20 cc of blood and is injected intramuscularly three times a week until a total of twelve injections has been given. That they called a course. Sometimes they administered as many as three courses. Their best results were obtained in subderma which had appeared in patients who were approaching the menopause. One case entirely recovered. Five cases gave varying results.

The present day attitude relative to the value of gold and of bismuth in lupus erythematosus therapy is well represented by Smith.²⁰ For purposes of comparison he divided his twenty-four patients into two equal groups. One group received the gold therapy and the second group the bismuth. Then he compared the results. Gold cured more than bismuth but bismuth improved more cases than gold. Bearing these results in mind he selects bismuth as his choice because it is less toxic, less expensive and less inclined to light up or aggravate an existing tuberculosis.

Gouin and Bienvenu²¹ reported the result of their rather new technique in using gold salt therapy in cutaneous tuberculosis which they employed in nine cases of disseminated lupus, two of lupus verrucosus, six of tuberculous ulcers and three of tuberculous adenitis. First the lesions were opened by curettage, so that they could be subjected to the action of light and air. Each time that an injection of gold was given the lesion was scraped under anesthesia unless meantime the lesion had cicatrized. Under this method they found that five or six injections of 0.15 Gm. gold sufficed to effect a cure.

MacKee and Cipollaro²² have made an important addition to the precautions to be taken in roentgenotherapy by calling attention to the general lack of a uniform, standard unit of measurement among roentgenologists. They advise the use of a Victoreen dosimeter and of reference to its unit as a "roentgen." Where, as today it is common to refer to the various factors in an epulating dose, for example as 2 min., 3 ma. 100 kilowatts distance 8 if the "roentgen" unit method were used the simple statement that the dose was one of 300 roent

gens would include all these factors. They give as another sample a patient who is said to have received one quarter of a unit. MacKee and Cipollaro would have the dose described as one of 75 roentgens. The adoption of such a unit as the "roentgen" would make for accuracy of description and also for clarity.

One of the most obstinate and at the same time alarming mishaps which the roentgenologist has to treat is a Roentgen ray dermatitis. Craps and Alechunsky²³ report a method of treatment which they say, is simple to use and which gives quick results. They tried their method on five patients in all of whom the response was good. First, they cleanse the affected area with ether and also remove all squamæ and crusts. Then they paint on a 5 per cent aqueous solution of silver nitrate. Now the whole is irradiated with a quartz lamp at a distance not greater than 20 cm. for from five to ten minutes. This should be sufficient to dry the affected area completely and to make the nitrate turn a deep black. If it is not a glistening black, the painting and drying must be repeated. A dry sterilized gauze dressing is all that is needed to cover the area. Ointments must not be used.

Carty²⁴ is convinced of the superiority of the elastic adhesive plaster over all other methods in the treatment of bed sores. He declares that by this method, he can heal a bed sore in fifteen days. He takes two pieces of elastic adhesive pieces an inch wider than the sore. These he puts on the ulcer, overlapping its edges, one above the other. The dressing is left in place until it comes away of itself when, after wiping away any discharge present on the surface of the ulcer, it is replaced.

The treatment of warts still intrigues the medical mind. Shellow²⁵ has treated ninety-seven lesions in seventy-three patients with local injections of a 15 per cent solution of bismuth sodium tartrate. The wart is first cleansed with soap and water and then with iodine and alcohol. With a fine hypodermic needle from $\frac{1}{16}$ to $\frac{1}{8}$ minims of the bismuth tartrate solution is injected from the side into the base of the wart. In from one to three days a dark hemorrhagic spot is visible through the keratotic area. At the same time the pain in the lesion if there was any disappears as does the peripheral redness. In fourteen to seventeen days after the injection the wart has flattened, the hard keratotic tissue has been thrown off and a smooth healthy surface has resulted.

Cornbleet²⁶ has reported very favorably on the effects of maize oil administered by mouth to patients with eczema. By eczema they mean a condition which started in infancy and has persisted ever since with exacerbations and remissions. This condition they say, is usually referred to as allergic, exudative and diathetic.

eczema, Darier's prurigo or generalized neurodermatitis. They consider the results unusually good. A few patients had asthma as well as eczema and the asthma was benefited as well as the eczema. The results seem permanent, for there have been but few relapses during the four and a half years they have been using the oil. Some patients who have had eczema since infancy have remained well for three years or more. The oil is administered by mouth and preferably chilled a little to make it more palatable. At first the dose is one tablespoonful taken before or after meals. Gradually the dose is increased until the patient is taking four tablespoonfuls three times a day.

Nichols writes⁴⁷ that by his method more than 80 per cent of the cases of acne in adolescent children can be controlled if their cases are seen early. The method consists chiefly of keeping the skin rather chapped by the use of soaps, at first mild but later stronger, and of whitewash of increasing strength. At bedtime the face is washed with mild castile soap and fairly hot water. Then the skin is sopped for five minutes with lotio alba, one-fourth strength, which is allowed to dry on and remain overnight. As the skin becomes accustomed to the treatment, the strength of the soap and the wash is gradually increased. If the skin becomes overdry the treatment is suspended for a few days to allow it to soften. Graduated sun exposures and ultraviolet light irradiations are very helpful adjuvants to the treatment. Nichols reports that, in thirty-seven children out of forty-seven the acne is virtually invisible or is well under control after treatment of from three months to four years.

The results with germanin (Bayer 205) in the treatment of pemphigus do not seem very encouraging. Its employment in pemphigus is said to rest upon the remedy's successful use in trypanosomiasis and upon the alleged resemblance of trypanosomiasis to pemphigus in that both are chronic, both have remissions and both have fever. It is stated by Tobias⁴⁸ in an article on "Juvenile Pemphigus" that many cases which at first showed a remission or an improvement later developed a recurrence and died. Other cases developed an exanthem and nephritis. The drug is given intravenously in a beginning dose of 0.3 Gm. which is gradually increased to as high as 1 Gm. After five doses a course has been completed. Tobias reports the case of a girl, five years old, who received the drug. She presented a definite improvement with the first course. A recurrence necessitated a second course. The child developed a septicemia and died.

Craps and Alechinsky⁴⁹ report a rather unusual treatment of such cutaneous lesions as a trophic ulcer, an infected traumatic ulcer, varicose ulcers, ulcerated syphilitic gumma and an

ulcer resulting from the curettage of a large tuberculous verrucous lesion of the palm. For the treatment of these various types of ulceration they used direct applications of an aqueous solution of histidine, 1:1000, made daily. In general, the ulcers became clean very rapidly and soon took on a good color. The skin tolerated the histidine well.

Beerman and his associates⁵⁰ call the attention of dermatologists to Dioxanthanol 1-8 as a substitute for chrysarobin. The drug was introduced into dermatology in 1916 under the trade name of "Cignolin".

The Council on Pharmacy and Chemistry of the American Medical Association says of it⁵¹ that it is made by the reduction of dioxanthraquinone, an easily available substance used in industry and gives as its formula, $C_{14}H_{10}O_3$. The formula for chrysophanic acid, which it is proposed to displace with dihydroxy-anthranol, is given as $C_{17}H_{10}O_4$. The manufacturers have suggested "Anthralin" as a name for the drug and this name has been accepted by the Council.

Anthralin is described as "a yellowish, crystalline powder, practically insoluble in water but readily soluble in the more complex and lipid solvents—a feature of distinct advantage in the preparation of ointments, lotions and pastes. Its color is probably least noticeable in petrolatum album which provides for it an economical and satisfactory ointment base." Anthralin has been used only for external applications in concentration of from 0.1 per cent to 5 per cent. A very weak concentration is always used first to test out the patient's tolerance. That discovered, the strength of the application is gradually increased.

Beerman, Kulchar, Pillsbury and Stokes⁵⁰ have used Anthralin in a great variety of diseases but with especial satisfaction in psoriasis and in mycotic affections. They state that the safe effective range of concentration is from 0.1 per cent to 1.5 per cent. Most of their results were obtained with 0.5 per cent although it was occasionally necessary to raise the strength to 1 per cent. A 2 per cent preparation has been known to produce a severe dermatitis occasionally. "The advantages claimed for dioxanthanol 1-8 include the following: 1. Definite chemical composition and economical synthesis from an available material. 2. Effectiveness in very low concentrations (from 0.1 to 2 per cent). 3. No constitutional symptoms such as renal irritation in these low concentrations. 4. Limitation of dermatitis—inducing action to the area of application without tendency to extension or generalization. 5. No production of conjunctivitis even when used on the face or scalp. 6. Comparatively little discoloration of clothes or skin and practically no discoloration of hair in the concentrations employed."

Beer's report of the use of Anthralin on the scalp is very striking. Of twenty nine cases eighteen underwent complete involution, fifteen within five weeks.

On the body it was rarely necessary to use a concentration stronger than 0.5 per cent and treatment was usually begun with a 0.1 per cent. Complete involution was obtained in twenty three cases within four months, sixteen of them within five weeks. Other cases were improved from 40 to 90 per cent in a comparatively short time in three months or less. Only one case was entirely resistant.

The list of other diseases in which Anthralin has been successfully used is long and unimposing. Especial attention should be given to its success in combating mycotic diseases. Indeed a number of Europeans are quoted as believing that it is in this field that Anthralin finds its greatest usefulness. Beer and his co-workers, however, rate its usefulness in psoriasis first and in mycoses second.

In conclusion, they say that "Dioxyanthralin is not proposed as a new drug nor one completely free from the objections familiar in the use of chrysarobin. It is none the less, we believe, a superior substitute which deserves greater popularity now that it can be made readily available in this country."

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CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT, M D

TRACY B MALLORY, M D, *Editor*

CASE 22021

PRESENTATION OF CASE

A forty-two year old white American was first seen complaining of chest discomfort

The patient had always led a fairly sedentary life until about ten months previously. At that time he began to indulge in boxing and tennis as a means of exercise. Shortly thereafter, while playing tennis, he noticed that he would feel discomfort across his chest, equally distributed on both sides and not radiating. This was associated with a sensation of fatigue in both arms to the elbows. There was no breathlessness or palpitation. The discomfort subsided spontaneously after a minute or two and he never discontinued activity because of it. During the succeeding four or five months he suffered from similar attacks twice daily, particularly when walking uphill. These subsided promptly after resting for a few seconds. He consulted a physician who found no abnormality. An electrocardiogram was negative. Thereafter he continued to have recurrent attacks with moderate exertion but noticed that he was more prone to have them shortly after heavy meals and smoking. He lessened the amount of tobacco used from six to ten pipefuls daily to one and a half. This appeared to diminish the frequency of the attacks, and activity which had previously caused distress no longer did so.

His father died suddenly of heart disease at the age of fifty. His mother was living and had pernicious anemia.

At the age of ten he had had scarlet fever which was believed to have affected his heart.

Physical examination showed a well-developed and obese man who did not appear ill. There was very slight arcus senilis. The hair was partly gray. The pupils were equal and reacted normally to light and distance. The left border of cardiac dullness extended to, and the apex impulse was felt eight centimeters from the midsternal line in the fifth interspace. The right border was at the sternal margin. The sounds were regular and there were no murmurs. The pulse was 72. The peripheral arterial walls were soft. The blood pressure was 130/85. The lungs were clear. The edge of the liver was felt at the costal margin. Knee jerks were absent.

An electrocardiogram was normal.

X-ray examination of the chest showed normal heart contours. The aorta was normal in width but the knob was considered slightly prominent for his age.

The patient was advised to limit his activities and to continue his limitation of tobacco, using the occurrence of symptoms as a criterion. One month later he reported that he was completely relieved of chest discomfort. Thereafter he suffered distress occasionally but only with over-exertion.

About one and a half years later while indulging in moderate but not unusual exercise he suddenly fell unconscious and died shortly afterward.

DIFFERENTIAL DIAGNOSIS

DR HOWARD B SPRAGUE. With no more than the ordinary mental reservations that one makes in cases of this sort I should say that Dr Mallory was playing ball with me this time.

To summarize, we have a relatively young man who has always led a sedentary life but suddenly decides he must have exercise and goes in for boxing and tennis. Shortly thereafter he finds that tennis brings on a sensation of discomfort in the chest and fatigue in the arms and he finds beyond that that exercise such as walking uphill also brings on the sensation. So far as I know, that sensation is angina pectoris. He consults a physician who examines him and finds a negative electrocardiogram and a physical examination which is not very significant. He has a rather bad family history in that his father died suddenly at the age of fifty but other evidence pointing to cardiac disease is very slight. There is a note that he has very slight arcus senilis. We always mention the occurrence of that sign but you can get any sort of figures that you want indicating that arcus senilis has something to do or nothing to do with arteriosclerosis. It has been thought by some to be associated with a certain type of individual with hypercholesterinemia and to be associated with arterial changes. I, myself, must confess that I am impressed when finding arcus senilis, perhaps particularly at this age. There is a little prominence of the aortic knob. He is said to be obese but the physician was able to find the apex impulse of the heart which means that the patient was probably not very obese or that the examiner was particularly dextrous.

The patient himself noticed that reduction of activity and reduction of tobacco had some effect in increasing his ability to exercise without discomfort and in this clinic I think our feeling is that tobacco in cases of angina pectoris should be reduced or omitted if possible. That feeling is not held so strongly by some other clinics.

The patient gets along very well and a year and a half later, indulging in moderate exer-

cise, becomes suddenly unconscious and dies shortly after, meaning that there may be slight delay between collapse and death. Suddenness after all is a relative thing.

Dr. TRACY B. MALLORY: The interval was less than five minutes.

Dr. SPRAGUE: He has no evidence of valvular disease or lues. The knee jerks were absent but with the presence of active pupils I think that is not of any particular importance unless we go into the details of whether reinforcement was tried and so forth.

I am not going to do anything but mention the routine possibility of dissecting aneurysm which comes up at every case. I do not believe he had that. He died of angina pectoris. He died so suddenly that there would not be a cardiac infarct, but just what we shall find in the coronary circulation, I do not know. If undoubtedly had advanced coronary disease but whether diffuse or localized in one of the main arteries or ramifications I cannot tell. I do not know that we can say actual occlusion of a coronary artery will be found because apparently recent unpublished evidence of Dr. Robert Levy of New York seems to show that the finding of actual occlusion of the coronary artery in death of this sort is the exception rather than the rule. The patient died from a coronary spasm or the result of coronary insufficiency leading to a standstill of the heart or possibly to ventricular fibrillation, so that I think the diagnosis is arteriosclerotic coronary disease, with death from angina pectoris and possibly with coronary occlusion as the terminal event.

CLINICAL DISCUSSION

A PHYSICIAN: Will you say a word about the normal electrocardiogram?

Dr. SPRAGUE: Unhappily, about twenty per cent of patients who come to our clinic with the symptom of angina pectoris have entirely negative findings—electrocardiogram, physical examination, x-ray and the rest.

Dr. PAUL D. WHITE: One of the points of special interest in this case was the relationship of his symptom to tobacco. He himself thought that he had "tobacco angina" and hoped that that would be our diagnosis and that he might be passed for life insurance. Probably one should not make such a diagnosis as "tobacco angina." Although tobacco undoubtedly has an important influence in some individuals and aggravates their angina pectoris, it cannot alone be blamed for the angina pectoris in this man. The final result proved that.

The first instance of electrocardiographic proof of a specific effect of tobacco on the coronary circulation that I have had any knowledge of was handed to me by Dr. Starr of Hartford, Connecticut, a year or two ago. He is here and I wonder if he will say a word about that case.

Dr. ROBERT STARR: That case was a boy

about eighteen years old who had used tobacco for perhaps two years previous to the time I saw him. Two or three months before I saw him he was in training for basketball, injured himself, gave up training and went back to smoking and noticed that cigarettes after the intermission always made him dizzy. He was sent to me by Dr. Kingsbury, who examined him because of this dizziness and found the physical examination to be essentially negative. The blood pressure was normal, everything was normal. I took an electrocardiogram before he smoked, then had him smoke a cigarette and repeated the electrocardiogram, and when the records were developed they showed a very definite negative T wave after smoking. I asked him to come back and on the second visit I started the electrocardiograph going just before he began to smoke, every ten seconds or so I would take a tracing and it was evident that the T wave became negative at the time of his dizziness and returned to normal afterwards.

Dr. MALLORY: I think that is a very interesting observation. So far as the peripheral arteries are concerned the effect of tobacco is very obvious. Cases of Buerger's disease and Raynaud's disease usually show very marked increase in spasm during and for a considerable period following smoking.

Dr. WHITE: Stimulated by this observation of Dr. Starr's we have begun a study which is now in progress, on the effect of the inhalation of tobacco smoke on the electrocardiograms of normal individuals and of those with coronary disease or angina pectoris, there have been some definite changes but not so striking as in Dr. Starr's original case. The rapid inversion of the T waves in lead two in that case makes us believe that certain individuals doubtless have a special coronary sensitivity to tobacco with spasm, it may prove worth while to test individual cases in the laboratory by electrocardiography to see if there should be a reduction or complete omission of tobacco in their treatment. We shall make a full report of this study at a later date.

CLINICAL DIAGNOSIS

Coronary heart disease.

Dr. HOWARD B. SPRAGUE'S DIAGNOSES

Arteriosclerotic coronary disease
Angina pectoris as the cause of death
Terminal coronary thrombosis unlikely

ANATOMIC DIAGNOSIS

Coronary sclerosis, marked
Acute atheromatous Aorta mitral valve
Myocarditis, fibrous

PATHOLOGIC DISCUSSION

Dr. MALLORY: The postmortem examination on this case showed what Dr. Sprague predicted.

ed There was a very severe grade of coronary sclerosis present throughout all branches of the coronary arteries but most marked in the descending branch of the left which was reduced to barely one-tenth of the normal diameter. There was no thrombosis. The blood was fluid throughout all the vessels, and I would second the point that Dr. Sprague made that relatively sudden deaths rarely show coronary thrombosis. They always show diseased coronaries but there is no complete obstruction. In other words it definitely is an anginal death and not a death from coronary thrombosis.

He showed rather more than the average amount of arteriosclerosis in the aorta and some of the other organs. The heart was not hypertrophied. On section we could make out grossly minute areas of scarring, one or two millimeters in diameter, scattered throughout the myocardium but definitely most numerous in the region supplied by the descending branch of the left coronary. Microscopically this was confirmed by finding small areas of fibrosis where the muscle cells had entirely disappeared. These were evidently quite old, however, and there was no sign of any fresh, recent degeneration of the heart muscle. The case was checked with examination of the head, where nothing that would explain any acute death was found.

CASE 22022

PRESENTATION OF CASE

First Admission A forty-nine year old Polish landscape gardener entered complaining of difficulty in breathing and "turning black" for two weeks.

Twenty years before entry the patient began having asthma every winter beginning about the fifteenth of November and lasting off and on until the following May. The attacks never occurred at night but seemed to be precipitated by cold air. They usually were associated with cough and the production of small amounts of blood-tinged sputum. There was no past history of any other allergic manifestations. Two and a half years before admission he had a chest cold associated with a marked coryza. He coughed considerably with the production of a slightly blood streaked thick mucoid sputum. He remained at home and recovered in about two to three weeks. Since then he became increasingly dyspneic, especially upon climbing stairs. He also developed slight blurring of vision, occasional headaches, tinnitus, and vertigo. One year before admission he noticed that his face, lips, cheeks, and fingers were bluish. Five months before admission he again developed a chest cold, entered a hospital, and was told there that he had a blood disease. A pint of blood was withdrawn following which he felt worse and was put into an oxygen tent. He left the hospital after three weeks and re-

turned to work. His shortness of breath continued but was not so severe. Two weeks before admission, after a slight cold, it became almost impossible for him to breathe, expiration being especially difficult. He had marked dyspnea even on walking very short distances and felt exhausted all the time. There seemed to be a constant pressure in his chest, as if he were being squeezed. He noticed that his hands, especially his fingers, and his face and lips were becoming very blue and at times suggested a real black color. He experienced cramps in the calves of his legs upon the slightest movement. His ankles became slightly swollen. He wheezed considerably and a fairly marked degree of orthopnea developed. During the past five months he lost about fifteen pounds in weight. Recently he had been taking two glasses of whiskey every night which he believed had helped his condition.

His mother had asthma.

The past history is negative, except that five years before entry he had worked one summer with broken rocks in building a road.

Physical examination showed a well-developed and nourished man lying in bed in no apparent distress. His breathing was abdominal in type. There was marked cyanosis of the lips, face, hands, and feet. The mucous membranes were highly colored, the fundic veins were very dark. There was marked pyorrhea. The tonsils were slightly enlarged and highly colored. There was slight dorsal kyphosis. The chest was barrel shaped and the motions were scarcely perceptible during inspiration. The lower chest wall was drawn in with inspiration. Scattered over both lung fields were numerous crackling râles. The breath sounds and tactile fremitus were diminished. The heart was not enlarged to percussion although the right border was 4 centimeters from the mid-sternal line. No murmurs were heard. The blood pressure was 134/80.

The temperature was 99.2°, the pulse 88. The respirations were 15.

Examination of the urine was negative. Examination of the blood showed a red cell count of 7,990,000, with a hemoglobin of 120. The white cell count was 11,000, 81 per cent polymorphonuclears. The stools were negative. The vital capacity was 600 cubic centimeters and after adrenalin 1200 cubic centimeters. Other determinations showed a vital capacity of 1,000 to 1,200 cubic centimeters before adrenalin and 1,300 to 1,700 cubic centimeters after adrenalin.

X-ray examination of the chest showed an enlarged heart both to the right and left of the spine and prominent lung markings.

He improved subjectively somewhat on ephedrin and potassium iodide and was discharged twelve days after admission.

Second Admission, six months later.

During the interval he did fairly well, continuing with ephedrin and potassium iodide,

and had not been completely incapacitated Six weeks before admission his asthma became worse and he was forced to take adrenalin almost every day for relief. He gradually became more fatigued and his legs much weaker. Two weeks before entry, after some light work he was forced to go to bed. His cough increased and one week before entry he coughed up a slight amount of bright red blood with his sputum. He believed that his cyanosis had increased slightly during the past two weeks.

Physical examination was similar to that of his previous admission. The liver was felt two fingerbreadths below the right costal margin. There was slight clubbing of the fingers.

Examination of the blood showed a red cell count of 6,740,000, with a hemoglobin of 100 per cent and a white cell count of 6700. 69 per cent polymorphonuclears. The oxygen capacity was 25.0 volumes per cent. The volume of the cells was 66.1 per cent. The volume index was 1.27, the color index 1.06. The vital capacity was 700 cubic centimeters. The nonprotein nitrogen of blood was 53 milligrams per cent. The serum protein 6.1 per cent.

His condition remained unchanged. He continued to have some bloody sputum. His skin was blue and almost black. X-ray examination of the chest showed slight fibrosis with no evidence of mediastinal tumor. He continued to fail gradually and died about two weeks after admission.

DIFFERENTIAL DIAGNOSIS

DR. FRANCIS M. RACKEMANN "Five months before admission he again developed a chest cold, entered a hospital, and was told there that he had a blood disease." I assume that this blood disease was polycythemia. He came to the hospital with shortness of breath and with a marked bluish color all over. It is interesting to speculate a little. If it was a true polycythemia I think he should have been improved by the withdrawal of a pint of blood. Whatever it was he recovered all right. The shortness of breath continued but was not so severe. All this took place about five months before admission and during the interval he was working as a landscape gardener.

"He experienced cramps in the calves of his legs upon the slightest movement." I take it that that is a circulatory disturbance of the blood supply to his leg.

"The heart was not enlarged to percussion although the right border was 4 centimeters from the midsternal line." No doubt the heart borders were obscured by the tremendous emphysema.

The respirations were slow. Why were his respirations slow? Evidently because while lying in bed in no apparent distress, even in spite of his barrel-shaped chest and the evidence of emphysema, he was compensating at that moment and his breathing was easy.

The interesting feature in the physical examination at the second entry is that the liver was no farther down than two fingers, sometimes in emphysema it is down to the umbilicus. Clubbing of the fingers is also important. The record does not say whether the spleen was felt, as it might have been if the polycythemia was other than of the secondary type.

The oxygen capacity is above the normal. His blood was able to take up more oxygen than normal blood.

"The volume of the cells was 66.1 per cent. The volume index was 1.27." I take that to mean that the total volume of the blood cells was larger than normal, that all the cells together occupied a larger space and that each cell was a little larger in size than normal.

"The color index was 1.06." The cells contained a little more hemoglobin than normal.

It seems to me that this man with his story of trouble for about two and a half years undoubtedly has some sort of chronic infection in the chest which has led to the secondary formation of an emphysema and that he has a compensatory polycythemia, this time a quite marked grade and then as time goes on the condition seems to get worse and eventually there is a terminal failure of the right heart and the picture of a typical cor pulmonale. That is the obvious explanation of this picture. We should not rest, however, without at least considering the matter of polycythemia, because the red count was so high. It seems to me that the absence of relief from bleeding and the absence of enlargement of the spleen would tend to rule that out. The question of mediastinal tumor has been considered but as a matter of fact cyanosis was generally distributed, in the feet as well as the head and hands, and x-ray of course ruled it out anyway. Beyond that I do not think of any other state that would come in.

I believe that Dr. Mallory will find this man with a very marked emphysema which I believe will be what he calls anatomical emphysema as well. I think the alveoli will be broken down. The patient raised blood on frequent occasions. That is evidence of coalescence of alveoli and after it there will be thickening and evidence of congestion in the pulmonary circulation which in turn will cause a marked strain on the right side of his heart. I think that the sequence of events has occurred about in that order, that is, secondary infection first, emphysema second, polycythemia third, and strain on the heart fourth.

X-RAY INTERPRETATION

DR. AUBREY O. HAMPTON He had three or four x-ray examinations. At this first examination from that film alone we would be inclined to say the man had a big heart with passive congestion and some emphysema. There is nothing very startling in the anteroposterior view.

of the chest. I think we would not know definitely from looking at that film whether he had asthma or not. If we had a fluoroscopic note to go along with it, we probably would. It is surprising how little you see in that film. The lateral view is quite a different picture. The anteroposterior diameter of the chest is greater than the transverse diameter and all the blood vessel markings show this queer separation in the substernal area which suggests blebs. In this oblique view you see little but this cavity-like formation along the margin of the sternum.

At the second examination you get a little more definite impression that the heart is enlarged. There is a dilated pulmonary artery. In the oblique view the pulmonary artery has pressed upon the esophagus so that we can say it is enlarged, and then working back, from this fact we can deduce that the strain was on the right side instead of the left side of the heart. He probably had right-sided enlargement of the heart. I do not see any other good reason for saying that. The question of fibrosis, which we had in the other cases, does not seem to come up here and we can say that this is an acute process at the right base, pneumonia or pneumonia plus passive congestion. This film here exaggerates the heart shadow and probably gives you a better idea of the right-sided heart enlargement than the other film. We have a high right auricular curve here. The trachea makes quite a bend toward the right. I had not noticed that. I do not know just why that is. It does not seem to be displaced here. I suppose that is the oblique projection which makes it look that way.

A PHYSICIAN: I would like to ask about his blood. Hinton? If the blood disease he had early were syphilis, I should think he might fit into the group of cardiac pulmonary sclerosis—so-called Ayerza's disease.

DR. TRACY B. MALLORY: I think it was negative, although I do not have the record.

CLINICAL DIAGNOSES

Asthma.
Emphysema
Secondary polycythemia
Cor pulmonale

DR. FRANCIS M. RACKEMANN'S DIAGNOSES

Asthma with secondary infection
Emphysema
Polycythemia
Cor pulmonale

ANATOMIC DIAGNOSES

Emphysema diffuse
Cor pulmonale
Polycythemia
Multiple petechial hemorrhages
Chronic passive congestion of the liver and spleen

Ascites, slight
Cholesterosis of the gall bladder

PATHOLOGIC DISCUSSION

DR. MALLORY: This is a case that has left me completely puzzled. He had a very marked cor pulmonale, the heart weighing 550 grams. The right ventricle came right down to the apex of the heart and was distinctly larger than the left ventricle. He had, as Dr. Hampton pointed out, an extreme degree of barrel chest, that is, increase in the anteroposterior diameter. The diaphragm was flattened and low and the liver and spleen pushed down. They were also a little enlarged with chronic passive congestion, as you would expect with right-sided heart failure, but they were much lower than they were enlarged.

The lungs were extremely voluminous and I was particularly impressed with the way in which the apices crowded up into the supra-sternal notch. On the autopsy table, when I first saw this man, I thought he certainly must have mediastinal tumor because at that time he showed intense congestion of the neck, face and arms, and none whatever of the lower half of the body, although cyanosis was previously noted on the ward in the lower half of the body. When we came to section these lungs, we could find very little emphysema in the sense of fusion of the alveoli. All the alveoli were uniformly dilated and possibly a little over-dilated. I think one has to say there is a slight diffuse emphysema but it is not at all the striking picture that I think one might have expected.

The pulmonary artery showed no sclerosis whatever. All its main branches and its small branches were dilated and only here and there microscopically can we pick up a little bit of atheroma and intimal thickening. The pulmonary veins likewise were dilated. There was no scarring in the lung. The bronchi showed no hypertrophy of the muscle and were perfectly free from exudate. So that from the point of view of the autopsy we have a barrel chest, an early stage only of emphysema but a very extreme grade of cor pulmonale such as you would expect only in the later stages of emphysema.

His bone marrow shows a very high grade of hyperplasia with an inversion of the normal ratio, ordinarily four white cells to one red. In this case the ratio is just about the reverse. It is perfectly consistent, however, with a secondary type of polycythemia, and I think that is probably what he had.

A PHYSICIAN: Was the spleen big?

DR. MALLORY: It was about 300 grams. That is ordinarily just below the limit of palpability, not particularly large, and he had enough passive congestion of his liver to account for that much enlargement in the spleen also.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the Jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$8.00 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office & Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass.

NON APPROVED MEDICAL SCHOOLS

It is interesting to review the history of medical schools in America and to note certain trends and stages of development. In the Directory of the American Medical Association there is reference to over four hundred medical schools which have been chartered in what is now the United States. Of these, two date back to before the Revolution and three to before 1789. Although there has been a rapid decrease in the number of schools since 1910 to less than one hundred now in existence (including good, bad and indifferent) there was a far higher mortality in the last few years of the nineteenth and the early years of the twentieth century. Many of the schools were a mushroom growth, almost ephemeral and to the shame of American medical education, one often finds the comment "this school became fraudulent in its last years." It would throw light on one of the

baser sides of American life to have, what can not ever now be recorded an accurate description of the rise and fall of these so called medical schools.

Many of them were characterized as "proprietary", that is, they were operated for the benefit of a single proprietor or sometimes for a small group of owners. Their educational function was of slight importance, if any, and when the symbol of medical education, the medical degree was, as so often happens, mistaken for the reality of education itself, it became profitable to sell the degree without the education. The development of diploma mills in the United States was a marvelous growth difficult to understand after the lapse of years.

Such extensive hypocrisy and sham were bound to stir up reaction, and there developed fairly rapidly a sentiment in favor of protecting by governmental action under statute, the sick against the incompetent and the unscrupulous practitioners of the healing art. This double headed attack was only in part successful because the unscrupulous are not always technically incompetent, but very slowly public opinion has come to the support of measures calculated to eliminate the unqualified practitioner, whatever might be the cause of his disqualification.

Gradually organized bodies with varying degrees of authoritative opinion have given utterance to their judgments on medical schools hoping that the force of public opinion would accomplish what could not be effected by statutory enactment. The charter of a medical school may be revoked for fraud but not for mere ignorance and incompetence on the part of the teaching staff.

If however, the ignorance and incompetence are known, public opinion has an opportunity to work itself out. It is on this account that the so-called non approved schools are so secretive about their inner workings. The results of their educational procedures are well known; their graduates are not well educated. Just how they actually carry on their work they refuse to disclose and they refuse to permit official evaluating bodies to make surveys.

Occasionally one of these schools has gotten into court, by compulsion of course, because although they make great show of bringing suit against persons or groups who attack them, the thought of actual court inquisition causes them great uneasiness. Then the court record of what they have actually done reads like opera bouffe, and several charters have been revoked for fraud.

In Massachusetts fifteen medical schools have been chartered. Of those which have endured to the present time, some have kept pace with progress and have been modernized. Some are still in the Dark Ages. Why should Massa-

the commitment is civil it must be made to a penal institution,—namely, the State Farm in the case of men, and the Reformatory for Women in the case of women. An additional handicap exists in the fact that although a criminal commitment for drunkenness to the State Farm calls for a maximum of one year, a civil commitment to the same institution by reason of inebriety provides for a maximum of two years.

"It would be entirely logical for the General Court to authorize the care of the inebriates by the Department of Mental Diseases, as was the case prior to 1922. The mental hospitals of the State are however, at the present time crowded, with an average overcrowding of slightly over 17 per cent, and an annual net increase of about 460 patients under care is to be expected. Should the General Court, therefore, consider this change advisable it would be necessary to provide suitable buildings which should be located on the grounds of some institution with a large land area, as, for instance, the Gardner State Hospital, so that the patients committed could be kept separate from the insane and have an ample opportunity to work out of doors. The proper size of such facilities is entirely problematical. It seems clear, however, from the history of Foxborough and Norfolk experiments, that a separate institution is not warranted. On October 31, 1935, for example, there were only 17 male inebriates under commitment at the State Farm, and only 7 women at the Reformatory for Women. Although it is reasonable to suppose that some increase might be expected if commitments could be made to a hospital instead of to a correctional institution, there seems to be some reluctance on the part of the court to make use of the existing provisions of civil commitment. Unless and until the General Court finds it feasible to establish suitable facilities at some existing state hospital, no change in the existing law is recommended by your Commission.

"ARTHUR T. LYMAN,
WINFRED OVERHOLSER,
HENRY D. CHADWICK"

MISCELLANY

AFFAIRS OF THE ACADEMY OF PHYSICAL MEDICINE

Dr Franklin P. Lowry of Newton was elected Secretary-Treasurer of the Academy of Physical Medicine recently by the Directors to fill the unexpired term of the late Dr Arthur H. Ring, who had held that office from 1931 to the time of his death.

Boston has been selected as the place for the Annual Meeting in October 1936. The Academy met last in Boston in 1930.

Members of the Program Committee for the Boston meeting are as follows: Dr William D. McFee, Boston, Chairman; Dr William Bierman, New York City,

Dr Ralph Pemberton, Philadelphia; Dr Grant E. Ward, Baltimore; Dr George Miller MacKee, New York City; Dr Francis P. McCarthy, Boston; Dr Groesbeck F. Walsh, Fairfield, Alabama.

CORRESPONDENCE

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.,
December 30, 1935

Managing Editor, *The New England Journal of Medicine*,

In addition to the articles enumerated in our letter of December 4 the following have been accepted:

Ledeile Laboratories

Antidysenteric Serum (Polyvalent) 20 cc vial package

Parke, Davis & Co

Mapharsen

Ampoules Mapharsen 0.04 Gm

Ampoules Mapharsen 0.06 Gm

Ampoules Mapharsen 0.4 Gm

Ampoules Mapharsen 0.6 Gm

E. R. Squibb & Sons

Squibb Cod Halibut Liver Oil

Winthrop Chemical Co. Inc.

Ampules Suprarenin Powder, 0.05 Gm

The following product has been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Nonofficial Remedies, 1935, p. 445):

The National Drug Co.

Smallpox Vaccine (Vaccine Virus)

PAUL NICHOLAS LEECH, *Secretary*,

Council on Pharmacy and Chemistry

RECENT DEATHS

MITCHELL—WINTHROP DODD MITCHELL, M.D., a retired surgeon, died at his home in Worcester, Massachusetts, December 30, 1935. He was born in East Orange, New Jersey, in 1862, the son of Aaron Peck Mitchell and Elizabeth (Dodd) Mitchell and was educated at Phillips (Andover) Academy and graduated in medicine from the Bellevue Hospital Medical College in 1887. He later studied in Vienna, Munich and Dublin.

He was formerly associated with several New Jersey hospitals, having served as Medical Director Emeritus of St. Michael's Hospital, Newark, New Jersey.

He was a Fellow of the American College of Surgeons, a member of the Worcester Club and the Tatnuck Country Club of Worcester.

A widow and a daughter survive him.

MURPHY—TIMOTHY JOSEPH MURPHY M.D., LL.D., of 372 Dudley Street, Roxbury whose office was at 120 Beacon Street, Boston, died January 1 1936 after a short illness

He was born in 1866 Early in life Dr Murphy was a reporter on *The Boston Herald* After graduating from Boston College in 1888 he entered the Harvard Medical School and was given his M.D. degree in 1892

He was chief of staff of Boston Sanatorium Professor of Medicine at Tufts College Medical School and member of the Staff of St Margaret's Hospital and had served as President and Censor of the Norfolk District Medical Society

Dr Murphy belonged to the Catholic Alumni Society the Massachusetts Order of Foresters and Knights of Columbus

He was recently appointed Medical Examiner of the M. C. O. F. In addition to the Massachusetts Medical Society Dr Murphy was a Fellow of the American Medical Association

Six children survive him

MORRIS—GEORGE PATRICK MORRIS M.D. of 811 Broadway South Boston died January 4 1936 after a long illness He was born in 1860 After his preliminary education at the Boston Latin School Dr Morris entered Harvard College graduating therefrom in 1883 and from the Medical School in 1891

He was a member of the South Boston Medical Society and a Fellow of the Massachusetts Medical Society and the American Medical Association.

Dr Morris is survived by his widow Mrs Katherine J Morris a son George P Morris two daughters Miss Mary G Morris and Miss Eleanor L Morris two sisters, Miss Mary T Morris and Miss Agnes C Morris and two brothers Mr Robert E. Morris and Mr Charles H Morris

NOTICES

A LECTURE BY DR. E. V. McCOLLUM

The Worcester County Home Economics Association is sponsoring a lecture by Dr E. V. McCollum Ph.D., Sc.D., the noted research worker author and lecturer at Johns Hopkins University on Friday evening January 17 at the Worcester Girls Trade School, High Street, Worcester His subject will be Nutrition in Its Newest Phase. Tickets are seventy five cents and may be obtained at Eastons 46 Main Street, Worcester on or after January 10

BOSTON DISPENSARY

25 Bennet Street Boston
Medical Conference Program
9-10 A.M. January 1936

Thursday January 9 — G. I. Clinic. Dr. H. S. Andrews

Friday January 10—Recent Studies of Internal Secretion Dr. Joseph C. Aub

Saturday January 11—Presentation of Ward Cases. Dr. Jacob Schloss

Tuesday January 14—Cases from Blood Clinic. Dr. Isadore Olet

Wednesday January 15 — Modification of History Taking and Physical Examination Methods in Pediatrics Dr. Francis McDonald

Thursday January 16—Social Service Case Presentation Miss Edith Canterbury

Friday January 17—The Diagnosis and Management of Biliary Tract Disease Dr. Frank H. Lahey

Saturday January 18—Presentation of Ward Cases Dr. H. C. Gordonier

Tuesday January 21 — Diagnosis of Polycythemia. Dr. William Dameshek

Wednesday January 22 — Some of the Newer Aspects of Cancer Dr. William M. Shedden

Thursday January 23—Allergy Clinic Dr. Joseph Kaplan

Friday January 24 — Some Aspects of Hemolytic Streptococcal Infection. Dr. Chester S. Keefe

Saturday January 25—Presentation of Ward Cases Dr. Helms Magendanz

Tuesday January 28 — X-ray Demonstration. Dr. Alice Ettinger

Wednesday January 29—Pediatric Case Presentation Dr. Francis McDonald

Thursday January 30 — Case Histories in Brain Tumors Dr. J. J. Skirball

Friday January 31—The Heart and Aorta in Chronic Hypertension Dr. Paul Dudley White

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M. on Thursday January 16 in the Amphitheatre of the Peter Bent Brigham Hospital Dr. Henry A. Christian Physician-in-Chief, *Harvard Professor of the Theory and Practice of Physics in the Harvard Medical School* will give a medical clinic To it are cordially invited practitioners and medical students

On Saturdays in the wards of the Peter Bent Brigham Hospital from 10 to 12 staff rounds will be conducted by Dr. Christian.

LAWRENCE CANCER CLINIC

Established 1928

Lawrence Mass.,

December 30 1935

To the Physicians of the North Half of Essex County

Dear Doctor

The regular Lawrence Cancer Clinic, to be held at Lawrence General Hospital 1 Garden Street Lawrence upon Tuesday January 21, at 10 00 A.M. will be a Demonstration Clinic with Channing C. Simmons M.D. of Boston Associate in Surgery in the Graduate Courses in Medicine at Harvard University Medical School Surgeon in Chief to Collins P. Huntington Memorial Hospital member of the Cancer Commission of Harvard University and Visiting Surgeon to Massachusetts General Hospital Boston present as consultant. You are invited to

accompany any of your patients whom you desire shall have this service, or to send them with a note, and a report will be returned to you. The service is gratis. Your attendance at the Clinic is always welcome.

This Clinic is endorsed by the Committee on Postgraduate Instruction of the Massachusetts Medical Society.

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REPORTS AND NOTICES OF MEETINGS

HARVARD MEDICAL SOCIETY

The Harvard Medical Society met at the Peter Bent Brigham Hospital November 26, with Dr Henry A. Christian presiding. The first case was presented by Dr Lawrence E. Putnam of the medical service. A twenty-nine year old native housewife entered one and a half weeks previously with the complaint of a cough of six weeks' duration. Between the ages of ten and fourteen years she was in a tuberculosis preventorium, because of a definite family history of tuberculosis. Between the ages of fourteen and nineteen years she lived with an aunt and three sisters. The latter have since developed active pulmonary tuberculosis. Her father and one other sister had had pulmonary tuberculosis. At the age of twenty-three years she suffered a "chest cold", with pleuritic pain in the right chest, and had afternoon fever as high as 102 degrees Fahrenheit. She stayed in a tuberculosis sanatorium for six months at that time. Five years ago at the age of twenty-four years she was married, and has since had two children without ill event or reactivation of the pulmonary disease. Six months ago an x-ray of the chest is said to have shown a "scar at the right apex". Six weeks before entry she developed pleuritic pain in the left lower chest, and one week before entry began to experience night sweats. On admission she had severe cough, dyspnea, and vomiting. Physical examination on entry was negative except for the lungs. There was dullness at both apices, greater on the right, and dullness in the left axilla and left chest anteriorly. There were numerous medium moist râles and diminished breath sounds over these areas. Urinalyses were negative. The hemoglobin was 85 per cent, the red blood count 3,900,000 to 4,500,000, and the white count 9,000 to 12,000 with 10 per cent monocytes. Four sputum examinations were positive for acid fast organisms. For the first three days after entry her temperature rose to ninety-nine degrees in the afternoon, since that time it had been normal. X-ray plates taken

the day after entry showed consolidation at the right apex, interpreted as tuberculosis, and a uniform consolidation at the left base, which was interpreted as bronchopneumonia. One week later the roentgenological picture remained the same, and the consolidation at the left base was interpreted as probably being of tuberculous nature.

Dr Christian commented on the fact that some six months ago x-ray studies had shown an apparently healed process, and that at recent examinations large numbers of tubercle bacilli had been found in the sputum. He raised the questions as to whether the apical or basal lesion was the source of the organisms, and what the significance of the basal lesion might be.

Dr Burgess Gordon spoke of the striking absence of signs of toxicity in this case. Many cases of tuberculosis with basal lesions have no symptoms except those suggesting pleurisy or bronchiectasis. They usually do not produce a positive sputum until late in the disease process.

Dr Lowrey F. Davenport remarked on the change of attitude relative to pregnancy in tuberculous women. It is the present consensus that it is not the pregnancy itself, but the increased physical activity in the home during the first six months after delivery that is responsible for aggravating the infection. The advisability of aborting such women is now regarded with more conservatism than formerly.

Dr Robert Bates presented the surgical case. A forty-nine year old married male cabinetmaker, who was admitted to the hospital from Middlesex sanatorium for thoracoplasty. In 1914 he had had pleurisy on the right side. In 1917 he experienced hemoptysis and weight loss. In 1922 he suffered gross pulmonary hemorrhage, and was treated in the Rutland Sanatorium. Since that time he had numerous hemoptyses and hospitalizations. On admission to the Peter Bent Brigham Hospital he had an advanced fibrocaseous tuberculosis of the upper half of the right lung, with minimal lesions at the left apex. A two-stage thoracoplasty was performed on the right side, with the removal of the first nine ribs. Dr Harlan F. Newton remarked on the fact that the patient had been treated for eleven years without active collapse therapy. The extent of the active process in the right lung without more involvement of the left is striking, and surgical measures must be approached carefully in such cases because of the danger of initiating a tuberculous pneumonia in the good lung. Dr Elliott Cutler raised the question whether such patients who are obviously a menace to society cannot be confined to sanatoria until their disease is at least quiescent. Dr Christian replied that the state had no such power over tuberculous patients.

Dr Christian introduced Dr Burgess Gordon, a former resident on the medical service at the Peter Bent Brigham Hospital, and at present associate professor of medicine at Jefferson Medical College, physician in charge of the department of chest diseases of the Jefferson Hospital, and visiting physi-

clan in the Pennsylvania Hospital Dr Gordon spoke on the "Mechanics and Effects of Abdominal Compression in the Treatment of Pulmonary Tuberculosis" His paper will be published in an early issue of this Journal

Dr E. S. Emery Jr in commenting on the paper remarked that the vital capacity and diaphragmatic excursion was less in athletes than in non athletes and questioned whether the vital capacity was a reliable measure of the pulmonary efficiency in any condition except cardiac disease

Dr Harlan F. Newton stated that it was not the height of the diaphragm but the elimination of its pumping motion that was of importance in explaining whatever benefit might be derived from diaphragm immobilization

FAULKNER HOSPITAL CLINICAL MEETING

The regular monthly clinical meeting was held at the Faulkner Hospital on January 2 at 7 00 P M

One of the cases which came to autopsy during the preceding month was presented This brought out several points of interest The patient had chronic tuberculosis of the apices and tuberculous lesions in the cecum During the World War this patient had had attacks of dysentery and the question immediately arose whether the dysentery at that time could have been due to tuberculous lesions Apparently even at autopsy it is difficult to decide just how old tuberculous lesions are This is an important point in regard to the question of compensation from the government The next point was the fact that it is so difficult to find tuberculous bacilli in the spinal fluid It is of course possible that in cases where there is an increased cell count and a pellicle formation there are no organisms in the spinal fluid but the reaction in the spinal fluid is the result of the lesions and organisms in the meninges This patient turned out to have millary tuberculosis and the lesions in the meninges were millary tubercles A most exhaustive search was made of several specimens of the spinal fluid and although a pellicle developed in some of the specimens no organisms were found Another interesting point in this case was the clearing up of the spinal fluid by constant drainage A needle was inserted into the spinal canal in the lumbar region and left there for four days, while constant intravenous salt solution was given The cell count in the spinal fluid diminished considerably during this drainage but as there was a diffuse millary tuberculous the patient naturally did not improve

The next case reported was a patient with thrombocytopenic purpura in which the outstanding symptom was pronounced flowing from the uterine mucosa. It was felt at first that the case was one of some disturbance of the hormone of the anterior part of the pituitary gland Eventually hemorrhage from the gastric mucosa developed and generalized purpura The possibility of both conditions being present was considered. The blood platelets became

less and less in the blood and after the fourth transfusion disappeared quickly suggesting that some destructive process for blood platelets was active in the body Hemorrhage eventually developed in one of the eyegrounds The spleen was removed and during the three weeks after splenectomy no transfusions were needed and the red blood count returned to 4 500 000 The pathologist emphasized the fact that there is no definite pathology peculiar to this condition existing in the spleen In the spleen from this particular case there was phagocytosis of erythrocytes and marked hyperplasia of the endothelial cells in the center of the lymph follicles and also enlargement of the lymph follicles The therapeutic effect of splenectomy in these cases is one of the dramatic cures in medicine.

Dr Maurice B. Strauss then gave an excellent presentation of his work on anemias in pregnancy He called attention to the fact that a Boston physician Dr Walter Channing was one of the first ninety-five years ago to mention anemias in pregnancy Dr Strauss called attention to the fact that he was talking about a series of cases in which obvious causes for anemia were absent In two thousand cases in which obvious causes for anemia did not exist 50 per cent of the cases showed a hemoglobin below 70 per cent In this group the so-called ward cases showed a higher incidence than private cases No apparent cause for the anemia is found It is spoken of as hypochromic anemia and is looked upon as due to a deficiency in iron Three possibilities present themselves

1 Inadequate iron in the diet.

2 Gastric acidity or some defect in the secretion of the stomach which effects the assimilation of iron

3 Loss of iron

He showed that in some cases the acidity in the gastric juice gradually diminished as pregnancy proceeded and in the cases in which the acidity was lessened there usually was more loss of hemoglobin The diet of these patients is apparently a factor A good diet consists of meat and vegetables In patients in whom the diet was not especially rich in meat and vegetables there was more anemia It is interesting to note that in these cases pallor is not a pronounced symptom Under the microscope the red blood cells are usually smaller than normal have some change in shape but little change in size and there is distinct achromia He showed charts to emphasize the fact that, despite the anemia in the mother practically all the babies are born with the same amount of hemoglobin and are not anemic at birth

The treatment of this condition consists of iron in adequate amounts The type of iron administered is not important but it is essential to see that enough is absorbed to accomplish the results Ferrous salts are more effective than ferric salts and therefore it is important to see that the iron is not oxidized Most pharmaceutical houses arrange

their preparations so that oxidation does not take place

Occasionally an anemia is spoken of as macrocytic anemia, which is similar to pernicious anemia and occurs in pregnancy but this is very rare. This anemia is apparently due to a lack of an intrinsic factor in the gastric juice which is essential to prevent primary anemia or a lack of the liver factor in the diet, or an inability to absorb this factor. In the few cases of macrocytic anemia which have been observed in Boston, it is felt that the cause is due to a lowering of the intrinsic factor in the gastric juice rather than to a disturbance in absorption or a lack of the liver element in the diet. Some comparison has been made with cases in India in which a lack of the liver element in the diet is the important factor. Apparently in certain cases the intrinsic factor in the gastric juice, which is important in anemia, may temporarily diminish in pregnancy. This type of anemia should be treated with liver extract and usually the liver extract can be stopped after the blood has returned to normal. Transfusions are not indicated unless the anemia has reached such a severe grade that it becomes a temporary emergency.

Another interesting observation was the fact that babies of untreated anemic mothers tended to be anemic at the end of a year, while babies of mothers who are not anemic and babies of mothers who were anemic but were treated did not show anemia at the end of a year.

ALPHA OMEGA ALPHA LECTURE

The first Alpha Omega Alpha Lecture of the current academic year was delivered at the Harvard Medical School December 12, 1935, by Dr Warfield T Longcope, Professor of Medicine at the Johns Hopkins University Medical School, who spoke on "Studies in the Natural History of Bright's Disease."

Bright's disease must be considered as a general systemic disease, in which the renal lesions are but a part of the many manifestations. The renal involvement may be considered analogous to the involvement of the heart in such diseases as rheumatic fever and syphilis. Acute hemorrhagic nephritis was selected for study with the hope of clarifying its etiology and pathogenesis.

At least 90 per cent of the cases of acute hemorrhagic nephritis follow infections with hemolytic streptococci, and recent work has shown that the majority of these cases occur after infections caused by the beta, or minute form of the organism. The mode of action of these bacteria in producing the disease has been investigated by many workers. Acute glomerular reactions have been produced in animals by injections of the toxins of hemolytic streptococci, and by severe peritoneal infections with the same organism. Pappenheimer sensitized animals to streptococcal proteins, and subsequently injected the dead bacteria into the renal artery, with the production of acute glomerular

lesions, which appeared identical microscopically with those of acute glomerular nephritis. Dr Longcope obtained similar results with injections of *Streptococcus viridans*, the lesions produced being more diffuse and extensive than those obtained from injections of *Streptococcus hemolyticus*. Only certain strains of each group were effective, however.

Of the 125 cases investigated by Dr Longcope, a characteristic prodromal period followed the acute infection before the onset of the nephritis. This period varied from three to twenty eight days, and eighty per cent of the cases appeared between the seventh and sixteenth days.

Although acute hemorrhagic nephritis resembles rheumatic fever in appearing after infection with beta hemolytic streptococcus, there are several important differences between the pathogenesis and epidemiology of the two diseases. The primary infection in acute glomerular nephritis unlike rheumatic fever is not always confined to the respiratory tract, since cases have been observed following impetigo, erysipelas, and wound infections. The variation between the climatic distributions of the two diseases is quite striking, for whereas the incidence of rheumatic fever falls progressively from the cold climates of the north to the semitropical climates of the south, the incidence of acute glomerular nephritis is practically identical in the two areas. Rheumatic fever is prone to undergo exacerbations, while acute glomerular nephritis once cured does not recur.

Careful study of fatal cases has shown that the majority of fatalities are characterized by an insidious onset following subacute recurring infections (e.g., infected sinuses) of streptococcal etiology. Such cases may show edema and albuminuria, and gradually develop marked and persistent elevation of the blood pressure. They proceed with a subacute course, and recurrence of edema, fever, and hematuria with each flare-up of infection.

These findings have led Dr Longcope to consider that there are two types of hemorrhagic glomerular nephritis, each with a characteristic clinical course and termination. The first type is characterized by an abrupt onset, an acute course, and usually terminates with healing. The second has an insidious onset, subacute course with remissions and exacerbations, and frequently terminates fatally. There is some question as to whether the latter type is due to streptococcal infection. It is true that pneumococcal infections are able to produce this type of disease.

Patients with the acute form show a high titer of antistreptolysins in the blood serum following acute infections. Patients with the subacute, progressive form of the disease have a persistent low titer. The former group shows a good skin reaction to filtrates or proteins of the bacteria, in contrast to the latter group, which only rarely shows such a reaction.

Thus the two forms may be considered as infectious diseases, in which the reaction of the individ-

nal to the infection is different. The antibody reaction power of the patient of the first class is highly active but is suppressed or absent in the subacute group.

Treatment of acute hemorrhagic nephritis must be based on the fundamental principles of treatment of any acute infection involving a vital organ. Special attention must be paid to eradicating the seat of focal infection.

SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, January 21, at 12 noon. The speaker will be James W. Manary, M.D., Superintendent and Medical Director of the Boston City Hospital. His subject will be "The Growth of Dispensary Service at the Boston City Hospital." All physicians are cordially invited to attend this meeting. The usual luncheon will be served.

THE AMERICAN COLLEGE OF PHYSICIANS

The Twentieth Annual Session of the American College of Physicians will be held in Detroit with headquarters at the Book-Cadillac Hotel, March 2-6, 1936.

Dr. James Alex. Miller of New York City is President of the College and has arranged a program of general scientific sessions of great interest to those engaged in the practice of Internal Medicine and associated specialties. Dr. Charles G. Jennings of Detroit is the General Chairman of the Session and is in charge of the program of clinics and demonstrations in the hospitals, medical schools and other Detroit institutions. Dr. James D. Bruce, Vice-President in Charge of University Relations, University of Michigan, is Vice-Chairman of the Committee on Arrangements and has in charge the preparation of an all-day program to be conducted at the University of Michigan on Wednesday, March 4. Dr. Walter B. Cannon, Professor of Physiology at Harvard University Medical School, will deliver the annual Convocation Oration on "The Role of Emotion in Disease." Dr. Miller's presidential address will be on "The Changing Order in Medicine." About fifty eminent authorities will present papers at the general scientific sessions, while clinics and demonstrations will be conducted at the Harper Receiving Ford, Grace Herman Klefer and Children's Hospitals of Detroit.

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The regular meeting of the New England Physical Therapy Society will be held at the Hotel Kenmore, Boston, on Wednesday evening, January 15, 1936, at 8 P.M.

PROGRAM

Hyperesthetic Rhinitis and Its Treatment (Illustrated). The Modern Treatment of the Common Cold. George B. Rice, M.D., Boston.

The discussion will be led by Leighton F. Johnson, M.D., Boston.

The Progress Committee will submit a report on evaluation and progress in the field of short wave therapy by DeWitt G. Wilcox, M.D. of Newton and William D. McFee, M.D., of Boston.

The Council will meet at six.
Members and guests will meet at dinner in the main dining room of the Hotel Kenmore at six thirty.

All members of the medical profession are cordially invited to attend.

WILLIAM D. McFEE, M.D., Secretary

THE ARLINGTON DOCTORS CLUB

The regular meeting of the Arlington Doctors Club will be held at the Ring Sanatorium on Tuesday, January 14, at 8:30 P.M.

The Belmont Doctors Club has been invited to attend.

The speaker will be Dr. Conrad Wesselhoef, Associate Professor of Communicable Diseases, Harvard Medical School and Medical Director of the Haynes Memorial Hospital.

His subject will be "Problems in Scarlet Fever." All physicians are invited to attend.

FRANK H. GERRY, President

SIMON M. SIMONS, Secretary

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance) Tuesday evening, January 14, at 8:15 P.M.

PROGRAM

Presentation of Cases.
The Physiology of the Elephant. By Dr. Francis G. Benedict.

Medical students and physicians are cordially invited to attend.

MARSHALL V. FULTON, M.D., Secretary

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY, JANUARY 13, 1936

Tuesday, January 14—

9:10 A.M. Boston Dispensary, 5 Bennet Street, Boston. Cases from Blood Clinic. Dr. Isadore Ober.

2:30 P.M. Pediatric Ward Visit, Massachusetts Eye and Ear Infirmary.

7:45 P.M. Gardner Auditorium, State House, Boston. Adults in Difficulty. A. Warren Stearns, M.D.

8:15 P.M. Harvard Medical Society, Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance).

8:30 P.M. The Arlington Doctors Club at the Ring Sanatorium.

Wednesday, January 15—

9:10 A.M. Boston Dispensary, Bennet Street, Boston. Modification of History Taking and Physical Examination Methods in Pediatrics. Dr. Francis McDonald.

11 A.M. Clinico-Pathological Conference, Children's Hospital.

8 P.M. New England Physical Therapy Society, Hotel Kenmore, Boston.

Thursday, January 16—

- *8 30-9 30 A M Clinic, Surgical and Orthopedic Staffs of Children's Hospital, at the Children's Hospital
- *9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston Social Service Case Presentation. Miss Edith Canterbury
- *2 30 P M Medical Clinic at the Peter Bent Brigham Hospital

Friday, January 17—

- *9-10 A.M. Boston Dispensary 25 Bennet Street, Boston The Diagnosis and Management of Biliary Tract Disease Frank Lahey, M D
- 12 M Massachusetts General Hospital, Clinical Meeting of the Staff of the Children's Medical Service Ether Dome

Saturday, January 18—

- *9-10 A M Boston Dispensary 25 Bennet Street, Boston Presentation of Ward Cases Dr H C Gordonier
- *10-12 Staff rounds at the Peter Bent Brigham Hospital

Sunday, January 19—

- 4 P M Free Public Lecture, Harvard Medical School, Building D, Longwood Avenue The Prevention of Infectious Diseases Dr H C Stuart.

*Open to the medical profession

†Open to Fellows of the Massachusetts Medical Society

January 9 31—Boston Dispensary Medical Conference Program See page 87

January 10—William Harvey Society will meet in the Auditorium of the Beth Israel Hospital, Boston, at 8 P M.

January 14—Harvard Medical Society See page 91

January 14—The Arlington Doctors Club See page 91

January 15—New England Physical Therapy Society See page 91

January 16—Medical Clinic at the Peter Bent Brigham Hospital See page 87

January 17—A Lecture by Dr E V McCollum (Worcester County Home Economics Association) See page 87

January 21—South End Medical Club See page 91

January 21—Lawrence Cancer Clinic See page 87

January 27—Springfield Medical Association

February 24 to May 16—International Medical Post-graduate Courses in Berlin See page 1211, issue of December 12 1935

March 2 6—The American College of Physicians See page 91

June 15 19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory, Baltimore, Md

September, 1936 — First International Conference on Fever Therapy See page 1325, issue of December 26, 1935

DISTRICT MEDICAL SOCIETIES**ESSEX SOUTH DISTRICT MEDICAL SOCIETY**

February 5—Council Meeting, Boston

February 12—Wednesday Addison Gilbert Hospital, Gloucester Clinic 5 P M. Dinner 7 P M. Speaker and subject to be announced later

March 4—Wednesday Lynn Hospital Clinic 5 P M. Dinner 7 P M. Speaker Dr Timothy Leary Subject Arteriosclerosis

April 1—Wednesday Essex Sanatorium, Middleton Clinic 5 P M. Dinner 7 P M. Speaker Dr Richard H Overholt of the Lahey Clinic Subject Chest Surgery

May 7—Thursday Censors' Meeting

May 13—Wednesday Annual Meeting Salem Country Club Dinner at 7 P M. Speaker Dr Paul White Subject to be announced later

R E STONE, M D, Secretary

88 Lothrop Boulevard, Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings are held on the second Tuesday of January, March and May at the Weldon Hotel, Greenfield, at 11 A M.

CHARLES MOLINE, M D, Secretary

Sunderland

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings to be held at the Bear Hill Golf Club at 12 15 P M

March 11, May 6

K. L. MACLACHLAN, M D, Secretary

1 Bellevue Avenue, Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

January 28—Hotel Kenmore at 8 P M Subject "Compulsory Sickness Insurance" Speakers to be announced

February 25—Massachusetts Memorial Hospitals at 8 P M Papers by the staff

March 31—Hotel Kenmore, at 8 P M Dr Benedict F Boland—'Cauterization of the Cervix Uteri Using Various Electrical Methods' Illustrated with lantern slides

May—Annual Meeting (Place, date and subject to be announced)

The censors meet for the examination of candidates May 7, 1936 November 5, 1936

FRANK S CRUICKSHANK, M D, Secretary

1236 Beacon Street, Brookline

PLYMOUTH DISTRICT MEDICAL SOCIETY

January 16—Goddard Hospital

March 19—Plymouth County Sanatorium, South Hanson

April 16—Brockton Hospital

May 21—Lakeville State Sanatorium

G A MOORE, M D, Secretary

167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

January 29—Joint Meeting with the Boston Medical Library at 8 Fenway Observations Around the World, Dr Walter B Cannon

March 18—Meeting at the Boston Medical Library 'The Laboratory and Clinical Story of Fatigue, Dr Arlie V Bock and Dr David B Dill Discussion Dr Donald J MacPherson and Dr Augustus Thorndike, Jr

April 29—Annual Meeting at the Boston Medical Library 'The Treatment of Septicaemia, Dr Champ Lyons 'The Pleurality of Scarlatinal Streptococcus Toxin, Dr Sanford B Hooker Discussion Dr Hans Zinsser

The medical profession is cordially invited to attend all of these meetings

ROBERT L DeNORMANDIE, M D, President,

CHARLES C LUND, M D, Secretary,

FRANCIS T HUNTER, M D,
Boston Medical Library

WORCESTER DISTRICT MEDICAL SOCIETY

February 12—Wednesday evening Worcester State Hospital, Worcester Mass Dinner and scientific program Subjects of program to be announced later

March 11—Wednesday evening Memorial Hospital, Worcester, Mass Dinner and scientific program Subjects of program to be announced later

April 8—Wednesday evening Hahnemann Hospital, Worcester, Mass Dinner and scientific program Subjects of program to be announced later

May 13—Wednesday afternoon and evening Annual Meeting of Society Time place and details of program to be announced in an April issue of the Journal

ERWIN C MILLER, M D, Secretary

27 Elm Street, Worcester

BOOKS RECEIVED FOR REVIEW

Surgery Queen of the Arts, and Other Papers and Addresses William D Haggard 389 pp Philadelphia and London W B Saunders Company \$5 50

Prescription Writing and Formulary The Art of Prescribing Charles Solomon 351 pp Philadelphia, London, and Montreal J B Lippincott Company

An Introduction to Public Health Harry S Mustard 250 pp New York The Macmillan Company \$2 50

The New England Journal of Medicine

VOLUME 214

JANUARY 16, 1936

NUMBER 3

PRIMARY CARCINOMA OF THE LUNG EARLY DIAGNOSIS AND TREATMENT BY PNEUMONECTOMY*

BY RICHARD H. OVERHOLT, M.D.†

THE surgical treatment of malignant disease has been based upon the complete extirpation of cancer bearing tissue or of a cancerous organ before the event of metastasis. The success of such treatment has been dependent upon early diagnosis and upon accessibility of the organ for safe resection. The presence of a malignant process in a vital organ has naturally been considered hopeless so far as surgical treatment is concerned. It has now been demonstrated however, that one lobe of a lung or the entire lung on one side can be successfully removed. It has also been shown that the procedure does not limit the patient's ability to enjoy the ordinary activities of life.

This paper relates experiences in the surgical treatment of carcinoma of the lung, compares the status of the patients operated on with that of untreated patients, and discusses diagnostic methods which should help to bring the patient under treatment at a time when the growth is confined within the lung.

Heretofore many of the published data on carcinoma of the lung have come from analysis of autopsy material. The concept derived from such sources has naturally focused attention on the late stages of the disease. The recent advances in the surgical treatment of primary carcinoma of the lung therefore demand that the general medical profession be more concerned with early symptoms and differential diagnosis. Patients should receive the benefit of treatment while the lesion is still local in its extent. Fortunately, several facts regarding primary lung carcinoma are now known which will make early diagnosis possible in a fair proportion of cases.

1. A warning symptom, a persistent cough appears early.
2. A large majority of the growths originate in a stem bronchus and therefore can be actually visualized (with the aid of the bronchoscope).
3. The stem bronchus lesion is limited by cartilaginous rings and apparently grows slowly over a period of months until the infiltrating process breaks through these bounds. Awareness of the possibility of the presence of such a lesion, and the application of methods now available for early detection, should greatly

increase the percentage of operable cases. A new ray of hope for a group of cases previously considered always to have a fatal outcome has appeared on the medical horizon.

That surgery promises some help for patients doomed on account of primary malignancy of the lung is more welcome since it is generally admitted that irradiation in any form fails to cure and frequently does not even influence, for the better, the progress of the disease. So far as I know, there has not been reported a five-year cure of a proved primary carcinoma of the lung by deep roentgen ray therapy, or by direct bronchoscopic radium implantation. Tuttle and Womack¹ in a report of eighteen cases said, "The use of radiation in the form of either local application of radon seeds, or as x ray therapy has been unsatisfactory." Edwards², in summarizing his experiences with the direct implantation of radon said, "Nevertheless, it can not be denied that the majority of thirty two patients submitted to this treatment have died of their growths." At the time of Edwards' report, one patient was living with an apparent disappearance of the growth three years after treatment and one patient four years after thoracotomy and direct radon implantation.

From our knowledge at the present time of the action of radiation on primary tumors of the lung it would seem unlikely that much reliance can be placed upon this form of treatment. In the first place, the most common type of primary malignant disease in the lung is the epidermoid form, which is notably radio-resistant. Secondly, the associated breakdown of pulmonary tissue with suppuration in the region of the growth leaves the patient with a serious condition in the chest whether the malignant lesion is actively growing or not. Radiation may aggravate this destructive inflammatory process thereby leaving the patient in a more uncomfortable state than ever.

Bronchoscopic removal of a very small bronchial neoplasm must always be considered as a possible form of treatment. Kernan³ has reported at least temporary improvement in a limited number of cases followed two and three years. Jackson and Konzelmann⁴ however, in a series of twenty nine cases, found no lesions small enough to treat in this way. All of the cases in their group who had been followed had

From the Department of Thoracic Surgery, Lahey Clinic, Boston, Mass.

*Overholt, Richard H.—Surgeon, Lahey Clinic, Boston. For record and address of author see "This Week's Issue," page 14.

died of the disease, except the three most recent ones

SUCCESS IN THE RADICAL OPERATION

Efforts on the part of thoracic surgeons to cure primary malignant disease of the lung have been stimulated by successful experiences with lobectomy for bronchiectasis. There have been a limited number of attempts in the past few years to treat pulmonary malignant disease by resecting a single lobe. Operative successes have been reported by Sauerbruch⁶, Churchill⁶, Edwards² and Eggers⁷. A recent account has been given by Allen⁸ of the survival of a patient four years after lobectomy for carcinoma of the right lower pulmonary lobe. In Allen's cases, however, bronchoscopy two and one-half years after operation revealed a malignant growth in the stump of the right lower bronchus indicating that the resection had not been high enough in the hilum. In 1932 the author⁹ had a similar experience with lobectomy for carcinoma of the right lower lobe. Not all of the growth was removed and the patient died of the disease ten months later. In the large majority of cases when the lesion has originated in one of the major bronchi, it is impossible to resect the corresponding lobe and be sure of removing all of the growth. Thoracic surgeons now feel that in most cases of malignant disease the entire lung should be removed and the bronchus divided as high as possible.

Within the past four years, it has been demonstrated that the resection of one entire lung (pneumonectomy) can be done with survival of the patient and without subsequent disability,

the following year had four additional successful resections of the lung, two for cancer and two for pulmonary suppuration. See table 1. Other successes with this operation for carcinoma of the lung (Archibald, Churchill, Haight, and Flick) have been noted in a recent article by Alexander¹⁰.

The postoperative period of observation is too limited in all of the reported successful cases to draw final conclusions. Two carcinoma cases operated on by the author have lived twenty and fourteen months respectively, have remained free of symptoms and show no evidence of recurrence. See figure 1. Their present status

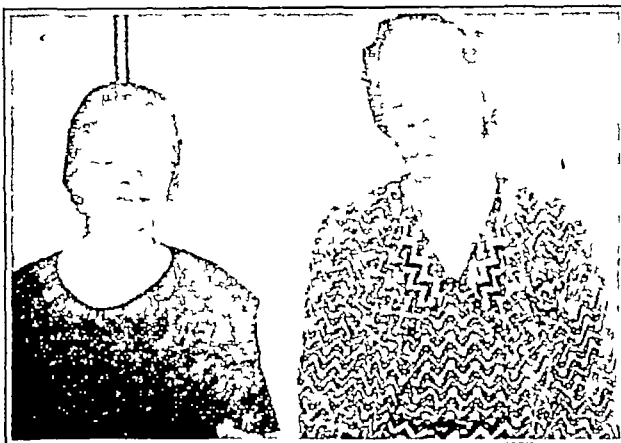


FIGURE 1. Photograph of two patients who are now living and well 20 months and 14 months respectively following pneumonectomy for primary carcinoma of the lung. The patient on the left had the right lung removed on November 2, 1933 and later had an eight rib thoracoplasty to obliterate the space. The patient on the right had the left lung removed on May 2, 1934. A thoracoplasty was not required. Both patients do their own housework and both show no evidence of metastasis.

TABLE 1

Total number patients studied	23	
Metastasis found upon clinical examination	6	
Thoracic exploration metastasis found	7	
No evident metastasis, rejected for operation on account of general condition	2	
Rt lower lobectomy	1	Lived 10 months
*Lt. lower lobectomy	1	Dead
Rt pneumonectomy	2	Living †1
Lt pneumonectomy	4	" 2
Lt pneumonectomy for pulmonary suppuration	2	" 2
Total pneumonectomies	2	" 2

*Clinic case referred to Dr. E. D. Churchill for operation of July 1, 1935.

is, therefore, far better than that of the other nineteen cases seen during the past three years who either were not treated surgically or were found upon exploration to have metastatic growths. Of these nineteen patients, fifteen are dead, a follow-up report has not been obtained from one, and three patients are still living, all of whom have been studied within the past five months. Of those that died, the average survival was sixteen months after the onset of symptoms and 35 months after the diagnosis was established. Two of the surgically treated cases, therefore, have exceeded their estimated expectancy by thirteen and seven months respectively. The third successful pneumonectomy for carcinoma has been done recently (April, 1935). The study of the cases in our series would suggest that surgical treatment gives the greatest prospect of cure.

The success of our attempts to salvage such patients will depend upon two factors: first, early diagnosis and early operation before the lesion has spread beyond the lung, and secondly, careful management before, during, and after operation to minimize operative morbidity and mortality.

ity. The successful removal of the left lung for bronchiectasis performed in stages has been reported by Nissen¹⁰, Haight¹¹, and Windsberg¹². Graham and Singer¹³ in 1933 removed the left lung for carcinoma. In the same year Rienhoff¹⁴ reported two successful left pneumonectomies. Also in 1933 the author¹⁵ removed the entire right lung for carcinoma and in

PATHOLOGY

In order to correlate symptoms establish a diagnosis and determine operability in any given case of malignant disease, it is well to consider first the histology and site of origin of the lesion. Although there has been some confusion about the classification of primary lung tumors, it is now generally conceded that the great majority of primary lung tumors arise from cells in the bronchial epithelium or from the bronchial mucous glands. Origin in the cells of the pulmonary alveoli possibly never occurs or is so rare that it can well be dismissed. Various classifications of primary lung carcinoma have been given, based on histology, gross appearance, and location. From the histologic standpoint, the epidermoid form is most frequently encountered. In twenty of our cases, the following pathological diagnoses were made by Dr. Shelds Warren:

	No cases	Metastatic growths found by x ray exploratory thoracotomy or autopsy	No metastatic process found at operation or autopsy
Epidermoid Carcinoma	11	9	3
Carcinoma Simplex	4	2	2
Adenocarcinoma	2	1	1
Carcinoma—unclassified	3	1	3

This proportion of histological types corresponds closely to that reported in other groups of cases. The location of the lesion in the lung, however, apparently influences the clinical picture more than does the histological structure of the growth. A tumor near the hilum and growing within the lumen of a major bronchus produces an entirely different gross appearance and gives an entirely different x ray shadow than does a lesion growing in the periphery of the lung.

Most writers, therefore, have created two major groups, one for growths arising in the major bronchi and near the hilum (bronchial form) and another arising in the periphery of the lung (pneumonic form). It is impossible to fit the various histological groups into the two major forms of lung cancer which are based on location. It is the opinion of Geschickter and Denison¹¹, however, that the hilar lesions are usually carcinomata of the epidermoid form where as the peripheral lesions are usually adenocarcinomata. In our series, nineteen were of the hilar type and four were peripheral. There were two adenocarcinomata in all, one being located peripherally and the other centrally.

We have been unable to formulate any rule

that would correlate the frequency of metastasis with the various histological forms. In one patient, a large peripheral adenocarcinoma had directly infiltrated the chest wall but showed no mediastinal or lymphatic involvement. Most of the epidermoid tumors at the time of investigation showed extension into the mediastinum. However, in two cases the bronchoscopic biopsy revealed a rather highly ma-

TABLE 2

	Both Types	Bronchial Type	Pneumonic Type
Total No Cases	23	19	4
Symptoms			
Cough	22	19	3
Weakness	19	16	3
Hemoptysis	13	11	2
Pain in chest	7	5	2
Dyspnea	6	5	1
Wheezing	2	2	0
Signs			
Physical signs in chest	14	11	3
Fever	13	10	3
Leucocytosis	14	11	3
Discrete Shadow	9	7	2
Diffuse	10	8	2
No x ray of tumor	4	4	0
Atelectasis	15	15	0
Bronchoscopic Exam	19	16	3
Bronchoscopic biopsy positive	15	15	0

lignant lesion, carcinoma simplex grade III yet no metastatic extensions were found at operation, and pneumonectomy was successfully performed. In one case, the lesion was known to have been present at least two years. There were two additional cases in the series in which the lesion was a carcinoma simplex at the time of investigation, these remaining two showed metastatic growths. There were three definitely malignant lesions of epidermal origin which Dr. Warren was unable to classify. Only one of these showed metastasis. Pneumonectomy was done in the other two cases, and one of these was successful.

At the present time, it is impossible to predict which histological group will ultimately lend itself best to surgical treatment. Until more is known concerning the growth and spread of these tumors, all should be considered operable unless a mediastinal extension or a definite metastatic lesion can be demonstrated.

LOCATION OF THE GROWTH

The location of the growth and its relation to the stem bronchus has more to do with the clinical picture which the tumor produces than does its histologic structure. As was stated above, most writers have designated two distinct clinical groups of primary lung cancer based upon the location of the growth. All agree that the majority of the tumors arise in

one of the major bronchi near the hilum Rabin and Neuho¹⁶ in their series of cases found that seventy-five per cent took origin in a main or branch bronchus Tuttle and Womack¹ found fifty-two per cent of the lesions of the bronchial or hilar type In those cases reported by Geschickter and Denison¹⁷ sixty-five per cent were hilar in position In a series of twenty-three cases studied in The Lahey Clinic all but four had their origin in a stem bronchus

That the large majority of the primary malignant lesions of the lung are in this location is extremely important from the standpoint of detection, biopsy diagnosis and surgical treatment

BRONCHIAL FORM

A concept of the early clinical picture and the progressive development of symptoms in primary carcinoma of the lung can best be presented by considering the two forms separately All of the important early symptoms of a stem bronchus cancer are due to mechanical disturbances produced by virtue of the position of the growth in the lumen of one of the major bronchi In figure 2 are shown two dif-

BRONCHIAL FORM

EARLY LESION
BRONCHUS OPEN

LATER LESION
BRONCHUS OCCLUDED

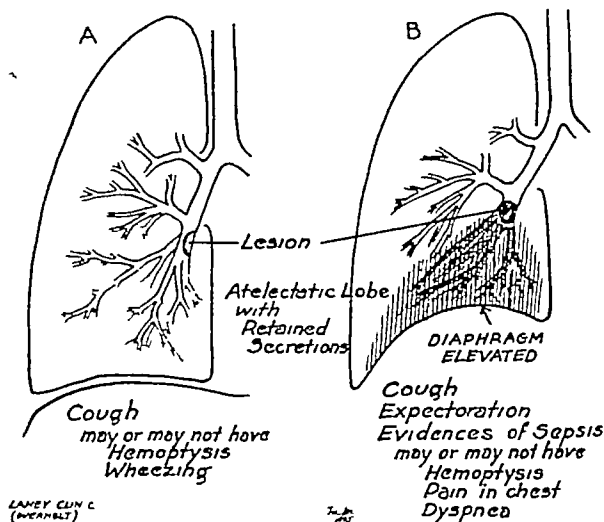


FIGURE 2 Diagram illustrating bronchial form of primary carcinoma of the lung Seventy to eighty per cent of primary lung cancers originate in the stem bronchus The lesion rarely casts a shadow in the x-ray Its presence is not suspected until the lumen of a bronchus is occluded Then the shadow of atelectasis appears The bronchial type of lesion can be seen early by the use of the bronchoscope.

ferent stages in the growth of a tumor in a stem bronchus The first drawing shows a small lesion in one of the major bronchi, too small to occlude its lumen Such a lesion would produce a chronic and persistent cough Erosion of the surface would give rise to hemoptysis An x-ray examination at this time would be negative since the tumor itself could not be

visualized and since there is no interference with the aeration of the corresponding lobe A diagnosis could be made only by direct inspection of the bronchial tree with the bronchoscope As the growth enlarges and partially closes the lumen of the bronchus, the patient may become conscious of a wheezing sensation in the chest A mistaken diagnosis of asthma is not uncommonly made

When the growth completely blocks the lumen of the bronchus, other symptoms and signs are added to the meager tell-tale evidences of the nonobstructing lesion The roentgenogram shows atelectasis of the affected lobe, usually a homogeneous shadow, triangular in shape, with the apex reaching the hilum (figure 2B) The growth itself may attain a size large enough to cast a shadow, thus giving direct x-ray evidence of the tumor In figure 3, the

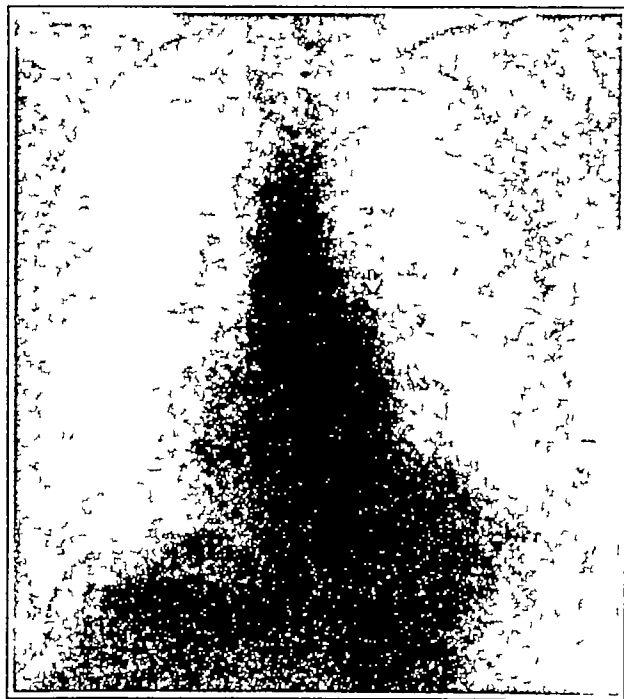


FIGURE 3 Roentgenogram of the chest of a patient showing both the shadow of the tumor near the hilum and also a triangular area of density indicative of atelectasis of the right lower lobe Both the direct evidence (tumor shadow) and presumptive evidence (atelectasis) were shown by this x-ray Right pneumonectomy was successfully performed on November 2, 1933 See figure 1

roentgenogram of such a case is reproduced Both the presumptive x-ray evidence (atelectasis) and the direct x-ray evidence (tumor mass) are shown In figure 4, the mass itself cannot be seen, but atelectasis of the lower lobe is shown together with obstructive emphysema of the upper lobe From the x-ray appearance alone, the growth was located at the bifurcation of the secondary bronchi completely obstructing the lower, partially obstructing the upper bronchus In figure 5 is shown the roentgenogram of a lesion in the left upper main bronchus

The growth itself is not seen but the associated atelectasis is typical.

After the growth has obstructed the bronchus,



FIGURE 4 Roentgenogram of a patient who had a primary carcinoma at the bifurcation of the left main bronchus. The tumor itself does not cast a shadow. The left lower lobe bronchus was completely occluded so that the typical triangular shadow of obstructive atelectasis is present. The upper lobe bronchus was partially occluded, a valve-like action resulting in an emphysema of the upper lobe took place. In this case the x-ray yielded presumptive evidence only of a tumor of the bronchus. A left pneumonectomy was successfully performed on May 1934. See Figure 1.

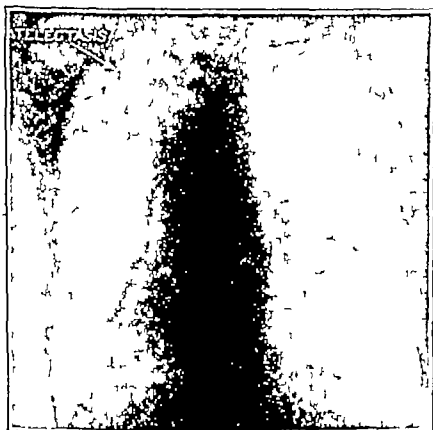


FIGURE 5 Roentgenogram of a patient with a primary carcinoma of the left upper lobe bronchus. The tumor itself did not cast a shadow. The area of density in the upper portion of the left chest with slight displacement of the mediastinum toward the left side is typical of atelectasis of the upper lobe (presumptive evidence). A left pneumonectomy was successfully performed on April 8, 1935.

the effects of retained secretions and infection become superimposed. The cough becomes productive and the sputum may be foul. Recurrent elevations of temperature are frequently noted

in the histories of such patients and not a few have been told they had pneumonia or even more frequently tuberculosis. Later such symptoms as pain in the chest, dyspnea, and weakness develop. Symptoms due to a late stage of the disease with infiltration of the mediastinum have no place in the construction of a practical concept of this disease.

In a review of the earliest symptoms in nineteen cases of bronchogenic carcinoma, cough was reported by all to be an early and persistent symptom. Twelve patients complained of weakness and eight of hemoptysis. The duration of symptoms extended over a period of four to twenty-four months. Throughout this entire time persistent cough was the symptom that urged them to go from doctor to doctor searching for relief. Practically every patient had previously been considered to have either tuberculosis, pulmonary abscess, or unresolved pneumonia. The roentgenographic examination in the early stages may be confusing in that the lesion, itself, may not cast a shadow or the shadow may be difficult of interpretation because of its close proximity to the hilar shadow. When an abnormal shadow is seen in the x-ray, it is due to the secondary effect of the tumor and not to the tumor itself. These secondary effects show up as those of atelectasis of the corresponding lobe. Sputum tests help to rule out tuberculosis and may help in differentiating lung abscess. Reliance must be placed upon bronchoscopic examination. In our series, fifteen of the cases with stem bronchus lesions were examined bronchoscopically and a tumor visualized in fourteen and a positive biopsy obtained in all of the fourteen. From our study of the bronchial type of carcinoma, it has been concluded that no group of symptoms can be outlined which will truly represent the disease. All patients of middle age or past middle age who develop a chronic and persistent unexplained cough should be studied bronchoscopically.

PNEUMONIC FORM

A tumor originating in the periphery of the lung differs greatly from the stem bronchus lesion in its clinical picture. The size that it attains before producing symptoms varies considerably because obstruction of a major bronchus is not a factor. The position of the lesion, its relation to the visceral pleura, the rapidity of central necrosis and secondary infection all contribute to the development of symptoms. A correlation of tumor growth and symptoms has been diagrammatically shown in figure 6. A peripheral growth would obviously produce an area of density in the roentgenogram early in its development. The lesion casts a homogeneous shadow and is fairly well circumscribed. Cough is one of the early symptoms and may be the only symptom. Hemoptysis at this time is not so likely as in the stem bronchus lesion.

As the disease progresses, the x-ray shadow increases in size and may show areas of cavitation. Later, superimposed infection and tissue necrosis result in appearances not unlike that seen in pulmonary abscess or suppuration. Weakness, loss of weight, and other evidences of sepsis appear. Cases in our series showing this type of lesion have been previously diagnosed either tuberculosis or lung abscess. In figures 6 and 7 are shown the roentgenograms

PNEUMONIC FORM

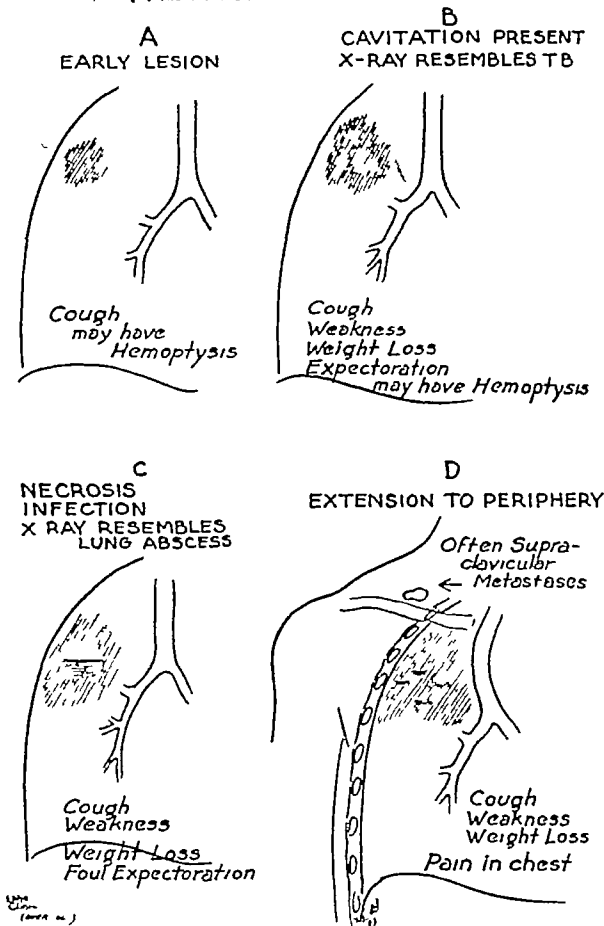


FIGURE 6 Diagram illustrating the stages of development of a pneumonic or peripheral form of primary carcinoma of the lung. In the early stage cough may be the only symptom. The x-ray shadow may resemble lung abscess or tuberculosis. As the lesion breaks down and as the effects of suppuration are superimposed a different clinical picture is presented. This form of primary malignancy of the lung is difficult to diagnose as bronchoscopy fails to visualize the tumor. Fortunately this type is less frequent than the stem bronchus lesions.

of a patient who had a peripheral lesion which later proved to be an adenocarcinoma. Bronchography revealed no connection between the tumor and the major bronchi. The lesion had infiltrated the chest wall. An aspiration biopsy was done but with negative results. Bronchoscopy was likewise negative. A presumptive diagnosis of neoplasm was made from the history and from the x-ray appearance. An exploratory thoracotomy was then carried out and a large peripheral lung tumor found and a pneumonectomy performed. This case

is reported in detail elsewhere.¹⁵ In two of our malignant cases, a thoracotomy and drainage of the area was carried out because the history,

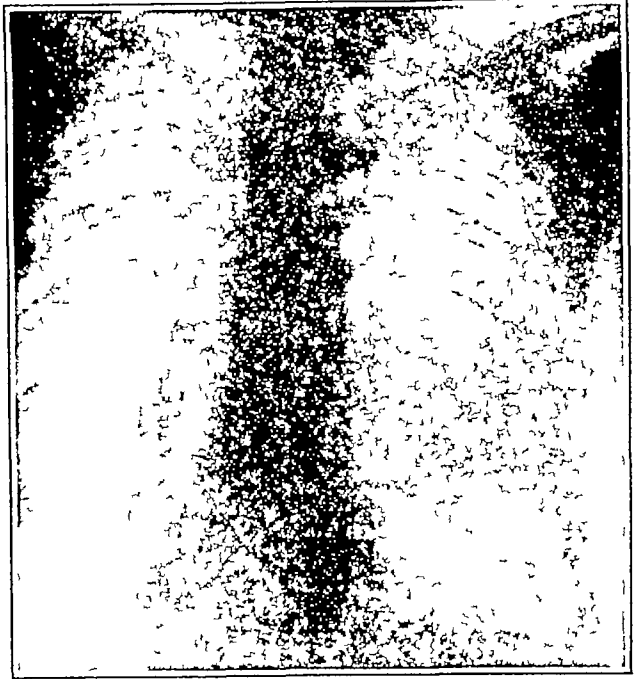


FIGURE 7 Roentgenogram of a patient who had a pneumonic form (adenocarcinoma) of the right lung. Bronchoscopy failed to visualize the tumor. The diagnosis was made by exploratory thoracotomy.



FIGURE 8 Roentgenogram of the same patient as in figure 7. Lipiodol injection revealed no connection between the tumor mass and the major bronchi. This illustrates an additional aid in the diagnosis of such lesions.

physical signs, and x-ray, and sputum examinations all supported a diagnosis of pulmonary abscess. Edwards² reports that ten per cent

of pulmonary abscesses, so diagnosed, are primary neoplastic lesions which have broken down.

In the pneumonic forms, bronchoscopic examinations failed to be of positive assistance in establishing the diagnosis. In all four cases no abnormal condition of the tracheobronchial tree was visualized bronchoscopically. The procedure was valuable, however, in eliminating other conditions that might cause such symptoms. The most important points in the diagnosis of the pneumonic form are symptoms such as cough, weakness, hemoptysis, and chest pain combined with the x ray picture of a progressive, nonfibrosing lesion. It is frequently possible to secure x ray films taken at an earlier date with which to make a comparison. An inflammatory process in one of the lobes or a chronic interlobar empyema may be confusing.

The question then arises: Are there any other aids in the diagnosis of the pneumonic form of cancer? We have injected lipiodol in all suspected cases when bronchoscopy failed to help. Visualization by x ray of the tracheobronchial tree may aid in ruling out other conditions which give rise to cough, expectoration and hemoptysis. An examination of the sputum is valuable in ruling out tuberculosis or a suppurative process. The induction of a partial pneumothorax with subsequent x ray examination may help to establish the relationship of the lesion to the chest wall, pleura, and great fissures. There is always the possibility of getting tissue for biopsy by aspiration of peripheral lesions when an adherent pleura is present. We have attempted to obtain material for histologic study by this method without success. The procedure may not be without danger. In the event, therefore, of not being able to secure a direct specimen for biopsy either bronchoscopically or by aspiration, we feel that thoracic exploration is indicated. If we wait for extension of the growth to take place, the chance of cure by pneumonectomy is lost.

DETERMINATION OF OPERABILITY

It is our feeling that all cases with proved or suspected primary malignant disease of the lung should be subjected to exploratory thoracotomy provided that

- 1 The lesion is presumably still limited in its extent to one lung. Metastatic cervical glands should be looked for. The skull, long bones, ribs and spine should be examined roentgenoscopically for metastatic lesions. If pneumothorax can be effected a direct inspection of the pleural cavity with the thoracoscope may be of great value.
- 2 The general condition of the patient is fair. All of the patients who have survived pneumonectomy were in the grade III or IV group of operable risk. All but two

were febrile at the time of operation. If their symptoms are due solely to the disease in the affected lung, removal of this organ immediately relieves the patient of absorption from this area. Therefore, the extent of the tumor or the associated pathologic conditions within the one lung should not of itself contraindicate operation. Whenever possible patients are prepared for thoracic exploration by the preliminary induction of pneumothorax. As a rule it has taken five to seven days to secure maximal collapse. If adhesions of the pleura prevent more than thirty per cent collapse the operation is undertaken without delay. Should more than thirty per cent collapse be obtained, pneumothorax is maintained for seven to ten days more. This length of time seems to be adequate to test the function of the remaining lung and to adjust the circulatory and respiratory apparatus to atmospheric pressure on the affected side.

Operative technique will not be discussed in detail in this paper.

Either an anterolateral or posterolateral approach is used depending upon the extent and location of adhesions and upon the position of the tumor. The mediastinum is inspected and palpated. If there is an obvious infiltration of this region or if mediastinal glands are enlarged and show metastatic involvement on frozen section, the operation is concluded and the thoracic wound closed. If no evidence of metastasis is discovered pneumonectomy is carried out. Problems in the surgical management of the pneumonectomy patient have been discussed in another paper devoted to this aspect of the subject.¹²

THE CHALLENGE

It has been demonstrated that the resection of the entire lung on one side is technically possible and that the consequence of such a procedure is not incapacitating. It has also been pointed out that a diagnosis of primary malignancy of the lung can be made before the patient reaches the autopsy table. An analysis of the cases in our series and the experiences of others show that the large majority of all primary carcinomas of the lung originate in a major division of the right or left main bronchus. Therefore the majority of these lesions can be actually seen early in their development and a biopsy obtained by means of the bronchoscope. Cough and hemoptysis occurred in a large proportion of all cases early in the course of the disease. Fortunately we have therefore an early warning symptom. We are obligated to heed this warning sign and if no adequate explanation is forthcoming after sputum and x ray examinations the patient should be subjected to bronchoscopy.

It should also be emphasized that in the early stages of stem bronchus lesions, the lesion itself, does not cast a shadow on the x-ray film. The x-ray diagnosis depends upon secondary evidences of growth, namely, atelectasis.

An opinion in regard to exploratory thoracotomy has also been expressed, namely, in all cases of proved malignancy, explore if metastasis cannot be demonstrated. In peripheral lesions, exploration is justified without a positive biopsy diagnosis. The thoracic exploration may be the only possible way to settle the diagnosis at a time when the growth is in the operable stage.

SUMMARY

- 1 A study of twenty-three cases of primary carcinoma of the lung has been made.
- 2 The bronchial and pneumonic forms are differentiated, and diagrams illustrative of these two types of pulmonary malignancy are shown.
- 3 Emphasis is placed upon early symptoms. A chronic unexplained cough is the most frequent early symptom. Expectoration, hemoptysis, and wheezing may be present fairly early.
- 4 The value of diagnostic aids, such as x-ray, bronchoscopy, lipiodol visualization, pneumothorax, and intrapleural thoracoscopy has been pointed out.
- 5 The ineffectiveness of any form of radiation has been discussed.

- 6 The possible cure of primary carcinoma of the lung by resection of an entire lung has been considered.
- 7 Five successful pneumonectomies are reported—three for malignant and two for suppurative disease.

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VENEREAL DISEASE INFORMATION

It is desired to invite your attention to *Venereal Disease Information*, a monthly publication prepared by the U S Public Health Service for the medical profession throughout the United States. The purpose of this publication is to provide in condensed form a monthly summary of the scientific developments in the diagnosis, treatment, and control of syphilis and gonorrhea. More than three hundred and fifty American and foreign journals are reviewed for this work and abstracts are made of articles describing clinical, laboratory, and pathologic work in the field of venereal disease. The most important literature on every phase of the subject is presented in the form of brief abstracts that are easily read. An index for the year is published with the December issue.

Thousands of physicians have found this publication useful in enabling them to keep abreast with developments in venereal disease work. During the coming year it is planned to publish several original articles by outstanding authorities in this country in the field of syphilis and gonorrhea. The series of articles on the treatment of syphilis by the cooperative clinical group has not yet been completed. A number of interesting papers, among which will be

two—one on cardiovascular syphilis and one on syphilis of the nervous system, will be published in the near future.

The cost of this publication is only fifty cents per annum, payable in advance to the Superintendent of Documents, Government Printing Office, Washington, D C. It is desired to remind the reader that this nominal charge represents only a very small portion of the total expense of preparation, the journal being a contribution of the Public Health Service in its program with State and local health departments directed against the venereal diseases.

A sample copy of *Venereal Disease Information* will be forwarded to you upon request. To receive this copy address the Surgeon General, U S Public Health Service, Washington, D C. Do not send stamps.

NEW YORK ACADEMY OF MEDICINE

Dr Winfred Overholser, Commissioner of the Massachusetts Department of Mental Diseases, spoke on "The Place of Psychiatry in the Criminal Law" before the New York Society for Clinical Psychiatry, at the New York Academy of Medicine on January 9.

NEW ENGLAND SURGICAL SOCIETY

DeQUERVAIN'S DISEASE*

Stenosing Tendovaginitis At The Radial Styloid

BY DANIEL C. PATTERSON, M.D. †

THIS condition was first described by DeQuervain in 1895 as a relative narrowing of the compartment of the tendon sheath lying on the styloid process of the radius which transmits the extensor brevis pollicis and the abductor longus pollicis. Kocher gave it the name of stenosing fibrous tendovaginitis. Many articles dealing with the disease have appeared in foreign journals, but I have found only three papers by American authors.

In 1927 Dr. H. C. Stein reported on five cases treated at the Hospital for Joint Diseases in New York. In 1928 Dr. C. C. Schneider of Milwaukee reported fifteen cases that he had treated, and in 1930 Dr. Harry Finkelstein reviewed the literature, and reported twenty-four cases that had been treated at the Hospital for Joint Diseases in New York in a two year period. He also gave the results of microscopic studies and demonstrated that the disease could be produced experimentally in rabbits.

I believe that the disease is not generally recognized, and that quite a number of cases are under treatment for sprain, arthritis, neuritis, osteitis, periostitis or tenosynovitis.

The tendons of the abductor longus pollicis and the extensor brevis pollicis pass through a groove in the outer aspect of the styloid process of the radius, and are contained in a separate compartment of the annular ligament. They are surrounded by a tendon sheath that extends about an inch above and below the carpal ligament. This sheath is filled with synovial fluid to facilitate the pulley like action of the tendons.

The essential pathological change in DeQuervain's disease is a thickening of the tendon sheath, and the overlying carpal ligament. This causes a marked narrowing of the channel through which the tendons pass, the tendons themselves rarely show any change in structure.

Finkelstein recorded his microscopical findings as follows: "In mild cases the synovial membrane is thickened except at the point of constriction where it is thin or absent. The loose connective tissue layer is considerably thickened and vascularized. The ligamentous layer is slightly thickened and not vascularized. Only rarely is there a line of demarcation between

the loose connective tissue layer, and the ligamentous layer. In severe cases the synovial layer is completely destroyed, the loose connective tissue layer is compressed and thinned out, while the ligamentous layer is markedly thickened and undergoes hyaline and cartilaginous transformation. There is also marked thickening of the walls of blood vessels, and cellular infiltration of the tissues, numerous lymphocytes being present. Between these two types are many gradations." All of our sections have shown similar changes.

Similar changes have been observed where other tendons have been involved, namely, the extensor longus pollicis, and the extensor carpi ulnaris, but only a very few such cases have been encountered. Several instances of the disease in association with snapping thumb have also been reported. In these cases a small nodule was found on the tendon and produced the snapping when it slid under the thickened ligament.

The etiological factor is undoubtedly trauma and this in most cases of a chronic nature. In our cases the patients were all engaged in occupations that required pressure by the thumb while it was in a partially abducted position and the hand in ulnar abduction, such as work on a grinding or buffing machine. In one case the patient, a woman, was employed putting tight fitting rubber rings over a piece of pipe. To do this she would press firmly on the ring with both thumbs. One day in order to complete a rush order she performed this act five hundred times. That night she had severe pain in both thumbs. This is the only case I have seen where the condition could be said to have an acute onset. It was also the only bilateral case in our series.

Some cases have been reported to have followed a severe blow over the styloid process but we have not seen any giving such a history. One or two patients thought that their trouble started after a fall.

The cause of the thickening in the tendon sheath and carpal ligament is principally mechanical. Eschle thinks it is due to friction of the tendons in their narrow compartment that overexertion causes the increased friction, and the tendon sheath becomes edematous, and later thickened, from fibrous tissue formation.

There is a great preponderance in the reported cases of females over males. Of the twenty-four cases treated by Finkelstein, twenty were females and only four were males, four

*Read at the Annual Meeting of the N. E. England Surgical Society at Manchester, N. H., September 28, 1935.

†Patterson, Daniel C.—Attending Surgeon, Bridgeport Hospital. For record and address of author see "This Week's Issue," page 121.

teen of the females were houseworkers

Schneider states that in 135 cases where the sex was noted, one hundred and nineteen were females, and fourteen males. Two cases were bilateral. Our experience at the Bridgeport Hospital has been contrary to this, for in ten cases we have only had three females.

The symptoms and signs are quite definite and the similarity in all cases is very striking. As a rule the onset is gradual. The patient will complain of pain in the wrist of several weeks' duration and when questioned will locate the point of greatest pain over the radial styloid. They also refer to pain running up the arm and into the thumb. Pain is aggravated on abduction of the thumb, or ulnar abduction of the hand. This can be demonstrated by flexing the thumb in the palm of the hand, and with the fingers closed over it making sharp ulnar abduction. The pain gradually increases with use, as the patients continue with their work. Then weakness of the hand develops and they complain that they drop even small objects. Disability usually results. Objectively there may be slight swelling over the affected part. There is marked tenderness over the styloid process. Abduction of the thumb is restricted and forced abduction is painful. No crepitation can be felt. In our cases the symptoms and signs were so clear cut that the diagnosis was simple. The gross pathological findings, and the relief from proper treatment was so constant, that it made a most satisfactory disease to meet.

Most cases will give a history of having been treated for some time by strapping, heat, massage, etc., but with no benefit. The only non-operative treatment worthy of trial is immobilization of the thumb in a plaster cast for six weeks. This has produced cures in some cases reported, but I should think that the percentage of recurrences would be large.

The discomfort of a plaster cast on the hand for six weeks, especially in a manual worker, makes it an unsatisfactory method. Schneider reported eight cases of his fifteen cured by plaster immobilization, but the length of post-operative observation was not stated. Two of his cases in which such treatment failed to effect a cure were relieved by operation. Of sixty-six cases reported by Eschle, sixty-five were cured by operation, and one improved.

The operative treatment is so simple, and the period of disability so short, that it seems as if it should be the treatment of choice in all cases. The operation is conveniently performed under local anesthesia. A two-inch incision is made over the radial styloid, the carpal ligament and tendon sheath are exposed and incised, or a small section removed. This will allow free movement of the tendons, and produces almost instant relief of pain. The incision is then closed, and a firm bandage applied, no splinting is necessary. At the end of a week free use

of the thumb can be permitted, and in two or three weeks the patient can return to work.

There has been no instance of failure reported in the cases operated upon, though Finkelstein observed two cases that had been operated on ten and eleven months previously, in which there was still pain on pressure over the styloid process. In both instances the tendon sheath at operation had been found greatly thickened and cartilaginous in consistency. He felt that removal of the entire tendon sheath instead of a small section in these cases would have eliminated the tenderness.

While this condition is not one that is met with frequently, it is well to keep it in mind, for I know of no disease where the results of treatment are more satisfactory to the patient or the surgeon. Whenever seen it is easily recognized.

I have had six of these cases in the past few years, and Doctors Hawley and Griswold about the same number. As the histories, symptoms and findings have all been quite similar, and coincide with those mentioned above, I shall not report them in detail. They were all relieved by operation and there have been no recurrences.

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DISCUSSION

DR PAUL P. SWETT, Hartford, Conn. I would just like to make a brief plea to have everyone here pay some attention to this lesion that Dr Patterson has described so well, because I think the condition is much more frequent than is generally believed, and it certainly is a very disabling condition unless this very simple procedure is carried out.

I have been familiar with this lesion for a great many years. My first patient was a boy who operated a buffing machine on which he was engaged in grinding the surface of locks, which involved a pushing motion all day long. It occurs more frequently, however, in women, largely because they perhaps so frequently attempt to do things for which they have not accustomed themselves and have not developed the strength.

I can recall in the last two or three years doing this little operation for at least a half dozen doctors' wives, so I know it is a very common lesion and it is very generally overlooked. Many times patients have been referred to me for this mysterious thing and apparently all the medical attendants have been confused and baffled because x-ray did not show exostosis and there was still this hard little lump which they thought could not be anything but an exostosis.

PRESIDENT JOHNSON. Is there any further discussion?

DR JAMES W. SEVER, Boston, Mass. The question of spontaneous cure in DeQuervain's disease, I think, is interesting, and I feel very much as Dr Swett does that it is a condition that has been frequently

overlooked. I asked Dr. Patterson if he had known of cases of spontaneous cure and he said he had not.

Dr. Swett has brought up the question of doctors' wives in relation to this disease. My wife had this disease as a result of playing flat ball and hitting the flat ball on the wrist. For a year and a half she had continuous disability and pain and limitation of motion but like all shoemakers' children she got no sympathy and attention.

She fell or did something or other with her wrist, with it unguarded about a year and a half later she felt something snap. She had a little temporary pain and since then has been perfectly well.

I do not question but that she had DeQuervain's disease. In fact, I know she had now and she established spontaneous cure in some way by rupturing an adhesion which may not be the true pathology of the disease but that is what happened.

Whether it is a wise thing to wait for spontaneous cure of course is another thing. I am entirely out of sympathy of course, with it in my own family.

PRESIDENT JOHNSON. Is there any further discussion?

DR. FREDERIC J. COTTON, Boston, Mass. May I add two cases of spontaneous cure? One was in a doctor's wife. She was going to have it operated on had a date all set when her husband telephoned me and said it was getting well and it did.

The other was the famous guide Jack Russell who tosses about the prettiest fly I know anything about. That is one of the ways you can get this disability. He came to me a couple of years ago completely crippled. At the end of the season he was going to come down and have it operated on. That was the bad salmon season and he did not fish very much. He was chasing around finding out where the salmon had gone to all summer and he got well.

PRESIDENT JOHNSON. Is there any further discussion? If not, Dr. Patterson will you close the discussion?

DR. PATTERSON. With all due deference to Dr. Sever I wonder if you can call recovery in a year and a half a spontaneous cure.

I confess that I knew nothing about this condition until several years ago when my good friend George Hawley called my attention to it. From conversation with many surgeon friends I find that very few of them are familiar with the disease though they all felt sure they had seen such cases but had failed to recognize them.

The operative treatment is so simple and its results so quick and satisfactory that I think it is advisable to operate rather than to try nonoperative measures.

NEW HAMPSHIRE MEDICAL SOCIETY

ANTEPARTUM CARE*

BY M. T. EADES, M.D.†

Ur President and Members of the New Hampshire Medical Society

THE general high quality and the advanced development of prenatal care in the United States adequately testify to its value. The laity as you are aware, are showing an increasing interest in this field of preventive medicine so that the pregnant woman today not only requests but demands a higher quality of care and medical supervision than she formerly received.

In order to cover this detailed subject briefly, I shall review and outline for you in general the system which we employ at the Boston Lying in Hospital. Prenatal care in private patients differs only in slight details although there is one vast difference between clinic and private antepartum care. In the clinic owing to the large attendance of patients and a limited medical personnel, we sometimes find difficulty in applying detailed care whereas, in private practice we frequently have difficulty, not of application but in finding the patients who are so solicitous of our advice.

Patients are encouraged to report for pre-

natal care as soon as they have passed their second missed menstrual period. At that time a careful history is recorded and a complete physical examination is performed. Also at that visit specific and general directions are given to them.

This is (throwing record on the screen) the prenatal record which is used in our clinic. As you see, it encompasses considerable detailed information. A review of this record sheet with elaboration of certain headings will serve to make it more readily understood.

Let us first consider with the patient her past medical history. The past history of infectious or contagious diseases of childhood, such as scarlet fever, diphtheria, multiple acute attacks of tonsillitis and of rheumatic fever are of great significance because of their organic sequelae. All information possible should be obtained regarding serious medical diseases of adult life with any complications which followed. Despite careful and tactful questioning, the patient may withhold information or be completely ignorant of remote or recent venereal infections. The history of the patient relative to constant contacts with tuberculosis or to her own past or present infection with the disease is not to be overlooked. These considerations may involve not only matters relating to the immediate conduct of the present pregnancy but also proper

*Presented at a part of a Symposium on Obstetrics at the Annual Meeting of the New Hampshire Medical Society at Manchester May 7, 1935.

†Hades, M. T.—Assistant in Obstetrics, Harvard University Medical School. For record and address of author see This Week's Issue, p. 123.

protection and disposition of the child after it is born

The past surgical history is of importance, especially if there have been vaginal plastic or abdominal pelvic operations which not only may interfere with normal delivery but may actually contraindicate it. Also in these days of serious automobile accidents with severe injuries, a past history of pelvic trauma, especially fractured pelvis, should be carefully investigated.

The past obstetrical history, naturally, is of the greatest interest and importance to the obstetrician. This is especially true if the physician has not cared for the patient during her previous pregnancies. One should inquire very carefully into the details of the past pregnancies, their duration, any complications that may have occurred, and the details of the complications. Likewise, in previous labors, are to be noted the duration of the labor, the type, the quality, the method of termination and, if operative, the details of the operative procedures. The size of previous children, if any, should be noted as well as their subsequent history. A past history of large, deformed, or still-born children or of neonatal deaths may be of great importance in conducting the present pregnancy.

A review of past puerperal periods as to postpartum hemorrhages, retained or adherent placentae, puerperal or phlebotic infections should be as detailed as possible.

The menstrual history is of relatively less practical significance. A routine history should include data as to the periodicity of the menstrual cycle, duration, amount of flow, dysmenorrhea, etc.

This brings us to a consideration of the present pregnancy. If the patient has followed advice and appeared early in pregnancy, her complaints are usually those associated with the syndrome of physiological nausea and vomiting. This is generally well controlled by reassurance, frequent meals, high carbohydrate diet and sedatives. The expected date of confinement is calculated, based on the data of the last normal menstrual period. Various other important elements of the history at this period are those relating to the gastrointestinal tract, especially with reference to constipation which tends to become more obstinate during pregnancy. We should inquire as to any genito-urinary ailments other than frequency, which is physiological at this time. Any other symptoms of which the patient may complain are noted and thoroughly discussed at this first visit.

A complete and thorough physical examination is necessary in every case and should be performed at the first visit. The general nutrition and skeletal make-up should be noted. In the short female, showing a heavy skeletal frame and short extremities, one usually finds

associated in some degree the male type of pelvis, conversely the tall individual with thin bones usually has a more ample pelvis than the external measurements indicate. The eyes, ears, nose, sinuses, and teeth should be examined routinely. The tendency of the teeth to decay rapidly during pregnancy should be prevented as much as is possible by having a dental inspection at least twice during the gestation period, together with whatever dental repair is necessary.

The heart and lungs especially deserve to be examined with great care. We have felt at the Boston Lying-in Hospital that organic diseases of the heart and lungs complicated by pregnancy are so important that special clinics have been organized for these groups. The proper evaluation of the seriousness during pregnancy of complication of these systems if diseased is frequently such a serious problem that consultation with the internist is advisable.

Next comes the obstetrical examination proper and, of course, in early pregnancy palpation of the abdomen resolves itself into nothing more than ruling out the presence of abnormal masses or special areas of localized tenderness. However, if the patient appears late in pregnancy for her first visit, a routine palpation of the abdomen is performed. That will be described in detail a little later.

Pelvimetry is usually performed at the first visit. As a routine the intercrural, the interspinous, the external conjugate and the bischial diameters are the external measurements taken.

The vaginal examination in early pregnancy gives not only confirmation of the presumptive diagnosis but also information as to the shape and position of the uterus, the internal contours of the pelvis and the condition of the soft parts. A careful palpation of the perineum, the cervix and bimanual examination of the vaults are necessary to rule out the presence of pelvic inflammatory or tumor masses. A knowledge of their presence is important either as to a decision for operative removal at this advantageous time, or if complications from them arise during later pregnancy. At this time an attempt is made to palpate the promontory of the sacrum with the second finger of the examining hand. If palpated a mark is made on the hand at the inferior border of the symphysis and the diagonal conjugate diameter may be measured directly, and from this the true conjugate may be easily calculated. If the promontory cannot be felt, this diameter may be considered as adequate. The vaginal examination is not complete without a specular examination. By this means the condition of the vaginal mucosa and introitus, and of the cervix may be visualized. Not infrequently polyps, the presence of scar tissue, and vaginitis, most commonly of the trichomonas variety may be read-

ily demonstrated Urethral cervical or vaginal smears on suspected cases may readily be made at this time

A word may be said about the transverse or bisacchial diameter. This, in the average American woman, is eight to eight and one-half centimeters. If a special pelvimeter for this measurement is not available, a rough test for adequacy of the pelvic outlet may be made by pushing the knuckles of the hand transversely between the ischial tuberosities. The width of the knuckles of the average hand is around eight centimeters and, while this does not constitute such an accurate method as the use of the pelvimeter, is an adequate test.

Miscellaneous tests, such as blood pressure readings, temperature, pulse and weight of the patient which are routinely taken at the first visit, will be discussed in more detail under the follow up examination. Blood specimens for a Wassermann or Hinton test are taken routinely. If specimens are reported doubtful or positive, the test is repeated. I suspect in private practice that these tests are not made so routinely as their importance demands. Certainly there is no instance in preventive medicine which gives a more brilliant prophylactic result, so far as the fetus is concerned, than the early diagnosis of syphilis in early pregnancy with prompt adequate treatment. Most State Boards of Health provide the service of free Wassermann tests and provide containers for the specimens. It would seem under these circumstances that there is no reasonable excuse for the omission of this important test.

The importance, frequency and progressive tendency of the anemias of pregnancy have recently been emphasized by the work of Strauss and Castle. Moreover they have shown how the majority can be controlled by the use of iron. While the average method of hemoglobin determination may not be scientifically accurate it provides a relative test for the clinician which is valuable. If the hemoglobin is at a high level, one can usually assume that the red blood count is within normal limits. If the hemoglobin is below seventy per cent, a red blood count is advisable and both this and the hemoglobin should be repeated at subsequent visits to study the results of treatment. Adequate treatment of anemia during pregnancy is indicated not only because of its progressive tendency in the mother but, as Strauss has shown, for prophylaxis of the fetus against anemia of infancy and early childhood. Therefore hemoglobin determination as a routine test at the first prenatal visit is recommended.

Routine urinalysis should be performed at each visit. Specific gravity, albumin and sugar determinations are made on each specimen. If albumin is present, a catheter specimen should be obtained and the centrifuged sediment examined microscopically. This completes the

physical and laboratory examinations made at the first visit.

Various matters of hygiene are then discussed with the patient. It is impossible here to go into this in detail. At this point allow me to say that this subject is not one for fads and fancies, but rather one in which we sanely attempt to inform our patients regarding desirable methods of mental and physical conduct during pregnancy so that they may be better fitted to undergo labor and the stresses of the puerperium. Except for certain details the advice should be as valuable for the husbands as for the patients themselves. These matters of hygiene in pregnancy consist of advice relating to diet, rest, exercise, recreation, bathing, regulation of the bowels, weight regulation, and various danger symptoms which occur during pregnancy, especially as they relate to toxemias. It is generally agreed that the pregnant woman should have at least one gram of calcium per day in her diet to provide a positive calcium balance. Milk seems to provide the best source of this mineral, but in many cases the patient cannot drink sufficient milk so that calcium in other forms should be provided. It is also the consensus that, during the winter months in this geographical section, a high vitamin D diet should be provided.

For the patient who is more inquiring Dr. Irving has written an excellent handbook "The Expectant Mother" which can be highly recommended to the private patient. The United States Department of Labor also distributes free a very excellent and authentic pamphlet on the hygiene of pregnancy which may be had by writing to the Superintendent of Documents at Washington.

The patients are asked to return with increasing frequency as their pregnancy advances. In our clinic they return once a month for the first five months, at three week intervals for two months, every two weeks for the next month, and each week during the last month. This applies only to normal pregnancies. If any complication develops the patients are seen at as frequent intervals as is considered necessary by the physician in attendance.

On each return visit, a short history of the patient is taken regarding any complaints, and specific inquiries are made as to regularity of the bowels, the activity of the child, bleeding, toxic symptoms and the occurrence of localized pain. Routine blood pressure determination, weight records, and urinalysis are made at each visit. Any blood pressure reading above 140 mm/Hg systolic, or above 90 mm/Hg diastolic, we have come to regard as evidence of circulatory abnormality whether it be due to essential hypertension, toxemia, or chronic nephritis.

Abnormal increase in weight is usually one of the earliest signs of toxemia of pregnancy.

It is also common in hydramnios and multiple pregnancy. It is usually due, however, to an indiscretion in diet or otherwise an evidence of the tendency of the pregnant woman to gain unduly. A twenty to twenty-five pound gain during pregnancy is considered normal and the weight increase of the normal patient can usually be held within this limit with proper dietary supervision.

As pregnancy advances a history of increasing growth of the abdomen is commonly volunteered by the patient. We do not routinely palpate the abdomen until the beginning of the seventh month of gestation unless there is some reason to suspect abnormality. This is suggested either by lack of consistent abdominal enlargement, or by a rapid increase in size over a four weeks' period during the fourth to the seventh months. At the seventh month the abdomen is carefully examined. The height of the fundus above the symphysis pubis is measured to note whether the size of the uterus is commensurate with the expected date of confinement. The position and presentation of the fetus are mapped out, although it is too early at this examination to obtain accurate information concerning cephalopelvic relations. The rate of the fetal heart sounds and the location on the mother's abdomen of their greatest intensity is recorded. The chief value of the palpation at the seventh month of pregnancy is that this represents the optimum time, not only for the diagnosis but also for the correction of malpresentations, especially breech or transverse presentations. The unfavorable presentation may recur after manipulations but this is the most favorable period for the performance of any necessary conversion maneuvers.

During the ninth month at each weekly visit, palpation is performed on an average of every two weeks. Except with primiparae it is performed together with rectal examination until the head reaches full engagement. This keeps us aware of those primiparae who enter labor with a high or floating head, and gives us warning so that they may be more carefully observed during their labors. Vaginal examinations except under aseptic precautions are not made during the last month of pregnancy. We feel that in routine prenatal care one can satisfactorily determine the descent of the head and condition of the cervix by rectal examination without the potential danger of rupture of the membranes followed by possible infection as is involved by vaginal examinations. However, in abnormal conditions or where the desired information cannot be elicited by rectal examination, vaginal examinations following aseptic preparations are employed.

I should like to digress briefly regarding two of the most commonly encountered abnormalities during the prenatal period. These are first, the bleeding cases, and secondly, the incipient

toxemic conditions, of which the latter represent only a step over the normal border. In the abortion group with bleeding early in pregnancy we do not attempt hospitalization unless the patient is in poor condition or the bleeding profuse. Our treatment is conservative and consists entirely of rest in bed with opiates administered only because of pain. It is not felt that these drugs influence the ultimate outcome of the miscarriage. If in this group there is any question of ectopic pregnancy these patients are referred to the hospital for diagnosis and treatment. Dr. Arthur Hertig at our hospital is doing some interesting pathological studies on the causes and pathology of abortions. He is extremely anxious to obtain specimens, and if any of you would be interested in sending him such material preserved in 10 per cent formalin solution, Dr. Hertig will send you a complete report of his studies on the specimen received. In most instances he is able to determine definite pathology of the fertilized ovum and it has been of great value in helping us to understand something of the pathology of early abortions.

Hemorrhage and its pathology in the last trimester of pregnancy, we regard more seriously. These patients should be hospitalized as promptly as possible and we constantly teach our students not to examine these cases vaginally or to contaminate the vagina in any way. Once in the hospital preliminary preparations for transfusion are made, and diagnostic vaginal examination may then be carried out and the proper treatment instituted. We feel that an attempt to pack a bleeding case at home is an extremely dangerous procedure which may lead to the loss of the patient's life later on from infection. Infection is quite as often a danger with these serious bleeding cases as the actual loss of blood itself.

The management of the beginning toxemic condition deserves mention. At our clinic any patient during pregnancy who shows a systolic blood pressure above 140 mm. Hg, or a diastolic pressure above 90 mm. Hg is considered a potential toxemic and is referred to the hospital for routine study. We cannot always in private practice hospitalize this group of patients but we can at least start dietary and eliminative treatment, and keep the patient under closer observation. The earlier treatment is started, in general, the more chance there is of at least controlling the condition for a period. Blood pressure observations and urinalysis on such patients should be made at least once a week. The ultimate disposition will depend of course on whether the patient responds to treatment, or the toxemia becomes worse in spite of treatment. In the latter case hospitalization is indicated, for here the patient is under continuous observation and treatment more readily controlled.

MISCELLANY

DOCTOR EDWARD HENRY THOMPSON

Dr Edward Henry Thompson who was a practicing physician in Hampton N. H. for thirty-one years, died at his home on the Lafayette Highway on November 20 1935

Dr Thompson was born in Winthrop Maine in 1861 son of Henry and Mary Snow Thompson. His early education was obtained in the Maine schools and he graduated from the Edward Little High School in Auburn. He then attended Yale graduating with the famous class of 1887. Dr Thompson received his medical education at Dartmouth Medical School graduating in 1896. He then attended the Post-Graduate College of Physicians and Surgeons in New York City now the Medical School of Columbia University. He served his internship at Bellevue Hospital.

After having experience as a pharmacist in Wolfeboro Dr Thompson moved to Hampton. He soon enjoyed a large practice. Among his patients were residents from many parts of New Hampshire who

vacationed at Hampton Beach. For the last few years, he also had an office on Beacon Street Boston.

Dr Thompson was a member of the American Medical Association and the New Hampshire Medical Society, the Masonic Blue Lodge, the Knights Templars and the Order of Mechanics. He was a 3rd degree Mason.

All of his life Dr Thompson was an omnivorous reader and he had a large library. He was a constant student of medical progress and deeply interested in classic and English literature.

Dr Thompson is survived by his widow the former Alice Higgins of South Portland, a son Leon, a daughter Mrs Isabelle Williams and five grand children.

THE NEW HAMPSHIRE MEDICAL SOCIETY
ANNUAL MEETING

The next annual meeting of the New Hampshire Medical Society will be held at the Hotel Carpenter in Manchester New Hampshire on May 26 and 27 1936.

Please notice the change in dates.

MAINE NEWS ITEMS

CENTRAL MAINE GENERAL HOSPITAL
LEWISTON, MAINE

Graduate Teaching Clinics were held November 15 1935 and December 20 1935. At the November 15 clinic there were case presentations from 9:30 A.M. to 12 noon led by Dr. J. C. Aub. 2:30 P.M. to 5 P.M. ward walks and talks and case discussions and at 8 P.M. a paper by Dr. Aub on Diets. At the December 20 clinic the discussions were led by Dr. W. R. Morrison of Boston who presented as the evening paper Bleeding Ulcers of the Stomach. Coming clinics are announced as follows:

January 24 1936—Dr. S. J. Thannhauser: Functional Tests in Dietary Treatment of Liver Disorders.

Dr. Joseph Pratt: The Neuroses.

Dr. Jacob Schloss: Newer Methods in Diagnosis of Gastric Diseases.

February 28 1936—Dr. William C. Quinby: Daily Problems in the Treatment of Patients with Genito-Urinary Disturbances.

March 27 1936—Dr. William B. Castle: Medical Aspects of Diseases of the Colon.

April 17 1936—Dr. Soma Weiss: The Clinical Use of Sedatives with Particular Reference to the Barbituric Acid Derivatives.

May 22 1936—Dr. Otto J. Hermann: Some Aspects of the Management of Fractures.

On November 27 1935 a regular meeting of the Sagadahoc County Medical Society was held in Bath, Maine. The paper of the evening was read

by Dr. Edward H. Risley of Waterville, Maine. The subject was: The Treatment of Postoperative Complications with Especial Reference to the Use of the Duodenal Tube.

EDWARD H. RISLEY, M.D.

THE CONTROL OF PNEUMONIA

Six men, representing six important organizations engaged in promoting the people's health left a meeting in Center Street, New York, recently after having made plans for the control of pneumonia in New York State. Passers-by would not have given them a second look—they were quite ordinary looking men. Their discussion raised hope of saving 3,000 lives per year. As they stood for a moment on the corner a siren screamed and the gas company's emergency wagon rushed past to resuscitate an asphyxiated victim. One life—much excitement. 3,000 lives no fuss.

Joining hands for a state-wide organized attack on pneumonia are the following: The Medical Society of the State of New York, the New York State Department of Health, the Metropolitan Life Insurance Company, the Commonwealth Fund and the New York State Association of Public Health Laboratories. The Rockefeller Institute is cooperating in an advisory capacity. One of the weapons in the attack on this disease will be informing the general public that a case of pneumonia is just as much an emergency as asphyxiation and if a siren is not blown it should be.

THE TREATMENT OF THE POSTHERPETIC NEURALGIAS

BY CHARLES METCALFE BYRNES, M D *

THERE are few types of neuralgia which offer greater therapeutic difficulties or in which the choice of effective treatment demands so accurate a knowledge of anatomy as do certain forms of the postherpetic neuralgias

Antineuralgic drugs and the various forms of physical therapy employed in the treatment of herpes zoster are of little service in the residual neuralgias. Although Ruggles¹ and Phillips and Morginson² have obtained prompt relief of the acute attack by the use of sodium iodide, I have found it of no benefit in the chronic neuralgias. Pituitrin, also a popular remedy in the acute disorder, has no effect upon the late neuralgias. Ravaut³ finds autohemotherapy helpful in both the acute and chronic affection.

The statement by Lhermitt, that a history or laboratory evidence of syphilis is obtained in 72 per cent of the cases of zoster, has been responsible for the adoption of antiluetic therapy, and there are records of its apparent efficacy in acute zona, although the Wassermann test was negative. Mihan⁴ claims to have relieved a postherpetic neuralgia with four intravenous doses of salvarsan, but the drug was quite ineffectual in one of my patients with lumbosacral neuralgia of this type.

Physical therapy in the form of electricity, heat, light and baths has its advocates. Stowell⁵ recommends the galvanic current and the mild static spark. Keichline⁶, after three radiations of the gasserian ganglion, ten days apart, claims to have completely relieved a neuralgia of four weeks' duration. Bailey⁷ finds the x-ray most effective when used shortly after the appearance of the eruption, but sometimes beneficial in the chronic affection. List⁸ has also obtained good results from its use, although diathermy is now more popular. Louste and Juster⁹ have found the mercury-quartz lamp of benefit. Pyrexia is said to possess no merit.

Notwithstanding Bailey's statement that postherpetic neuralgia "is not susceptible to surgical relief" there is some evidence that even peripheral interruption of the nerve impulse is, at times, an effective measure, but inasmuch as the lesion is situated in the ganglion, it is difficult to account for the relief which is sometimes obtained from the peripheral operation. Nevertheless, Wilfred Harris notes that posterior rhizotomy is not always successful.

Inasmuch as one or more spinal as well as the homologous cranial nerve ganglia may be simultaneously affected by the herpetic virus, a special knowledge of anatomy is sometimes essential in order to adopt an effective operative

procedure. It is, therefore, desirable to consider the postherpetic neuralgias according to their anatomical distribution.

POSTHERPETIC TRIGEMINAL NEURALGIA. The ophthalmic and maxillary branches are most commonly affected. Drugs and the various forms of electrical treatment often afford only temporary relief and the radical operation upon the sensory root is not always successful. Adson¹⁰ found total division of the root ineffectual in two cases, and a third patient was only partly benefited. According to Bailey, Peet also failed to procure relief by this procedure. Patrick¹¹ has relieved pain by the injection of alcohol into the supra-orbital nerve, and Ely¹² has had a like experience. The uniform success I have experienced with the superficial and deep injections of alcohol into the trigeminal nerve or ganglion in a large number of cases of the douloureux encouraged the adoption of this method of treating the postherpetic neuralgias. It is well to inform the patient, however, that the affection is quite different from major neuralgia and that the injection is not uniformly successful. The following clinical records indicate, however, that the method possesses some merit.

C F B, male, aged sixty-five, referred April 2, 1918 had suffered, several years previously, from herpes ophthalmicus gangrenosus of the right forehead. A few scattered vesicles appeared also on the right cheek below the eye. The neuralgia was largely confined to the forehead but, during a severe attack, often radiated into the cheek and upper lip. He was then taking as much as forty grains of acetanilid daily, but this had only made his suffering "endurable", and continued use of the drug had resulted in a secondary anemia and marked cyanosis of the lips and fingertips.

Alcohol injection of the supra-orbital and infra-orbital nerves produced the desired anesthesia in their respective cutaneous fields, but the customary edema was responsible for a dull, aching pain over the forehead, this persisted until the swelling subsided, but there were no further neuralgic attacks. Two months later the patient wrote as follows: "While I am never entirely free from pain over my right eye, it is so mild that if I am reasonably entertained I forget about it. I take no medicine. I have less pain now than I had when I was taking forty grains of acetanilid daily. The relief your treatment gave me was very great." A letter from his wife in March, 1935, stated that the patient died in 1932, fourteen years after treatment, and that "he felt that you had saved him years of pain, although he was never entirely free from head aches."

A P, male, aged eighty-four, referred April 4, 1928 by Dr G. Timberlake, of St. Petersburg, Fla., because of "pain over the left forehead and in the left cheek." The neuralgia, which had followed an attack of herpes ophthalmicus three years previously, occurred spontaneously or was initiated by a light touch upon the forehead or a sudden change in atmospheric conditions.

*Byrnes, Charles M.—Associate in Neurology, Johns Hopkins University School of Medicine. For record and address of author see "This Week's Issue" page 128.

because of its simplicity and safety, paravertebral injection of alcohol might be done with reasonable assurance of relief. Even though it is not always certain that the injection can be made into the affected ganglion, the procedure is sometimes effective. Inasmuch as posterior rhizotomy is not always successful, cordotomy should be the operation of choice. Recently, Dogliotti²¹, Stern²², and Greenhill and Schmitz²³ have relieved persistent pain in the lower thoracic and lumbosacral nerves by the subarachnoid injection of alcohol, and Dogliotti has used the method with success in one case of postherpetic intercostal neuralgia. The procedure is, in reality, a chemical rhizotomy. The injection is made with the posture of the patient such as to place the posterior roots uppermost, when the alcohol, being of lighter specific gravity than the spinal fluid, ascends to this upper level where it is said to affect the sensory roots alone. The method is not without danger and should be employed only by those skilled in this technique.

POSTHERPETIC NEURALGIA OF THE LUMBOSACRAL NERVES. Because of the large and important motor component of these nerves, neurotomy and paravertebral injections have here, a restricted use. Alcohol might be safely injected into the first, second and third lumbar intervertebral foramina, but below this level the injection of even one foramen is likely to cause undesirable motor complications.

Peripheral interruption of the afferent path in the neuralgias of this region offers many difficulties and is rarely successful. Various measures were ineffectual in one of my patients suffering from neuralgia of the first, second and third sacral nerves. Injection of alcohol into the first sacral foramen produced numbness of the heel and part of the tendon Achilles, but failed to relieve the pain. Because of the likelihood of implicating the bladder and rectal sphincters, the second and third sacral segments were not injected. Epidural injections of novocaine followed by 60 cc of normal salt solution failed to procure any appreciable relief, and in infiltration of the sciatic nerve with novocaine and salt solution was also unsuccessful. Salvarsan, sodium iodide and pituitrin had no effect upon the pain and, because of the patient's advanced age, subarachnoid injection of alcohol and cordotomy were not recommended.

Thus, although the postherpetic neuralgias are particularly resistant to medical and surgical treatment, the statement that they are not susceptible to surgical relief does not seem warranted.

Drugs and other measures used in the treatment of the acute attack are of little use in the chronic neuralgias. Diathermy and the x-ray are said to be of some value.

Although the lesion is in the ganglion, periph-

eral interruption of the nerve impulse by the injection of alcohol procures relief with sufficient frequency to warrant its adoption before resorting to more radical measures. Should this be ineffectual, paravertebral injection of alcohol, in suitable cases, might be practiced.

Inasmuch as posterior rhizotomy is often unsuccessful the subarachnoid injection of alcohol in the thoracic and lumbosacral neuralgias seems preferable to root section and should be practiced before recommending cordotomy.

That the geniculate ganglion is subject to invasion by the herpetic virus, and that the lesion might secondarily implicate the facial nerve with the production of a facial palsy rest upon clinical and pathological demonstration. There is no proof, however that the herpes oticus which may occur independently or accompany the facial palsy, is due to the geniculate ganglion lesion, and I am of the opinion that, in this syndrome, the herpes is due to simultaneous involvement of the ganglia of the vagus, glossopharyngeal, or trigeminal nerves. Thus, relief of these postherpetic otalgias is not likely to be procured through operations upon the geniculate ganglion or the nervus intermedius.

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THE HINTON TEST*

III Its Clinical Value

BY AUSTIN W CHEEVER, M D †

ALL who have been dealing with syphilis for a number of years have come to realize the inadequacies of the Wassermann test. Although this has been one of the greatest diagnostic aids in the whole field of medicine, yet in the latent and late stages when the greatest dependence must be placed on a blood test, it fails us in a fairly high percentage of cases. Consequently, the greater delicacy of the Hinton test is of great value to those who use it, especially since this greater delicacy has not been at the expense of dependability, for false positive Hinton tests are definitely fewer in number than false positive Wassermans or Kahns.

The following is a report of my personal experience in private practice with the Hinton test since its inception in 1927. Hospital cases have been omitted as they were found simply to augment the numbers. Only the cases of patients who have had the Wassermann, Kahn, and Hinton tests made simultaneously have been included in this study, otherwise, there has been no selection. Some cases, therefore, date as far back as 1918 and would be expected to have completely negative tests, while others are very recent and are still under intensive treatment. The comparative results of the tests are given

Groups 2 and 3, totaling forty-eight cases, show the superiority in sensitivity of the Hinton as compared with the Wassermann, and group 3 (twelve cases) the superiority of the Hinton and Kahn over the Wassermann, the Kahn being somewhat more sensitive than the Wassermann. No single blood test as yet available is quantitative, but the use of the three tests at the same time gives a sort of quantitative measure which the average patient can understand, and he can be made to feel definitely encouraged when one or two of the tests have become negative and so be persuaded to continue treatment if the physician feels that it is necessary.

One case in point is M. W. with early syphilis in March, 1931, with all three tests positive. After regular intensive treatment, in November, 1931, the patient showed Wassermann and Kahn negative, only the Hinton remaining positive. In March, 1933, the Hinton was doubtful, and in September of that year, the Hinton, also, became negative. This greater persistence of positivity of the Hinton made it possible to keep the patient under treatment almost two years longer than would have been probable had the Wassermann alone been used. Not all cases are ideal as this one, because now and then one or more tests may become positive after

TABLE 1
COMPARATIVE RESULTS OF BLOOD TESTS ON 143 CASES OF TREATED SYPHILIS

Group	1	2	3	4	5	
Wassermann	—	—	—	+ or ±	—	
Kahn	—	—	+ or ±	+	+ or ±	
Hinton	—	+ or ±	+	+	—	
Totals	74	36	12	19	2	143

in table 1 which shows the results of the latest blood examination.

Group 1, consisting of cases with all three tests negative, totals seventy-four, approximately one-half of the cases studied. These all occur in patients who have had considerable treatment. This is an answer to the question raised when the Hinton test first began to be used as to whether it is not so delicate that it might be expected to remain always positive. Most of these patients who have reached this stage have had, for varying periods, positive Hinton tests while one or both the Wassermann and Kahn had become negative. In other words, they have passed through the same condition as those shown in groups 2 and 3.

having been negative, but there is usually a strong tendency toward this type of progressive improvement.

In group 4 (nineteen cases) where all three tests are positive there is represented obviously a group of patients whose treatment to the present has been inadequate, or who fall into the group of the seropositive.

As a laboratory aid during treatment, the Wassermann test with only nineteen positives in the 143 cases falls far behind the Hinton which shows forty-eight additional (sixty-seven total) positive reactions. In other words, the efficacy of the Hinton in this group of cases is three and one-half times that of the Wassermann. The Kahn reaction was somewhat better than the Wassermann in that it gave fifteen more positive cases (total thirty-four), making it about one-half as sensitive as the Hinton.

There were only two cases with a negative

*Read before the Fifth Congress of the Pan American Medical Congress, March 14-30, 1934.

†Cheever, Austin W.—Assistant, Department of Dermatology and Syphilology, Harvard University Medical School. For record and address of author see "This Week's Issue," page 123.

Hinton in the face of any other positive These were two isolated doubtful Kahns. It is possible that these are truly false positive Kahns as the spinal fluid in both instances was negative and all three tests had previously been negative for six years.

One half of these cases have had tests of the spinal fluid made. In no instance was there any positive spinal fluid finding in the face of a negative blood Hinton test. This agrees with findings of Hinton and Berk¹, who compared the blood and spinal fluid in 787 cases of syphilis, and found not a single instance of definite pathology in any spinal fluid where the blood Hinton was negative, although in fifteen cases the Hinton was negative and the spinal fluid doubtfully positive.

It is obvious that the figures will be somewhat different when the tests are used for detecting unsuspected syphilis. For the purpose of comparison, I am adding some unpublished figures of Hinton's

a group of 1110 patients in whom syphilis seemed extremely unlikely.

In certain cases the Hinton test is of extreme importance in arriving at a correct diagnosis as in the following case. A patient whose only complaint was a slight feeling of tightness in the chest and the knowledge of the death of one or two of his friends from angina pectoris consulted a leading diagnostician whose opinion was that the patient was overtired and was smoking too much. A routine blood test was done and the Hinton was positive and the Wassermann negative. A subsequent history was obtained of gonorrhea many years earlier but no syphilis had been suspected though the attending physician had noted that there was some hardness about the mentus. It is probable that there was an unnoted meatal primary and the picture puzzle is now complete a probable meatal primary a positive Hinton and symptoms consistent with aortitis. The prognosis

TABLE 3

COMPARATIVE RESULTS IN 4864 CONSECUTIVE ADMISSIONS TO SELECTED HOSPITALS IN MASSACHUSETTS

	Total Number Examined	Positive Wassermann	Percentage of Positive Wassermann	Positive Hinton	Percentage of Positive Hinton
Cancer cases	3198	129	4.03	204	6.37
Tuberculosis cases	475	15	3.15	34	7.15
Pregnancy cases	1191	8	0.67	10	1.34
Total	4864	152	3.12	254	5.22

In a total of 4864 blood tests routinely taken in groups of cancer, tuberculosis, and pregnancy patients, 152 (3.12 per cent) positive Wassermann reactions were found as compared with 254 (5.22 per cent) positive Hintons. This shows a marked superiority of the Hinton over the Wassermann in detecting unsuspected syphilis.

When the Hinton test first became available for use the question was immediately raised as to whether the increased delicacy would not be accompanied by a great increase in the number of false positives, in other words if the test were not going to be too delicate for practical use in diagnosis. This figure of 1.34 per cent of positive Hinton tests in as large a number of pregnant women as 1191 can scarcely be expected to contain many false positives. Mudge² has recently published figures on a group of 760 positive Hintons in which he found one false positive. Cheever and Splaine³ found what appeared to be two false positive Hintons as compared with seven false positive Wassermans in

under antisypilitic treatment at this time should be excellent whereas it would have been very poor had the condition gone on to the point of clinical recognition.

Summary It has been shown that in a group of 143 patients with treated syphilis the Hinton has proved to be twice as efficacious as the Kahn and three and one-half times the Wassermann. In detecting unsuspected syphilis in a group of approximately 5000 cases of cancer, tuberculosis, and pregnancy the Hinton was found to be nearly twice as efficacious as the Wassermann. False positive Hintons are shown to be extremely few in number.

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THE TREATMENT OF ARTHRITIS WITH GOLD SALTS*

BY ROBERT TITUS PHILLIPS, M D †

GOLD salts were introduced as a method of therapy in arthritis by Forestier in 1928. This investigator has published several papers on this subject, the latest¹ reporting his experience with this method on over five hundred and fifty cases during the past six years. In a series of twenty cases studied in the Out-Patient Arthritis Clinic of the Boston City Hospital from October, 1934, to June, 1935, reactions were found to be so frequent and, in several cases, so distressing that a note of caution in the handling of this drug seems indicated.

The aurothiomalate of sodium (Myochrysine) ‡ was used in our clinic, according to the technique described by Forestier. Our patients included nine with atrophic arthritis, eight with hypertrophic, two with peripheral neuritis, and one with subdeltoid bursitis. Treatments were carried out at weekly intervals. A total of 162 intramuscular injections were given, an average of eight per patient. The largest number given one patient was twenty-four.

Dosage was started with 0.050 Gm. Injections were made in the deltoid, at first, later in the buttock. Subsequently, in half the cases, the dose was reduced to 0.020 or 0.010 Gm because of unfavorable reactions. A few patients tolerated doses of 0.100 Gm without toxic symptoms. In no case was a greater amount given. Occasional injections with normal salt solution readily convinced us that the patients knew when Myochrysine was omitted.

Six patients received a total exceeding 1.50 Gm. The series was finally discontinued because of the increasing number of unpleasant responses, evidence of improvement being infrequent or uncertain.

Sedimentation rates according to the Westergren method were repeatedly done on all patients. Significant changes in sedimentation time were not observed.

Of the twenty patients, six, including two with atrophic, two with hypertrophic, and two with peripheral neuritis, reported subjective improvement. Another group of six refused further treatment because they claimed it made them worse. This latter group, together with the eight remaining patients, all experienced local or generalized reactions.

REACTIONS

The various types of reactions which this writer believes are attributable to gold therapy include the following:

*From the Arthritis Clinic, Boston City Hospital, the Department of Medicine, Tufts College Medical School and the First and Third (Tufts) Medical Services, Boston City Hospital.

‡The Myochrysine used in this study was supplied by Merck & Co.

†Phillips, Robert T.—Instructor in Medicine, Tufts College Medical School. For record and address of author see "This Week's Issue" page 123.

Headache
Dizziness
Sleepiness
Tinnitus
Fever
General malaise
Loss of weight
Nausea
Epigastric distress
Vomiting
Pruritus
Dermatitis with vesicle formation, especially on the hands, fingers, forehead, and the buccal mucous membrane
Anesthesia of the tongue
Sore tongue
Jaundice
Local swelling with formation of hard painful lumps at site of injections

CASE NOTES

CASE 1 A G Aged thirty-eight Three treatments Rheumatoid arthritis Spine and shoulder girdle Two years' duration Blood sedimentation rate, 46 Thorough investigation during a six-week hospital admission revealed no serious organic pathology. Following the third injection of Myochrysine, developed extreme jaundice, with loss of five pounds in one week. Nausea and vomiting. Forced to remain in bed two weeks. Symptoms improved in one month with injections of normal saline solution.

CASE 2 M F Aged forty-eight Eleven treatments Rheumatoid arthritis Six years' duration Fusiform swelling of hands, fibrous ankylosis of wrists and left elbow Blood sedimentation rate, 28 After the fourth treatment, headache, epigastric distress, general malaise. Refused further treatment when generalized pruritus followed eleventh injection.

CASE 3 D G Aged forty Twenty-four treatments Rheumatoid arthritis (Strümpell Marie) Five years' duration Blood sedimentation rate, 14 Hard lump at site of injections No improvement.

CASE 4 J W Aged twenty-nine Nineteen treatments Rheumatoid arthritis Fusiform fingers



Case 4. J W showing lesions characteristic of typical psoriasis which developed following intramuscular injections of gold salts. This patient, prior to treatment, never suffered from skin lesions of any kind whatever.

Ankylosis of right elbow and two fingers Two years duration After eighteenth treatment, approximately fifty slightly elevated brownish red maculopapular lesions two to ten millimeters in diameter appeared upon the abdomen Sore tongue with vesicles on upper gums Felt improved on Myochrysin and desired to continue. Dose cut down but rash persisted soon manifesting itself as typical psoriasis persisting and spreading under the breasts and on the abdomen This patient repeatedly stated that the Myochrysin diminished the pain and stiffness The skin lesions have continued without change

CASE 5 T. H. Aged forty-five Eight treatments. Peripheral neuritis, left arm Ten years duration Blood sedimentation rate 14 Symptom free with complete recovery after eight injections.

CASE 6 D. R. Aged forty-eight Six treatments Rheumatoid arthritis Blood sedimentation rate 15 Pain and swelling of hands Six months duration Developed rash on forehead and generalized pruritus which readily subsided Swelling and pain at site of injections. Felt definitely improved on treatments

CASE 7 B. M. Aged forty-one Sixteen treatments. Osteoarthritis Blood sedimentation rate 9 Pain in both knees and neck Four months duration Headache nausea, buzzing in the ears following second injection Lump in arm at site of injections also in buttock after each treatment. Complained of tongue going to sleep since being on treatment. No improvement. This patient had a strongly positive Wassermann and after antiluetic therapy was instituted her joint symptoms rapidly subsided

DISCUSSION

The French writers emphasize the necessity of long continued treatment with gold salts i.e. at least two series totaling 150 grams each with an interval of several weeks It is suggested that this type of therapy should be continued at least one or two years in a manner comparable to that pursued in antiluetic treatment I am of the opinion, however, that even with small doses of gold salts, the untoward reactions apparently exhibited by many patients constitute a hazard which should make

us extremely cautious in undertaking a therapeutic program based on the use of gold salts. In view of the uncertainty which attends our knowledge of the exact manner in which gold operates in the human economy, it would appear that the more rational approach to the relief of arthritis is through a program based upon a restitution of what Pemberton¹ has so succinctly termed the patient's "physiologic equilibrium" Such a program, embodying as it does "wide angled vision" in the consideration of the varying factors which seem best calculated to achieve results in the treatment of this vast family of diseases known as rheumatism, has recently been published²

CONCLUSIONS

1 Observations on the treatment with gold salts of twenty patients suffering from various forms of arthritis are reported

2 Fourteen patients responded poorly to this method of therapy The various types of untoward reactions are enumerated

3 I believe the hazard to the patient treated with gold salts is such that judicious care must be exercised in the selection of cases and in their subsequent management. Personally I do not, for the present at least, feel competent to handle this drug to the advantage of the patient

4 The whole subject of gold therapy in arthritis suggests a further emphasis on basic physiologic principles in the treatment of a disease group which has yet to yield consistently, at any rate, to specific therapeutic measures

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THE MEDICAL, LEGAL, AND ETHICAL CONNECTION BY PHYSICIANS WITH CASES OF MALPRACTICE WHICH HAVE NO CRIMINAL FACTORS*

BY F. W. ANTHONY, M.D.†

THE subject for consideration this evening is "The Medical, Legal and Ethical Connection by Physicians with Proved or Suspected cases of Crime or of Malpractice Part 1 Cases where crime is a factor Part 2 Cases where crime is not a factor"

The gentleman who has preceded me has spoken on Part 1 I am to discuss an entirely different phase of the subject, that of Part 2—the medical and ethical aspect of the physi-

cians' association with cases where, with no criminal factor involved, malpractice is known or suspected to have taken place

This includes matters connected with the subsequent treatment of cases previously in the hands of another physician, with consultation work in cases such as those under consideration and with the relationship of the physician to Court procedures.

It may simplify matters and help clarify thought if, before we enter upon the discussion, we grant certain things

1. That physicians generally do refuse to testify against others

*Read before the Pentucket Association of Physicians and Surgeons from the Essex North District on June 20, 1935
†Anthony Francis W.—Member of Staff, Gale Hospital, Haverhill, Mass. For record and address of author see "This Week's Issue" page 125

2 That in some cases this seems to impose an injustice

I will later discuss these two admissions

I will first consider the "treatment of cases previously in the hands of another physician." This is the time at which many a suit is started, very often by a remark made inadvertently by the second physician and, almost always, with no thought that it will fall upon fertile soil and become the cause of much trouble later. Not alone a remark but a shrug of the shoulders or even a significant look may be sufficient to be the starting point of trouble. Under circumstances such as these a physician should remember that he is seldom in possession of all the facts regarding the earlier treatment of the case, the difficulties that presented themselves, the accidental happenings which sometimes may not be prevented, and lack of cooperation on the part of the patient or his neglect or refusal to carry out definitely given directions. Criticism, therefore, is both foolish and dangerous.

These remarks apply equally and with the same force to the acts of the consultant who may be called to see the case while it is in the hands of the second physician.

Suppose, however, that the second physician is one of standing and good training and that he is convinced that he has received sufficient evidence to cause him to form a well-founded opinion that his patient has suffered grievously from real malpractice, what is then his medical and ethical duty to the patient who has come to him in good faith to secure his opinion and to receive such treatment as he can give for the relief of a condition either painful, disfiguring or disabling? I think we would all agree on one thing, namely, that, provided the first physician is out of the case, the second physician should give the patient all the treatment within his power in an attempt to restore him to a better condition. I believe also that the patient is entitled to a definite statement of the established physical facts in his case. I do not believe that the physician is medically or ethically obligated at that time to voice criticism of the methods used by another.

Let us now assume that another phase has arisen. The person who actually has, or thinks he has, suffered from malpractice consults an attorney and the attorney comes for a statement of facts and opinion. Here comes a difficult situation. Why does the physician hesitate to give freely the facts and his opinion? There are several reasons. First, a reason of minor importance, the thought that a similar happening may at some time come to him personally with consequent loss of prestige and with perhaps financial loss, secondly, another minor reason, the natural feeling of solidarity. This feeling is not confined to the medical profession alone but exists in others as well. This may be illustrated by an experience of my own

a number of years ago, when an attorney received a fee for an examination made by me of one of his clients in a distant city, and after two years I was unable to secure this fee. I was finally forced to seek legal aid only to learn that not an attorney in the city where I lived would try to collect the money from a "brother lawyer." I was forced to go to another city where an attorney of high standing, after assuring himself that the action was not taken against an attorney in the city in which he resided, agreed to and did collect the fee. Even clergymen are loath to take action in cases in which misconduct on the part of some gentleman of the cloth seems probable. The feeling is much the same that exists in a family, as was illustrated in Boston a few years ago when a policeman, attempting to arrest a man who was beating his wife, found himself in the midst of trouble when both husband and wife turned upon him.

In addition to these minor reasons there are more important ones. It is seldom that there is in the possession of a physician so much evidence that he can be sure that he has all the facts and that there is no reasonable defense for the quality of the work that has been done. Therefore it occurs to him when the evidence for the defense is all presented that he may find himself in a very difficult spot.

Another reason is that, not infrequently, while malpractice may exist, the end result, not so good as it should have been with proper treatment and care, is, none the less, not nearly so bad as is represented by the patient, the symptoms being exaggerated and staged for purposes of financial gain. This again causes him to hesitate.

But the most important reason of all is that the physician may have reason to entertain grave doubts whether it is the desire and intention of the attorney to learn and have set forth in court the real facts in the case. Experience has taught that the majority of attorneys consider that it is their duty to set forth and maintain before a court or a jury only such facts as serve to support their contention, these being based almost entirely upon what their client desires to maintain. A physician inexperienced in court proceedings, but with, perhaps, an occasional bitter experience, dreads the ordeal of being permitted to state only such facts as tend to support a contention, and to have to submit upon cross-examination to attempts to belittle his training or experience, his qualifications as a witness, the accuracy of his observations, the value of his prognosis, finding himself limited by the laws of evidence in what he may say and entangled in the meshes laid by a shrewd attorney who insists upon an answer "yes" or "no", or, after stating the most extreme improbabilities, inquires if such a situation is not "possible." To those of us who have met repre-

sentatives of this type of attorney in the courts for many years and who are fully aware of our own rights as witnesses, and whose feeling in stead of that of fear is of unqualified contempt for the methods used and the man who stoops to them, these situations present a challenge rather than a humiliation, but the ordinary practitioner, dreading to find himself in a situation of this sort, refuses to appear voluntarily or to furnish information which may entangle him in legal matters. Not convinced that the attorney will present to the court the facts as he finds them without regarding how they may affect the supposed interests of his client, the physician is apt to take what is for him the easiest course and say nothing.

I will now speak of the second matter that we granted at the start of this talk, namely that in some cases the refusal to testify seems to work an injustice. A case in point is one in which it is my belief that the failure to recognize and therefore to treat a physical condition that had arisen, combined with the failure adequately to follow up the case afterwards, caused a disability that removed permanently from the ranks of the employed, a man who normally would have had years of usefulness ahead of him. Were it not for relatives he would now be an object of public charity and, in his later years, he may be such an object. Another illustrative case is one where it is stated on good authority that an alleged surgeon, unqualified for the work he attempted, operated in such a manner as to cause most serious injury to the patient.

Such cases while not frequent, none the less undoubtedly exist, and I doubt if anyone, except one of base nature and absolutely selfish personality, would maintain that there should be no recompense for the patient who is so unfortunate as to be forced to go through with such an experience. There must be some plan devised by which justice will be done to the patient, the physician, the attorney and that part of the public which is directly interested. The initiative will have to be taken by the medical profession.

Similar action has been initiated and carried to a satisfactory conclusion in a somewhat similar situation. Over thirty years ago when I began to emerge from the obscurity that surrounds the youthful practitioner and to enter upon a line of work that has kept me since that time more or less in the courts of the Commonwealth, there existed a condition of affairs that was intolerable. It was then the custom in civil cases for two physicians, one representing the patient and his attorney, and the other the attorney for the defense, to meet and examine the plaintiff. No information other than the most superficial, and sometimes none at all, was given by the patient's physician. At the close of the examination, the physicians separated, one per-

haps jubilant that he had concealed important facts, and the other rejoicing that he had discovered facts unrecognized by his brother. Occasionally this state of affairs brought about a ludicrous happening, as for example, when a physician for the plaintiff had testified that the patient's pupils were equal and normal and that there was no difference in vision in the two eyes, and the more observing physician for the defense called the attention of the jury to the fact that the patient had one glass eye, or, as in another instance, when a physician for the defense testified to the perfect neurological conditions found and the physician for the plaintiff demonstrated a serious neurological trouble, and quietly testified that the other physician had not removed a bit of clothing from the patient during his examination. It seemed to me then, as now that this state of affairs was almost unendurable, and, with the cooperation of a group of physicians, I originated, so far as Northern Essex was concerned, the method which is, according to my knowledge, generally adopted in this vicinity at least, by which two physicians meet on practically the same basis as they would meet in a consultation, agreeing on all questions of fact, such as the varying lengths of legs or arms, the absence or presence of cardiac or renal complications etc., and discuss freely the prognosis as to end result and the period of disability. In respect to these two latter matters, there may be an honest difference of opinion, but, before the trial, each knows all the facts in the case and the opinion of the other. While this method was for a time strongly opposed by many attorneys, it has now been accepted by the majority of them, and certainly by all of the better class. At first we were told by some prominent trial lawyers "I will never permit you to consult in that manner with the physician on the other side. I employ you to give me the facts in the case and your opinion. For thus I pay you, and I expect you to disclose none of it to anyone else, by doing otherwise you might upset my whole case." The physicians whose opinions were of any value refused to be dominated and, after the method described had been in use for several years, the attorneys agreed that, even from their point of view the plan had been of benefit to all concerned. The success of this method of handling cases is pertinent to the question we have under consideration only as an illustration of what physicians can accomplish by their own initiative.

The so called Briggs law, bringing about impartial examinations and testimony in murder cases has the same pertinency. Its value is shown by the fact stated by Dr Briggs in this hall last year that in only two cases had counsel for one side or the other refused to accept the findings of the impartial report, and in these

two the jury had accepted the impartial findings

If there is to be any relief from the intolerable situation which at present exists in reference to malpractice suits, the initiative will have to come from the medical profession and the plan worked out will have to have the endorsement of the better part of the legal profession. Unless it receives this endorsement it would be difficult to secure an act of the Legislature owing to the large number of attorneys who are sent to that body.

In any method of procedure one thing must be kept clearly in mind. Nothing can be instituted that would take away from the individual his inherent constitutional rights to a trial by jury. This is recognized in the Briggs law and in the procedure in certain cases in equity which are now sent to a Master for a report. Theoretically at least, this Master is supposed to have special qualifications to fit him for the particular type of case which he will hear.

If a law was enacted by which the Judge of a court could refer to a Master, who was a physician, a case of malpractice for a hearing, the report of the latter might well be directed to cover only certain features of the case more particularly the first two at least of the following:

1 What is the end result in this case?

2 Were the acts performed by the defendant and the procedure followed those that are established as proper and such as are in use by physicians properly trained and such as would be in general use in the locality where the physician practiced?

3 Is the end result attributable to the use of improper procedure—this to include action or lack of action?

I concede that there might be some force in an argument against including the third of these questions in the matters sent to a Master on the ground that this is a question particularly for a jury to decide, but after all this method simply adds to the evidence which the jury will consider an impartial report to aid them in coming to their decision. By this plan I believe the constitutional rights of the individual are safeguarded and at the same time the honest and qualified practitioner is to some degree protected against the unscrupulous individual and against the attorney of low moral calibre.

Another argument against this plan also has some degree of plausibility and that is that it would increase the expenses of the county. This may possibly be true, or, in practice, it might be found that the report of the Master followed by a conference in chambers of the counsel for both sides with the Judge might result in the removal from the docket by settlement or withdrawal of a sufficient number of cases to lessen rather than increase the county expense.

There is another plan which, if enacted into law, could not be charged with materially increasing the expense to the county, that is, in cases where malpractice was charged, the court should appoint a physician, properly qualified in respect to the matter under dispute, to be present at the trial, and, at its close, to testify as an impartial witness so appointed in regard to the questions which I have specifically indicated, or at least to questions one and two, he being subject to examination by either or both of the Counsel in the case.

The subject that I have been discussing is always of importance but is of particular significance at the present time as is shown by the fact that one prominent attorney in this State has at present an almost unbelievable number of suits to defend which have been entered against the physicians of one county alone, and he has recently informed me that, in almost all of these cases, the physicians who have been sued are men well-trained, experienced and standing high in professional reputation. To me it is clear that it is our duty on the one hand to protect the person injured by culpable malpractice, and, on the other hand, to protect the qualified physician against the ignorant or unscrupulous individual guided and advised by an ill-informed or unscrupulous attorney.

I can see nothing to be accomplished by this matter being taken up by a small group of the medical profession or by those in one district alone. In my opinion it should be taken up by the Officers of the Massachusetts Medical Society and, with the advice of the Council, a committee of outstanding men should be selected, and an attempt made to secure a study of the subject in conjunction with a similar committee to be appointed by the Massachusetts Bar Association. The recommendation of the joint committee should be referred back to the two societies and, if by them approved, be sent to the Legislature for the enactment of such an Act as is recommended.

SPREAD OF ANTERIOR POLIOMYELITIS

Dr Leroy W Hubbard, director of extension work for the Warm Springs Foundation, indicates in a recent survey that infantile paralysis follows the route of the country's railroad tracks. Travel by automobile, he believes, has also helped to increase

the number of victims of the disease in the United States, now more than 200,000.

Owing to the lack of facilities for aftercare in many small communities, 70 per cent of the funds raised in the President's Birthday Ball this year will remain in the localities where they originate, the remainder going to the Warm Springs Foundation.

CASE RECORDS

of the

MASSACHUSETTS GENERAL
HOSPITALANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22031

PRESENTATION OF CASE

The patient, a sixty-two year old native widow, was first seen in the Outpatient Department approximately one year and a half before admission. At that time she stated that she had been spitting up blood every day and night for the past six months and two weeks before had coughed up about half a cup of partly clotted blood with very little effort. She occasionally had slight dyspnea on exertion and some ankle edema for the past year. Three months before this visit she had an attack of diarrhea, but her stools appeared normal. Examination at that time was negative except for a systolic apical murmur transmitted to the axilla. The left border of dullness was in the fifth space one to two centimeters beyond the midclavicular line. She was seen in the Pulmonary Clinic ten days later. The lung fields were found to be clear. She was not seen again until September, four months later when she complained of increasing dyspnea, ankle edema and continued blood streaked sputum. Her face was flushed. The lips were cyanotic. The cervical veins were distended. There were a few moist râles at the bases. The blood pressure was 170/95. The heart was enlarged the enlargement being greatest across the base. The first sound was snapping with a questionable diastolic and presystolic rumble. The abdomen was protuberant. The liver was felt one finger breadth below the costal margin. There was a questionable small amount of ascites and slight pitting edema of the extremities. X-ray showed that the diaphragm moved well with respiration. The hilus shadows were increased on both sides and the larger lung markings were prominent, particularly toward the base.

Up until eight days before her admission to the house she had continued to spit up small amounts of blood. At that time she went to bed quite fatigued and was unable to sleep. She became nauseated and vomited two cupfuls of blood. She felt pretty certain that the blood was not coughed up but vomited. It was clotted slightly and not frothy. Nausea was a constant symptom before and after this episode.

At five p.m. the following day she gagged and suddenly tasted something salty in her mouth. This turned out to be about two cupfuls of clotted blood. She did not cough with the appearance of this blood. For the next few days she ate practically nothing but did drink some water. The latter seemed to irritate her stomach and produced more nausea and epigastric distress. She had a third similar attack the following day, but this was associated with a more severe abdominal pain. She thought she was dying and could not get enough air. She was very pale and felt faint and dizzy. The "stomach pain" was steady, gnawing, and apparently just to the left of the epigastrium. She had complete loss of appetite. On the day before admission for the first time she seriously attempted to eat and was able to keep down some beef broth and lamb stew. Her bowel movements had been black and watery for the four days following the first hemorrhage but had not been so before that time. During the week before admission she had attacks of fainting, weakness and dizziness, as well as marked dyspnea.

There was no family history of tuberculosis, insanity or cancer.

She had been married twice. Her first husband died in 1907 of cancer of the stomach at the age of forty-seven. In 1912 she married a drunkard who drank all kinds of liquor. She had one child by her first marriage who was living and well. During this first marriage she had a large number of miscarriages occurring usually at about four months.

Except for an occasional glass of beer she drank no alcohol.

At the age of twelve she had her first attack of rheumatic fever. This recurred the following two winters. She also had pleurisy as a child. Five years before admission she had a hemorrhoidectomy at a local hospital and while there was told that she had a tumor probably in her bowel. Three years before admission she had an attack of marked jaundice without pain or indigestion. This attack lasted two or three months and was followed by what she called pneumonia. She denied venereal disease.

Physical examination showed a senile undernourished woman with mild pallor of the skin and mucous membranes. The heart was enlarged to the right and left. There was a heaving impulse over the precordium and a blowing harsh presystolic and short systolic murmur best heard just inside the apex impulse. P₂ was loud. There was a slight thrill over the apex. The blood pressure was 160/70. In the sitting position an epigastric mass descended with respiration. Another small mass was felt under the left costal border. Both of these masses were tender. The edge of the right lobe of the liver was palpable with inspiration.

Examination of the urine was negative except for an occasional white blood cell. The

blood showed a red count of 3,300,000, with a hemoglobin of 40 per cent. The white count was 3,750, with 72 per cent polymorphonuclears. There was some achromia and chromatophilia. The platelets appeared diminished in number. Three stools were guaiac negative. Both Hinton and Wassermann tests were negative. An electrocardiogram showed normal rate, 75, with diphasic T_1 and T_2 and low T_3 , a moderate left axis deviation, and early intraventricular block. An x-ray examination showed a grossly enlarged heart in all diameters. There was marked prominence in the region of the pulmonary conus without prominence of the hilus shadows. There was a small diaphragmatic hernia.

During her stay the liver and spleen were easily palpable. There was no definite evidence of ascites, although one examiner believed that there was. She was discharged ten days after admission.

Second Admission, ten days later

She remained in bed all of the first week after discharge but thereafter was up and around, although she did not feel too well. One week before this admission after eating some lettuce and potatoes she coughed up a cupful of bright red blood and had a bowel movement consisting mostly of dark red blood. Three days later she again vomited a cupful of blood and again had two or three dark bowel movements. She continued to have the latter up until admission. The day before admission she raised a small amount of bright blood. She continued to have an irritating cough.

Physical examination was the same as on her previous admission, except that there were definite signs of ascites at this time. The blood pressure was 170/80. The spleen was ballotable two or three fingers down. The liver, however, was not definitely felt.

Examination of the blood showed a red cell count of 2,020,000, with a hemoglobin of 40 per cent. The white cell count was 6,200, 78 per cent polymorphonuclears. A guaiac test was positive.

The day after admission she was given 200 cubic centimeters of citrated blood and on the third day lapsed into coma and died.

DIFFERENTIAL DIAGNOSIS

DR. CHARLES L. SHORT To obtain a clearer conception of the sequence of events in this case it is necessary to combine the histories taken in the Outpatient Department and the house, since in the former some essential details are lacking. The first significant happenings in the medical history of this sixty-two year old woman were three attacks of rheumatic fever in successive years from the age of twelve on. These, together with an attack of marked jaundice three years before admission, are of aid in determin-

ing the etiology of her subsequent presenting symptoms. As far as I can judge, the "tumor probably in her bowel", of which she was informed at another hospital five years before admission here, does not manifest itself later, so that I am forced to pass over this bit of information. We come then to the six months episode of blood spitting, starting two years before admission, culminating in her visit to the Outpatient clinic. At the same time she had had mild dyspnea and edema, suggesting early cardiac failure. The examination at this visit showed probable cardiac enlargement, a systolic murmur at the apex transmitted to the axilla, and clear lung fields by x-ray. When seen four months later there was frank congestive failure, with cyanosis, distention of the cervical veins, basal râles, edema of the extremities, and increase in hilus shadows and larger lung markings in the chest plate. In addition, we now have a "questionable diastolic and presystolic rumble". The picture thus far is that of heart disease, probably rheumatic in origin with mitral stenosis, resulting in pulmonary congestion and hemoptysis. Do we need to look farther for explanation of her hemoptyses? Bronchiectasis, especially of the left lower lobe, ulceration or polyp of a bronchus early malignant or benign bronchial newgrowth—any one of these might result in blood spitting and yet present no x-ray findings. During the remaining sixteen months of her life no corroboration of any of these diagnoses is obtained, although further x-rays of her chest were taken. I should be willing then to blame her hemoptyses on one of the common causes—mitral stenosis.

During the next year we have no description of this patient's clinical course except the statement that she "continued to spit up small amounts of blood". Eight days before her admission to the house a serious and alarming train of symptoms appeared: the vomiting of blood, nausea and epigastric distress, and black stools, all interspersed with attacks of faintness and dyspnea. Examination at this admission showed pallor, generalized cardiac enlargement, a presystolic murmur and epigastric masses. She had a hypochromic anemia with a low white count. Electrocardiogram showed evidence of coronary disease. By x-ray there was a grossly enlarged heart, with a prominence in the pulmonary conus, suggesting our previous probable diagnosis of mitral stenosis. The epigastric masses apparently resolved themselves into spleen and liver (the left lobe of which is often mistaken for an epigastric tumor). At this time there was a questionable ascites. During her brief stay at home after discharge she again vomited blood and passed bloody and dark stools. On return to the hospital there was definite ascites, the spleen but not the liver was palpable, and her anemia had increased. On

the third day "she lapsed into coma and died", about three weeks after she began to vomit blood.

In considering the differential diagnosis in this patient, let us first discuss the cardiac lesion. In favor of mitral stenosis are the rheumatic history, the shape of the heart by x ray and the presence of compatible murmurs. It would be more satisfactory to have a constant characteristic description of the typical murmurs, but we know that the murmur is often variable with this lesion and may appear only under certain conditions. We are told that at least one out of five individuals with mitral stenosis lives past the fifth decade and Levine has described the association of hypertension with mitral stenosis in later life. I see no reason to account for her signs and symptoms on calcareous disease of the aortic valve although she may show some calcification in this region at autopsy. The electrocardiographic findings indicate some degree of coronary arteriosclerosis, with the left axis deviation accounted for by her hypertension. I believe, then, that the evidence points toward rheumatic endocarditis with mitral stenosis as the basic cardiac lesion and I should thus account for her hemoptyses.

We next must explain her vomiting of blood, enlargement of the liver and spleen and ascites. First, did the blood actually come from a gastrointestinal lesion? Did she swallow blood brought up from the lungs, only to vomit it up again? Such a thing is possible and such cases have been recorded but in this patient I believe that we must assume that the bleeding was actually from the gastrointestinal tract. Secondly can the whole picture be accounted for by her heart failure? The enlarged liver and spleen and ascites of course may be due to passive congestion, and also, but rarely, bleeding from the gastrointestinal tract. The so-called "cardiac cirrhosis" is described and occupies a regular position in the textbooks. I think that Dr. Mallory will agree, however, that heart failure is only a factor in the production of a true cirrhosis. The negative urinary findings again are against congestion as the important underlying condition. I should hesitate then to explain the gastrointestinal bleeding as due either to simple congestion or to varices secondary to a "cardiac cirrhosis."

Next, a lesion of the gastrointestinal tract such as tumor, ulcer, or gastritis may have been present, but there are no positive findings leading to this assumption. We know that occult bleeding and even hematemesis may occur with a diaphragmatic hernia, which was demonstrated by x ray. I can leave this last only as a possibility. The previous attack of jaundice, lasting two or three months, points to liver damage more severe than from the ordinary infectious jaundice. The jaundice may have been

due to a pulmonary infarct but seems of too long duration. At any rate, as Resnick and Keefor have demonstrated, the mechanism of jaundice in such cases is from liver damage due to anoxemia. With the history of this episode I am drawn to consider primary hepatic cirrhosis as the probable cause of her gastrointestinal bleeding, as well as the ascites and splenomegaly. The low white counts are compatible with liver disease. Of course, an examination of her esophagus with barium for the presence of varices would have been of great interest and perhaps diagnostic. It would be hazardous to attempt to determine the actual sort of cirrhosis present, but the nodular type, or so-called toxic cirrhosis following subacute atrophy, is a distinct possibility.

You will remember that her downhill course was extraordinarily rapid, with only three weeks between the first hematemesis and her death. Acute decompensation of the liver is seen of course, in cirrhosis and this is the more likely explanation. However, the acuteness of the condition with fresh blood passed by rectum suggests the possibility of portal thrombosis, which is usually secondary to cirrhosis, often of the toxic type. This is a rare condition and difficult to diagnose in life, but should be thought of when the ordinary course of cirrhosis is so accelerated.

To sum up then, I believe that this patient had chronic rheumatic valvular disease, with mitral stenosis and congestive failure. The last may have been an additive factor in the production of cirrhosis of the liver, perhaps toxic in type. The patient died from gastrointestinal bleeding secondary to the hepatic cirrhosis, with portal thrombosis a distinct possibility.

CLINICAL DIAGNOSES

Portal cirrhosis with ascites.
Rheumatic heart disease.
Mitral stenosis and regurgitation.
Esophageal varices.

DR. CHARLES L. SHORT'S DIAGNOSES

Mitral stenosis.
Coronary sclerosis.
Hypertension.
Cirrhosis of the liver, ? toxic.
Portal thrombosis?

ANATOMIC DIAGNOSES

Rheumatic heart disease.
Endocarditis, chronic rheumatic with mitral stenosis.
Cardiac hypertrophy.
Cirrhosis of the liver, toxic.
Esophageal varices with erosion.
Splenomegaly.
Ascites.
Hydrothorax bilateral.
Pulmonary edema.

Arteriosclerosis Coronary and aortic moderate to marked, renal slight
Leiomyoma uteri

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY The findings at autopsy were almost exactly what Dr Short has predicted. The heart was considerably dilated and moderately hypertrophied, weighing 400 grams. The mitral valve showed a marked degree of stenosis, the lumen measuring only 1.5 by 0.5 centimeters. The aortic valve was uninvolved. The coronary arteries showed a moderate degree of atheroma with slight calcification and distinct narrowing of the descending branch of the left one. The kidneys showed a mild grade of nephrosclerosis consistent with the degree of hypertension which had been found. The liver, in spite of having been readily palpable, was distinctly atrophic, weighing only 1150 grams. Its surface was coarsely nodular rather than granular, and the nodules varied from seven-tenths of a centimeter to three centimeters in diameter. They were separated from each other by extensive grayish patches of fibrous tissue, which on microscopic examination showed the closely packed branching bile ducts which originally supplied many lobules but now failed to connect with any liver cells. The picture is entirely typical of the postacute yellow atrophy type of cirrhosis. The esophagus showed in its lower third many enlarged tortuous mucosal veins, overlying one of which was an erosion, 2 millimeters in diameter, in which lay a small thrombus. The lungs were negative except for chronic passive congestion. The spleen was considerably enlarged, weighing 550 grams, and showed the early fibrotic changes which one expects in a case of portal obstruction whether the obstruction is in the liver in the form of cirrhosis or in the splenic or portal veins in the form of thrombosis. The leukopenia is, in my estimation, directly dependent on this type of splenic enlargement. The splenic and portal veins were, as a matter of fact, free from thrombi, but Dr Short was not taking a very "long chance" in gambling upon their presence. The only other finding which may bear upon the clinical history was the presence of a fibroid, 3 centimeters in diameter, on the anterior surface of the uterus. It is not impossible at any rate that this was the tumor felt in the abdomen at her entry to the other hospital.

CASE 22032

PRESENTATION OF CASE

First Admission A thirteen year old American schoolgirl entered complaining of swelling of the feet, face and eyes of four weeks' duration.

Six months before admission she began to have dull, severe, frontal and occipital headaches every three or four days. They gradually became more frequent and were severe enough to keep her from school. One month before entry she noticed pain in the calves of her legs while walking. She also noticed mild shortness of breath upon exertion. Two and a half weeks before entry she fell into a pond and the following day noticed that her feet were swollen. The next day there was swelling of the hands and face. She was put to bed and given a milk diet and some red pills for her urine. She had some loss of appetite but no nausea, vomiting or red or smoky urine. During the week before entry the swelling had gradually disappeared leaving only a slight puffiness of the eyes.

Her family history is noncontributory.

There was no history of chorea, rheumatism, pneumonia, scarlet fever or tonsillitis.

Physical examination showed a well-developed and nourished, slightly pale girl with very slight puffiness under the eyes. The fundi were normal except for a few black spots near the macula of the left eye. The teeth were carious. The tonsils were moderately enlarged but not inflamed. The lungs were clear except for a small area at the left base where there were flatness, diminished breath sounds, tactile fremitus and spoken voice. The heart was not enlarged. The first sound was not very clear and was followed by a blowing systolic murmur which was transmitted into the axilla. The blood pressure was 130/78.

The temperature was 99°, the pulse 80. The respirations were 20.

Examination of the urine showed a specific gravity of 1.015 to 1.022, a trace to a large trace of albumin and a sediment which contained 15 to 20 white blood cells, 3 to 5 red blood cells, and numerous finely granular and hyaline casts. The red blood cell count was 4,410,000, with a hemoglobin of 75 per cent. The white cell count was 9,400, 73 per cent polymorphonuclears. The stools were negative. A Hinton test was negative. The nonprotein nitrogen of the blood was 27 milligrams, the carbon dioxide combining power 48.6 volumes per cent. The chlorides were 614 milligrams per cent, the serum protein 3.9 per cent and the cholesterol 298 milligrams per cent. The phenolsulphonephthalein test gave 40 per cent excretion in two hours. A urea clearance test showed a maximum clearance of 27 cubic centimeters of blood with 36 per cent average normal function. Another test showed a maximum clearance of 34 cubic centimeters of blood with an average normal function of 45 per cent. A urine concentration test showed a swing from 1.005 to 1.015 to 1.022.

X-ray examination of the chest showed ho-

mogeneous dullness obliterating the left costophrenic angle.

She continued to have red and white blood cells and casts in the urine. The signs in her chest cleared up and she was discharged improved three weeks after admission.

Second Admission, four months later

For one month after discharge she felt quite well. At this time she developed a sore throat with pain, swelling and cervical adenopathy. Following this sore throat the edema around her eyes became more marked and she soon complained of quite severe frontal headaches which were present almost every day. Two months before entry her abdomen began to swell and continued to do so until admission. Two weeks before entry she had a slight cold which increased the swelling about her eyes. There had been, however, no edema of the legs or ankles. There was no hematuria or polyuria. Her water intake had been very low not more than two glasses a day. Her appetite had been good and her bowels regular. There was no dyspnea or palpitation.

On physical examination there was marked puffiness under the eyes. The skin and mucous membranes were pale and there were numerous carious teeth. The tonsils were enlarged and infected. There was limited expansion of the left chest and except for a small area at the apex of the left chest there was dullness to flatness, diminished to absent tactile fremitus and breath sounds. Similar findings were present at the right base posteriorly. The heart was displaced to the right. The abdomen was tense, doughy and showed a marked fluid wave. The blood pressure was 140/110. There was edema of the back, but none of the extremities. The fundi were normal.

The temperature was 98.6° the pulse 98. The respirations were 20.

The specific gravity of the urine was 1.017 to 1.026. There was a large trace of albumin. The sediment was loaded with white blood cells, a few red blood cells and numerous hyaline and granular casts. The red blood cell count was 4,050,000 with a hemoglobin of 60 per cent. The white cell count was 13,000, 85 per cent polymorphonuclears. The nonprotein nitrogen of the blood was 35 milligrams, the serum protein 4.52, the cholesterol 347 milligrams per cent. A phenolsulphonphthalein test gave 50 per cent excretion, 15 per cent of which occurred in the first fifteen minutes.

She responded well to salyrgan, losing nineteen pounds in about three weeks. At the end of that period a tonsillectomy and adenoidectomy were performed. Several infected teeth were removed. Thirteen hundred cubic centimeters of serous fluid with a specific gravity of 1.009 was removed from her left pleural cavity on

one occasion and 1250 cubic centimeters one week later.

Final Admission, three years later

Following her second discharge from the hospital the patient remained at home and was fairly well. She led a fairly normal life although she did no work and had no strenuous exercise. She was on a high protein diet but was later changed to a low protein, low salt diet and finally to a normal diet with salt restricted. She continued to have throbbing frontal headaches during the three months before admission. She had been followed in the Out Patient Department where it was found that her renal function was steadily diminishing, her blood pressure rising, and marked eye ground changes were noted. Her parents thought that she had been going downhill steadily seemed less bright and active, complained of more headache and vomited on several occasions. During the month before admission she had nocturia one or two times. Five days before entry while sitting in a chair she suddenly became rigid and stiff. The right arm and leg and right side of the face twitched. This attack lasted five minutes. The patient was unaware of the attack but complained of severe headache following it and vomited twice. There was no paralysis or weakness. Since then she had been constantly in bed and complained of constant dull frontal headaches and blurring of vision. Prior to this episode she had been able to read without difficulty. Since then she had twitchings in various muscles.

Physical examination showed a fairly well developed and nourished, pasty looking girl with pale skin and mucous membranes. She had a blank stare and was unable to recognize any one. Both fundi showed obliterated discs with marked choking as well as many irregular, flame shaped recent hemorrhages and patches of irregular yellowish exudate in both retinæ. Small portions of the retinal arteries were tortuous and of irregular caliber. There was separation of the lower portion of the right retina. The heart was markedly enlarged to the left. The sounds were loud and snapping with a split first sound at the apex and gallop rhythm over the sternal region at the level of the third rib. The blood pressure was 194/130. There were occasional coarse muscular twitchings in the extremities and trunk. The right tendon jerks were more active than the left.

The temperature was 99°, the pulse 90. The respirations were 18.

The urine was red small in quantity, had a specific gravity of 1.010 to 1.014, and contained a large trace of albumin and large numbers of white blood cells and red blood cells. The red blood cell count was 2,800,000 with a hemoglobin of 45 per cent. The white cell count was 6,800, 67 per cent polymorphonuclears. The nonprotein nitrogen of the blood was 125 ml

ligrams The carbon dioxide combining power was 53.7 volumes per cent, the serum protein 6.5 per cent, the serum calcium 7.9 milligrams, the serum phosphorus 9.64 milligrams per cent and the cholesterol 250 milligrams. Two lumbar punctures were done which relieved her headaches temporarily. The fluid was under greatly increased pressure (500 millimeters). She very rapidly failed, developed rhonchi in the upper chest and moist râles at the bases and died one week after entry.

DIFFERENTIAL DIAGNOSIS

DR EARLE M. CHAPMAN To sum up, we have a thirteen year old girl who first complained of swelling of the feet and face and dyspnea on exertion. Physical examination showed her to be pale and edematous, with the chest signs, substantiated by x-ray, of pleural effusion. The blood pressure was slightly elevated. Laboratory examination at first entry showed gross albuminuria with only a few red blood cells and casts in the urine, a slightly lowered CO_2 combining power (mild acidosis), an elevated blood cholesterol and a lowered serum protein. The total output of phenolsulphonephthalein was decreased and the urea clearance was markedly reduced. The normal range for the maximum clearance is 85 to 132 per cent of average normal function. Van Slyke has found that edema disappears and death from uremia usually follows when the clearance goes below 20 per cent. As in most forms of acute Bright's disease the concentration of urine was surprisingly good.

The diagnosis seems clearly to be one of Bright's disease as the cause of edema and albuminuria. Of course, one must consider failure of the heart or liver as well as the kidneys as these organs are the most frequent sites of disease in the syndrome of edema and albuminuria. However, I believe we can accept a diagnosis of nephrosis or the nephrotic stage of acute Bright's disease.

Aggravation of her disease followed an acute infection, tonsillitis and cervical adenitis, and four months later she returned with marked edema, pleural effusion, ascites and a further elevation of the blood pressure. Mild anemia was now present and the blood cholesterol was even higher. The curve of phenolsulphonephthalein excretion was depressed, although the total two hour output was 50 per cent. An attempt was made to remove the foci of infection in the teeth and tonsils. Unfortunately bacteriologic studies of these were not recorded. We know that in acute hemorrhagic nephritis hemolytic streptococci have been cultured from foci in about 80 per cent of the cases.

Nephrosis, like hemorrhagic nephritis, is associated with infection, and the presence of red and white blood cells and casts in the urine sug-

gests inflammatory changes in the glomerular capillaries. It has been our experience here as well as in other hospitals that as we have followed a few of the young adults through months to years of this illness that they may gradually change from the nephrotic picture to one of chronic hemorrhagic (glomerular) nephritis. Coincident with this change come the appearance of marked anemia, hypertension with progressive changes in the systemic arterioles and finally death in uremia.

It seems that this girl progressed steadily along this course. Finally, with increased glomerular damage nitrogen retention appeared. The uremic twitchings are explained by the low blood calcium which has fallen in response to the rise in phosphorus. Even slightly damaged kidneys are unable to excrete phosphorus in normal amounts and if it was at all practical a phosphorus clearance test would probably be the most delicate test of kidney function. The headaches and mental torpor were due in part to hypertensive encephalopathy. Treatment of this by lumbar puncture in acute nephritis may be a life-saving procedure but here we could expect only temporary relief.

Stubborn edema without anemia, hematuria, hypertension or nitrogen retention has been taught as a requisite for the nephrotic syndrome but strict adherence to this formula is not necessary. It has been overlooked that four of the five cases in Munk's early description of nephrosis had microscopic hematuria, that in three a low hemoglobin was recorded, and in none was the blood pressure noted. Nephrosis is also characterized by massive proteinuria, of which the globulin content is low, and by a reduction such as we see here in the serum protein with a relatively high globulin content. In addition, there is some change in fat metabolism reflected by an elevation in blood cholesterol. Adequate explanations for all these changes are lacking.

Critical chemical analyses have given us a better understanding of the changes produced in nephrosis but the problem of finding the agent provoking these changes still remains open. Stimulation and hope are to be found in the recent work of Blackman in Baltimore who calls attention to the possible rôle of the pneumococcus. This idea is not original but he has gone a step farther and produced nephrosis in rabbits with a pneumococcus toxin and in ten autopsied children he found that an overwhelming pneumococcus infection was the terminal event. In four of these a type II organism was recovered, which is extraordinarily high when one considers that less than 8 per cent of all pneumonias in childhood are due to the type II. So far as I know immunologic studies in nephrosis have not been done.

In conclusion, I believe this girl had nephrosis and that her course ending in uremia is

good evidence that we can no longer look on nephrosis as a separate metabolic disease but only as a little understood stage in hemorrhagic nephritis. In addition to lipid tubular changes we may expect extensive damage to the glomerular capillaries.

CLINICAL DIAGNOSES

Chronic glomerular nephritis
Hypertensive encephalopathy

DR. EARLE M. CHAPMAN'S DIAGNOSIS

Chronic hemorrhagic nephritis, with nephrotic syndrome at onset.

ANATOMIC DIAGNOSES

Nephritis, glomerular, chronic
Cardiac hypertrophy and dilatation.
Pulmonary edema
Bronchopneumonia, early
Arteriosclerosis, cerebral, type undetermined
Follicular cyst of ovary, right.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY The recognition of two distinct types of Bright's disease variously named, hemorrhagic and edematous by some nephritic and nephrotic by others, is now of over twenty years' standing. Yet the relationship of the two types, whether they are different diseases of different etiologies or simply two types of the same disease is still a subject of lively and occasionally bitter controversy. The root of the difficulty lies probably in the apparent discrepancies between functional perversion and anatomic abnormality which prevent the clinician and the pathologist from agreeing upon any classification. Certain predictions as to the anatomic changes can be made with a fair percentage of success in a considerable group of cases but in any single case one's arrow may fly far from the mark. It is generally safe, for instance, to predict that

with marked edema, albuminuria, hypoproteinemia and hypercholesterinemia the glomeruli will show inconspicuous changes only and the tubules will show marked degenerative changes. Yet exactly the same functional derangements occur quite regularly in amyloid disease where the tubular changes are inconspicuous and the glomerular lesions are predominant. Occasionally, moreover, a histologically typical glomerulonephritis without noticeable tubular lesions will be associated with the classical nephrotic syndrome. Experience shows that the great majority of "nephroses" are not quite true to the theoretical type either from the clinical or the anatomical point of view. Usually a few red cells will be found, or the blood pressure is a little elevated, or there is a little nitrogen retention. The anatomic counterpart is, of course, the finding of definite inflammatory changes in the glomerular tufts and it is always safe to assume that histologic studies will show more rather than less glomerulitis than the functional studies indicate. Another very safe assumption is that nearly every case of Bright's disease will prove at autopsy to be more chronic than the story seems to indicate. Both of these assumptions are borne out in today's case. The kidneys show a marked glomerulonephritis which has already passed into the chronic stage characterized by complete sclerosis of numerous glomeruli with extensive secondary atrophy of many tubules and compensatory dilatation of the remaining ones. A few glomeruli, however, still show active inflammatory lesions. Grossly the pair of kidneys weighed 225 grams and showed pale grayish granular surfaces. The heart was markedly dilated and considerably hypertrophied, weighing 340 grams. There was a very slight obviously terminal bronchopneumonia. The only other finding of significance was a considerable degree of arteriolar sclerosis, unusually marked in this patient in the brain. There were however, no demonstrable secondary changes in nerve cells or fibers or in the glia.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
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SUBSCRIPTION TERMS: \$6.00 per year in advance, postage paid
for the United States; Canada \$7.00 per year, \$8.50 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office, 8 Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine, 8 Fenway, Boston, Mass.

The Massachusetts Medical Society

THE ANNUAL MEETING

As has been announced, the One Hundred and Fifty-Fifth Annual Meeting of the Society will be held in Springfield June 8, 9 and 10, 1936. Some of the special features have been referred to in an editorial published in this *Journal* on January 2, 1936. Not only does the excellent work of the Committee of Arrangements in providing a worth while program of scientific papers and exhibits deserve the support of the Fellows by their attendance, but the importance of the business meetings demands their intelligent participation.

The business of the Society has become increasingly complex and there is the greatest need for coordinated action based upon thorough appreciation of all factors if the Society is to render the best service to its Fellows and advance the interests of the profession of medicine. The Council will hold its annual meeting on Tuesday, June 9, will hear the reports of its officers and standing committees and will act upon such recommendations as may come before

it. The Councilors are the chosen representatives of the district societies and each should be in such close touch with the Fellows in his district as to enable him to bring to the Council representative opinion. Since each district will select its Councilors prior to the annual meeting, every effort should be made to choose those who will work for the common good.

The Annual Meeting of the Society will be held at noon on Wednesday, June 10, and, since all Fellows in good standing are eligible to attend, it is hoped that there will be a large number present.

The presidents and secretaries of the district societies are urged to do all in their power to encourage their members to attend, particularly those who have been more recently admitted to Fellowship.

AN AMENDMENT TO THE LAW PROVIDING FOR THE REGISTRATION OF PHYSICIANS

For more than forty years the Board of Registration in Medicine has been operating under a law which was defective in its original form, and has not been sufficiently modified since 1894 to enable the Board to perform its function in protecting the public as well as can the Boards in every other state in the Union. The legislatures of all the other states have adopted certain effective requirements relating to medical education or have given authority to boards of medical registration to determine acceptable minimum standards for medical schools.

In Massachusetts the applicant for registration as a practitioner of medicine is required only to show that he has had a premedical education equivalent to that necessary for graduation from high school, and a medical degree from a chartered school which requires of its students attendance on courses covering four years of thirty-two weeks in each year. He must also be free from suspicion as to moral character. If these requirements are met, the Board must accept him for examination. These requirements can be met by a person who has had a medical education which does not meet generally accepted standards and a considerable number of physicians with this kind of training are now practicing in Massachusetts.

The Massachusetts Board of Registration in Medicine has recommended to the Legislature that amendments be made to the existing law which will give to the Board power to determine whether a given medical school from which an applicant has graduated is worthy of recognition. The text of this proposed amendment was published in the *Journal* of November 7, 1935 on page 938. By reason of the limited power of the Massachusetts Board reciprocal relations with other states respecting the registration of physicians have been denied. This

is humiliating so far as the state is concerned and annoying to practitioners who may wish to settle elsewhere after having been licensed by our board

Where does the blame lie for this predicament? Certainly not with the Board for it has consistently and persistently tried to have the General Court correct this unfortunate situation. It must lie with the more intelligent part of our people who have been indifferent and disinclined to educate the general electorate concerning the importance of having well trained doctors available in cases of illness. The medical profession may ask itself in all honesty whether it has contributed its full measure of influence to an adequate educational campaign throughout the state.

Massachusetts was one of the last of the states to adopt statutory regulation of the practice of medicine and has the reputation of being the weakest link in the chain forged to protect the people against disease. The original statute was enacted in response to a petition by representatives of the Massachusetts Medical Society among whom were Dr. Reginald Heber Fitz, Dr. George Washington Gay and Dr. Edward Bayard Harvey. Let us honor their memory by following their example.

The hearing on the proposed amendment House Bill 34 will be held on January 23 in Room 480, State House, Boston, at 10:30 A.M. before the Legislative Committee on Education. Undoubtedly the opposition will be articulate and fervent, as in the past. In favor of the bill, the Massachusetts Medical Society will make official representation. At the hearing, there will be opportunity for the individual members of the Massachusetts Medical Society who favor the proposed change in the law also to voice their opinion, so that through official and individual representations, the Legislature may be in no doubt as to what the medical profession in Massachusetts wants.

THE GOVERNOR'S ANNUAL MESSAGE

His Excellency the Governor, during a long political career, has been noted for the fidelity with which he has safeguarded and promoted the interests of public health and those who have been working in these interests. No matter what expediency may have dictated in other branches of municipal and state government, the health of the City and of the Commonwealth has not been made the football of politics.

In his annual message to the Legislature, His Excellency again does not neglect this important duty of the Commonwealth to its citizens, making several recommendations which form a considerable part of the total document. First

among these is the recommendation of such additions to existing law as would make possible the inclusion of institutional nurses within the provisions of the Workmen's Compensation Act.

Reorganization of the Department of Labor and Industries is essential, according to Governor Curley, giving over to this department the duties of the Industrial Accident Board. It is the opinion of the Governor that the division of jurisdiction between these two agencies causes much wasteful overlapping of effort and defeats the purpose which should be the primary objective of both—the prevention of industrial accidents and diseases.

His Excellency points out that a mental disease research building was completed at Wrentham in 1931, but that to date no funds have been forthcoming for its equipment. For this purpose \$12,000 is asked of the Legislature. The proper care of mental defectives in general, however, has become a serious problem, our twelve state institutions with a working capacity of 17,671 patients are now caring for 21,023, and speedy enlargement of these institutions to care for 2,000 patients each is urged. New living quarters should also be provided for at least 1,500 employees.

The three state schools under the Department of Mental Diseases are now caring for 5,051 patients with a working capacity of 3,893 and 3,200 applications are on file for patients for whom there are no possible accommodations. These three schools should also be brought up to a 2,000 working capacity apiece, and an extra school should be provided.

The hospital for the criminally insane at Norfolk, the establishment of which was enabled by an act of 1935 but with no funds provided for its building, should be constructed at once and an appropriation of \$1,750,000 is requested for this purpose. This hospital should be under the Department of Mental Diseases rather than under the Department of Correction.

It is further recommended that the old Rutland State Sanatorium be razed and replaced by a modern structure and that both here and at the Pondville Cancer Hospital additional accommodation for employees be provided during the present year. The question of the establishment of an institution for the care and treatment of persons afflicted with social diseases should be studied by a committee to report to the Legislature in 1937.

The annual registration of physicians is recommended in view of the large number of unqualified individuals now practicing in this state and the enactment of legislation is requested making it a criminal offense to practice as a physician without such registration.

The citizens of our Commonwealth will note with interest that His Excellency advocates the

installation of 30-mile-per-hour speed governors on the motor cars of automobile law violators

It must be apparent that these recommendations are in the main worthy ones, if funds are available for putting them into effect, and the Governor is to be congratulated on the forcefulness with which he presents them

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

OVERHOLT, RICHARD H A B, M D University of Nebraska College of Medicine 1926 F A C S Formerly House Officer, University of Pennsylvania Hospital, Philadelphia, and Assistant Instructor in Surgery, University of Pennsylvania. Surgeon, Lahey Clinic, Boston, 1931- His subject is "Primary Carcinoma of the Lung Early Diagnosis and Treatment by Pneumectomy" Page 93 Address 605 Commonwealth Avenue, Boston

PATTERSON, DANIEL C M D University of Maryland School of Medicine and College of Physicians and Surgeons 1906 F A C S Attending Surgeon, Bridgeport Hospital Examiner in Surgery, Connecticut Medical Examining Board President, New England Surgical Society His subject is "DeQuervain's Disease Stenosing Tendovaginitis at the Radial Stylod." Page 101 Address 881 Lafayette Street, Bridgeport, Conn

EADES, M F A B, M D Harvard University Medical School 1922 F A C S Assistant in Obstetrics, Harvard University Medical School Physician to Out-Patients, Boston Lying-in Hospital Assistant Obstetrician, Massachusetts General Hospital Obstetrician and Gynecologist, Newton Hospital Consulting Gynecologist, Adams Nervine Asylum His subject is "Antepartum Care" Page 103 Address 19 Bay State Road, Boston

BYRNES, CHARLES M B S, M D Johns Hopkins University School of Medicine 1906 Formerly, Demonstrator in Anatomy, Johns Hopkins University School of Medicine and Adjunct Professor of Anatomy, University of Virginia. Now, Associate in Neurology, Johns Hopkins University School of Medicine and Dispensary Neurologist, Johns Hopkins Hospital His subject is "The Treatment of the Postherpetic Neuralgias" Page 108 Address 9 East Middle Street, Baltimore, Md

CHEEVER, AUSTIN W A B, M D Harvard University Medical School 1914 Assistant, Department of Dermatology and Syphilology, Harvard University Medical School Lecturer in Syphilis, Harvard Dental School Assistant Physician to Syphilis Out-Patient Department,

Massachusetts General Hospital Assistant Dermatologist, Children's Hospital Visiting Physician, Skin Department, Beth Israel Hospital Consulting Dermatologist, Framingham Hospital, Brockton Hospital, Goddard Hospital, Brockton, and Waltham Hospital His subject is "The Hinton Test. III Its Clinical Value" Page 112 Address 41 Bay State Road, Boston

PHILLIPS, ROBERT T A B, M D Tufts College Medical School 1932 Instructor in Medicine, Tufts College Medical School Formerly, Resident Physician, First and Third Medical Services, Boston City Hospital Now, Resident Physician, Robert B Brigham Hospital His subject is "The Treatment of Arthritis with Gold Salts" Page 114 Address 270 Commonwealth Avenue, Boston

ANTHONY, FRANCIS W B A, M D Harvard University Medical School 1888 Member of Staff, Gale Hospital, Haverhill Formerly, Associate Medical Examiner, and Medical Examiner, 4th Essex District, Massachusetts Also, Trustee, State Farm and State Infirmary His subject is "The Medical, Legal and Ethical Connection by Physicians with Cases of Malpractice Which Have no Criminal Factors" Page 115 Address 30 Summer Street, Haverhill, Mass

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

C J KICKHAM, M D, <i>Chairman</i>	R S TITUS, M D, <i>Secretary</i>
524 Commonwealth Ave, Boston, Mass	472 Commonwealth Ave, Boston, Mass

INTERRUPTION OF PREGNANCY

There are definite complications which make it unsafe for some patients to proceed in pregnancy The advances in modern medicine are reducing this number materially Nowadays it is unusual to feel that patients have to be aborted because of pernicious vomiting Insulin is making pregnancy safe for many diabetics who ten or fifteen years ago could not safely have a baby There still remain, however, patients suffering from kidney trouble, hypertension, heart trouble, psychopathic disorders, tuberculosis and malignant disease, who really ought not to be allowed to become pregnant, and who, if they do become pregnant, should be aborted If one feels that any pregnant patient for any reason cannot stand the drain of pregnancy without seriously jeopardiz-

*A series of short selected articles by members of the Section is being published weekly
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

ing her own life, one must first of all have the best advice in consultation. If a consultant agrees that interruption is indicated, the abortion should be performed as much in the open as possible. The best hospital in one's community is always the best place to perform the operation. Selfishly, the physician should take this into account. He should never leave himself open to any criticism. The private home should never be used for any abortion unless it is absolutely impossible to hospitalize the patient.

It is unwise to attempt to perform an abortion before the pregnancy is six weeks old. If the abortion is done too early, it is possible to get curettings which will give a pathological diagnosis of pregnancy and yet not interfere with the ovum. If this happens, it of course necessitates a second operation at a later period. This means second hospitalization, unnecessary financial loss and added risk. The ideal time to perform any therapeutic abortion is between six and eight weeks. The operation is done readily at one sitting by a thorough curettage unless it is felt that sterilization should be done at the same time. It is almost impossible to curette a uterus quite cleanly that is not already aborting. One gets as much of the products of conception as one can, packs the uterus for twenty-four hours with gauze soaked in iodine and leaves nature to finish the process.

In cases that are beyond three months the emptying of the uterus by curettage is often dangerous. It is dangerous from the standpoint of hemorrhage. It is dangerous from the standpoint of infection. If a patient is between the months of four and seven, either abdominal or vaginal hysterectomy is the method of choice. If sterilization is to be performed, the interruption should be done, of course, by the abdominal route.

The choice of the anesthetic to be used depends upon the complication. It seems wisest in patients of the psychopathic type that a general anesthetic be used. In any case that needs to be interrupted a general anesthetic may be used unless there is some pulmonary complication. Spinal anesthesia is practicable in cardiacs, nephritics, and in those cases suffering from any pulmonary complication.

If a patient has a chronic disease which makes it inadvisable to have one baby the question arises as to whether she should be allowed to have any babies at all, and in consequence many of these cases had best be sterilized at the time the uterus is emptied. If the pregnancy has advanced very far or if the patient's condition is extremely poor, sterilization is best performed by the method described by Bishop of Brooklyn. This consists in merely picking up a loop of each tube in the middle, tying it at the base of the loop with catgut, and excising the loop. The whole performance can be done in not more

than two minutes, and runs no risk of causing pelvic hematomas. If the patient's condition is perfectly satisfactory and one feels that the patient can well stand what added risk there is to hysterectomy, the sterilization and the interruption of the pregnancy may be accomplished by removal of the uterus. If the condition of the patient is extremely critical hysterectomy may carry with it added dangers which simple ligation and excision of a piece of tube do not carry and in this case, in consequence, is contraindicated.

A PRIZE FOR AN APPROVED ESSAY

The attention of interns in Massachusetts hospitals is called to the fact that a prize of \$50.00 has been offered by the Massachusetts Medical Society for the best written and most comprehensive case report submitted by one of their number holding a rotating internship in any Massachusetts hospital which is approved by the American Medical Association for intern training during 1935-1936.

This report is to be typewritten and when completed is to be sealed unsigned, in a plain envelope which in turn is to be placed together with a separate slip bearing the name and address of the contestant, in a larger envelope and sent to

The Massachusetts Medical Society
Committee on Medical Education and Medical Diplomas,

8 Fenway Boston Mass.

The contest this year closes May 1 1936. Reports may be submitted at any time prior to that date.

BOSTON MEDICAL LIBRARY

SIR DOMINIC CORRIGAN 1802-1880

The name of Corrigan calls to mind the observations of the clinician who first focused attention upon the peculiar type of pulse distinguishing certain lesions of the aortic valves. To have done the investigating necessary to establish the relation of faulty closure of these valves to the production of Corrigan's pulse stamped the one who did it as a sufficiently qualified candidate to be admitted, without examination to membership in the Royal College of Surgeons for it is related that when he presented himself for examination the first question asked him was 'Are you the author of the Essay on Patency of the Aortic Valves?' and upon his acknowledgment that he was, no further questions were asked.

Dominic Corrigan was born in Dublin in 1802, the son of John Corrigan a man of ability, a successful farmer and distributor of agricultural implements, in which business he evidently was able to amass a comfortable fortune, for he gave his children excellent educational advantages. Dominic's mother was a talented woman of social prominence. He at

tended a Catholic College at Maynooth where he became well grounded in languages and physical science. His abilities in the latter line were so outstanding that he was frequently called upon to assist the Professor in his classes. The way to medical practice in that period was through apprenticeship to an established practitioner and Dr O'Kelley, who served in that capacity, became so impressed by Corrigan's talents that he urged his father to send him to Edinburgh, which he did. From there he was graduated as a Doctor in 1825, at the age of twenty-three. He returned to Dublin and set himself up in practice. During the period of waiting for his services to be in demand he applied himself diligently to the study of the history of medicine and worked hard in familiarizing himself with the literature of his profession. He elected to do this rather than resort to some of the more usual and somewhat questionable methods of attracting attention to himself, then in common use. Later in life he repeatedly urged his students to follow the same course. His continued interest in educational methods furnished him frequent opportunity to urge his views, perhaps the most noteworthy example of which was in his address on medical education before the Annual Meeting of the British Medical Association, held in Dublin in 1867, where he advocated a higher standard of general and professional education for medical men. He was a forceful speaker and is said to have had few equals in presenting arguments in support of any proposition he was advocating. His faults were largely due to a somewhat unbridled temper which made him unnecessarily caustic in his criticisms, thereby courting opposition that otherwise might not have developed. He successively served the Digges St School, the Peter St School and the Carmichael College besides the Jarvis St Hospital where he first had a service of his own, though of only six beds. It was here, however, that he demonstrated the aortic valvular lesions which made his name well known the world over. It was Trousseau who gave the name "Maladie de Corrigan" to aortic regurgitation. In acknowledgment of his services to education he was made a Baronet in 1866. His most noteworthy papers, aside from the one upon the patency of the aortic valves, were his "Lectures on Fevers", delivered at the House of Industry Hospital, and "Cirrhus of the Lungs". He was interested in fevers and was one of the earliest of the clinicians to differentiate typhoid and typhus. He had unusual opportunities to follow out his interest in fevers when he joined the staff of the Hardwicke Hospital. In 1832 he helped to fight an epidemic of cholera that descended upon Dublin. His experience taught him the importance of pathology in its application to prognosis and treatment. His lectures and clinical demonstrations at the Hospital, held at 8 o'clock

in the morning, were so popular that it was hard to gain admission and all of the courses were equally popular. He was persuaded to stand for election to Parliament where his friends thought his forensic abilities and the soundness of his views upon public matters would ensure his success. He won the election, but the experience did not add much to his distinction and he was not reelected.

He was not a wide reader of current literature, preferring the old classical authors and was especially devoted to Morgagni. His fame as a consultant became so widely spread that he was unable to see all the patients who sought his advice and was often compelled to make his escape from his consulting rooms through a back entrance. Interest in scientific medicine, popularity as a clinical teacher, as well as a consultant in practice, and willingness to respond to innumerable demands upon his time for public-spirited service more than filled his time and took their toll from his health. Gout, from which he suffered for several years, impaired his usefulness and not long before his death, on February 1, 1880, he was the victim of a cerebral hemorrhage and in this way ended the career of one of the most beloved of a small group of Irish physicians who made the Dublin School famous in the mid nineteenth century.

REFERENCES

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- 2 Twelve Catholic Men of Science Sir B Windle by Sir F R. Cruise London, 1912
- 3 Brit. M. J. 1: 227 (Feb 7) 1880
- 4 Dublin J. M. Sc 89: 268 (March) 1880
- 5 Freemans J (Feb 2) 1880
- 6 Lancet 1: 268 (Feb 14) 1880

MASSACHUSETTS LEGISLATIVE NOTES

The hearing on House Bill 34, which gives to the Board of Registration in Medicine power of approval of medical schools whose graduates are candidates for examination and also requires two years of collegiate work before admission to medical school will be held on Thursday, January 23, 1936, in Room 480, State House, before the legislative Committee on Education. It is especially important that members of the medical profession be present and express to the Committee on Education their views on this matter, which so deeply concerns the health of the people of Massachusetts.

MISCELLANY

ADDITION TO WEYMOUTH HOSPITAL

An addition to the Weymouth Hospital, built largely through PWA funds, was opened for public inspection on January 11. The new wing houses the maternity ward, with nursery, a diet kitchen, two operating rooms, and the accident, laboratory and X-Ray Departments. With its twenty beds it increases the capacity of the hospital to ninety beds.

COMMUNITY FUND CAMPAIGN

Dr John P Monks, chairman of a large committee of Boston physicians who are forwarding the 1936 Community Fund Campaign announces the following additions to his committee

Vice-Chairman

Dr James A. Halsted

Group Committeemen

Dr Theodore Badger	Dr Albert A. Hornor
Dr Myles Baker	Dr Francis C. Newton
Dr Trygve Gundersen	Dr Earle M. Chapman
Dr Richard Stetson	Dr Richard Chute
Dr William M. Shedden	Dr Sven Gundersen
Dr Laurence B. Ellis	Dr Charles L. Short
Dr Randolph K. Byers	Dr John Strieder
Dr Edward S. Emery Jr	Dr Thomas V. Urmy
Dr Lewis W. Hill	Dr Richard H. Wallace
Dr Gerald Hoefel	

The 1936 Community Fund Campaign replacing the "Emergency Campaigns" of former years, is an intensive drive to raise \$3,750,000 between January 26 and February 10 to serve 100 hospitals, health and social agencies in the membership of the Community Federation of Boston.

CONNECTICUT NEWS ITEMS

The engagement was recently announced in Providence, R. I., of Miss Florence Bates Haynes to Dr James Dixon Case, both of that city. Dr Case was formerly a resident of Hartford, Conn. He was graduated from Trinity College and Yale University School of Medicine and served an internship of eighteen months at the Hartford Hospital.

Among the appointments made by Mayor Spellacy of Hartford as he assumed office in December 1935 was that of Dr George E. Cogan to the Board of Health Commissioners. Dr Robert V. Boyce, formerly vice president of the board, was elected president and Dr Cogan vice president at a meeting on January 2, 1936. It was voted to continue Dr Thomas F. O'Brien as acting health officer of Hartford until March 31, 1936.

APPOINTMENTS AS MEMBERS OF THE HARVARD MEDICAL SCHOOL FACULTY

Appointment of the following as members of the Harvard Medical School Faculty to September 1, 1936 has been approved by the Harvard Corporation

Orville T. Bailey of the Peter Bent Brigham Hospital, Boston A.B. Syracuse 28, M.D. Albany Medical College 32 as Instructor in Pathology

John H. Harrison of the Peter Bent Brigham Hospital Boston S.B. University of Virginia '29 M.D. '32 as Assistant in Genito-Urinary Surgery

Edward A. Edwards of Brookline Mass., M.D. Tufts 28 as Research Fellow in Anatomy

Marjorie A. Benedict, of Cambridge, Mass., A.B. Mt. Holyoke '31 Ph.D. Massachusetts Institute of

Technology 35 as Research Fellow in Physical Chemistry

Jack Spencer of Boston, Mass., M.D. University of Virginia 31 as Research Fellow in Medicine

Harold C. Wagner of Medford Mass. S.B. Massachusetts Institute of Technology 22 S.M. '23 M.D. Rush Medical College, Chicago 30 as Research Fellow in Medicine

Robert S. Schwab of St. Louis, Mo. A.B. Harvard 36 M.D. '31 as Assistant in Neurology and Psychiatry

Edward P. Motley of Boston, Mass. Assistant in Physiology

Marcel L. Berard of Lyon, France B.A. Lyon University 26. He completed the requirements for medical degree at Lyon University in 1934 and is now studying at Harvard Medical School under University of Paris Fellowship. Appointed Research Fellow in Surgery

Alexander C. P. Campbell of Edinburgh, Scotland M.B. and Ch.B. University of Edinburgh '30 now studying at the Harvard Medical School under a Rockefeller Fellowship appointed Research Fellow in Neuropathology October 1, 1935 to September 1, 1936

Marion R. Smith of the Boston City Hospital S.B. Hamilton College 28 M.D. University of Rochester 33 appointed Assistant in Surgery November 1, 1935 to September 1, 1936

Roger S. Mitchell of Glens Falls N. Y. A.B. Harvard 30 M.D. '34 appointed Assistant in Neurology February 1 to September 1, 1936

John A. Boone, of Harlingen, Texas, M.D. Harvard 33 appointed Research Fellow in Medicine March 1, to September 1, 1936

APPOINTMENT OF DR. KARL V. QUINN

Dr Karl V. Quinn formerly assistant superintendent of the Belchertown State School, has been advanced to take the position of Assistant Commissioner of Mental Diseases in the Massachusetts Department of Mental Diseases.

Dr Quinn was born in 1902 and graduated from Queen's University Faculty of Medicine, Ontario in 1924. He is a member of the Ontario College of Physicians, a Fellow of the Massachusetts Medical Society and the American Medical Association, the Massachusetts Psychiatric Association, American Association on Mental Deficiency and the American Psychiatric Association.

CORRESPONDENCE

ABUSE OF DIAGNOSTIC SERVICE

January 11, 1936.

Editor *New England Journal of Medicine*,

With the increasing interest in pneumonia the Department of Public Health recently arranged for laboratory service through its Diagnostic Laboratory whereby sputa from cases of pneumonia might be

typed, if necessary, at any hour of the day In this respect it is offering a service that is not available even in the hospitals of the State Since that time there has been so much unwarranted abuse of this that the Department must consider discontinuing this type of service unless the abuses are stopped.

On numerous occasions, bacteriologists of the Department have been called from their homes, sometimes after retiring for the night, to come to the laboratory to type a sputum only to find that the specimen was accompanied by a request from the attending physician that he should not be called as to the results until the following morning In several other instances, specimens have been received in which the attached card indicated the patient had been sick a week or more In some instances, hospitals have sent sputa in after the technician whom they employ had left for the evening, and in other instances it has been frankly stated that the sputum might have been submitted earlier in the day but it was simply more convenient to send it in around 10 o'clock at night

It is no more possible for the State to maintain trained bacteriologists in the laboratory twenty four hours a day than it is for hospitals to do the same The bacteriologists of the Department are glad to come from their homes to the laboratory at any hour to examine an emergency specimen but it is obvious that there can be little emergency if the physician is not willing to receive the reports until the next morning, nor can there be emergency in the typing of sputum if the patient has been sick for so long a time as to preclude the possibility of serum therapy

May I, therefore, through your columns request of the physicians and the hospitals that they send to the laboratory after five o'clock only those specimens which are actual emergencies, and that other specimens where there is no haste be reserved until the following morning Only in this way can the laboratory give the highest possible quality of service to the physicians and hospitals submitting specimens to it.

Very truly yours,

HENRY D CHADWICK, M D,

Commissioner of Public Health

RESTORATION OF THE REGISTRATION OF DR S MARGARET BROWN AND THAT OF DR. JOSEPH N TESSIER

Board of Registration in Medicine
State House, Boston

December 31, 1935

Editor, *New England Journal of Medicine*,

On December 12, 1935, the Board of Registration in Medicine restored to Dr S Margaret Brown her certificate of registration which was revoked on December 20, 1934

On December 18, 1935, the Board of Registration in Medicine, in accordance with the decree of Justice Lummus of the Supreme Court, returned to Dr Joseph N Tessier his certificate of registration which had been revoked on February 28, 1935

I am enclosing a copy of the findings, rulings and order for decree in Dr Tessier's case, by Justice Lummus

Yours very truly,

STEPHEN RUSHMORE, M D, *Secretary*

THE DECREE OF THE SUPREME COURT
Commonwealth of Massachusetts
Suffolk ss Supreme Judicial Court
No 59781 Eq
Joseph N Tessier

v

Board of Registration in Medicine
Findings, Rulings and Order for Decree
(Lummus J)
(December 16, 1935)

Commonwealth of Massachusetts
Suffolk ss Supreme Judicial Court
No 59781 Eq
Joseph N Tessier

v

Board of Registration in Medicine
Findings, Rulings and Order for Decree

This is a petition under G L (Ter Ed.) c 112/64 for the revision or reversal of a decision of the Board of Registration in Medicine, revoking the registration of the petitioner as a physician, on the ground that the decision was "plainly wrong" The nature of the proceeding is discussed in *Ott v Board of Registration in Medicine*, 276 Mass 566 The matter was presented to me upon a transcript of the evidence before the Board

The authority of the Board is derived from G L (Ter Ed.) c 112/61 Its decision to revoke the registration must be based (omitting certain immaterial grounds) upon "malpractice" or "gross misconduct in the practice of his profession" The words "gross misconduct" do not include mere unfitness or unskillfulness, nor ordinary negligence See *Burns' Case*, 218 Mass 8, *Nickerson's Case*, 218 Mass 158, *Silver's Case*, 260 Mass 222, *Swardleck's Case*, 264 Mass 495

The decision of the Board was based upon the charge that the petitioner was guilty of gross misconduct in the practice of his profession in the case of Charles Szlegier of New Bedford Other charges have therefore become immaterial

The evidence showed the following facts Charles Szlegier, the patient, was a young man of twenty-three years, afflicted with chronic nephritis He had a high blood pressure and his urine was loaded with albumin His eyes and vision were much affected, He suffered from headaches Nephritis is a disease that becomes progressively worse

After treating with Dr Everest La Riviere from the fall of 1913 and going to the Truesdale Hospital for a thorough examination he came under the care of Dr Emil F Suchnicki on February 3 1934. The patient was confined to his bed much of the time Dr Suchnicki was unable to do anything to better the condition and ceased his attendance on March 28 1934. He had recommended a consultation with Dr Herman Groh which was had on March 15 1934. After examination, Dr Groh could suggest no curative treatment, and told the patient's sister that the case was hopeless. The patient and his family believed that he was about to die.

On April 13 1934 the patient consulted the petitioner. The patient said that he would be satisfied if his life could be prolonged for a time and he could get some comfort. The petitioner said that one kidney was bad and that he would take the chance of operating and probably an operation would help the patient. He did not predict a cure. The patient consented, saying that if he was going to die anyway he might as well take the chance. The petitioner put the patient in the Union Hospital on April 15 1934 to recruit his strength for the operation. On April 20 1934 the petitioner removed the diseased kidney. On April 30 1934 he took the patient from the hospital to his own convalescent home, and kept him there until June 9 1934. When discharged on that day the patient was much improved. His blood pressure was much reduced. He resumed many of his activities, including sea bathing. While bathing on one occasion he suffered a chill. The petitioner was called on August 4 1934. The patient died on August 24 1934.

Very likely the petitioner was in error in thinking that the patient was tubercular. Very likely the operation offered little promise, although the condition of the patient undoubtedly improved after wards.

The patient and his family wished it, and the family remain satisfied with the petitioner's efforts. It does not appear that he was actuated by the desire to earn a fee for useless work. The patient's family paid him \$325. Out of that he paid \$82 to the Union Hospital \$70 to the nurse at the Hospital and \$20 to the doctor who assisted at the operation leaving \$153. For that sum the petitioner furnished board and care for forty-two days at his convalescent home together with his services for the whole period of his care, including the operation.

On the whole I think that a finding of gross misconduct could not have been made. Let a decree be entered reversing the decision of the Board.

HENRY T LUMMUS J S J O

December 10 1935

RECENT DEATHS

HOWLAND—CHARLES A. HOWLAND, M.D. of 1303 Union Street Schenectady N. Y., died suddenly at his home on December 28 1935. Dr Howland was

born at East Worcester Otsego County, on February 25, 1877. He attended schools in North Adams, Mass. Drury Academy and Clinton Liberal Institute. He was graduated from Colgate University in 1901 after which he went to the Philippine Islands for two years as a teacher. On his return he studied medicine at Baltimore Medical College being graduated cum laude in 1908. Following his graduation he took a contract position in the North Carolina mountains, and in the fall of 1908 began practice in Fall River. In 1917 he removed to Schenectady to practice internal medicine. During the World War he was a captain in the medical corps serving as surgeon with the 37th Division.

Dr Howland was a prominent citizen of Schenectady where he organized the Schenectady Law Enforcement League. Besides his widow Mrs. Helen O Howland he is survived by three daughters Mrs. Martha Schoonmaker of Schenectady Mrs. Robert Gaunt and Miss Elma Howland of New York City.

O CONNOR—JAMES B. O CONNOR, M.D. of 130 Fairmount Street, Lowell, died in that city on December 22 1935. Dr O Connor was born in 1898 and was graduated from the College of Physicians and Surgeons of Baltimore in 1893 in which year he joined the Massachusetts Medical Society.

COBB—CAROLUS MELVILLE COBB, M.D. of 44 Atlantic Street, Lynn, Massachusetts died January 2, 1936. Dr Cobb was born in 1861 and graduated from the University of Vermont College of Medicine in 1883. He joined the Massachusetts Medical Society in 1895 and was also a Fellow of the American Medical Association.

Dr Cobb was affiliated with the Masonic Order and had been raised to the thirty-second degree.

He was a member of the Society of Mayflower Descendants.

PATTEN—STEPHEN K. PATTEN M.D. died on January 11 at his home in Watertown. A graduate of Harvard Medical School in 1898 he was a member of the Licentiate of the Royal College of Physicians and of the Royal College of Surgeons of London.

NOTICES

BOSTON UNIVERSITY SCHOOL OF MEDICINE
SURGICAL CLINIC AT THE BOSTON CITY
HOSPITAL

Friday January 17 12-1 Cheever amphitheatre.

Dr William R. Morrison, Associate Professor of Surgery Boston University School of Medicine will present the following cases:

- 1 Hour-Glass Stomach Due to Gastric Ulcer on the Lesser Curvature Balfour Cautery Excision and Plastic Operation
- 2 Congenital Pyloric Stenosis Rammstedt Operation.
- 3 Comminuted Fracture of Both Bones of the Lower Leg Open Reduction and Insertion of Two Bone Bands.

Physicians and medical students are invited.

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P M on Thursday, January 23, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr Henry A Christian, Physician in Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic To it are cordially invited practitioners and medical students

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr Christian

NOTICES OF MEETINGS

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, January 28, at 8 15 P M

PROGRAM

Presentation of Cases

Reactions to Ovarian Hormones By Edgar Allen, M.D., Yale University

Medical students and physicians are cordially invited to attend.

MARSHALL N FULTON, M D, *Secretary*

THE BOSTON MEDICAL HISTORY CLUB AND THE BOSTON MEDICAL LIBRARY

The Boston Medical History Club and the Boston Medical Library will hold a joint meeting on Monday, January 20 at 8 15 P M, in John Ware Hall, 8 Fenway, Boston

PROGRAM

An address on "The History of Art and the History of Medicine" by Professor Henry E Sigerist, M D, Director of the Institute of the History of Medicine of Johns Hopkins University, Baltimore, Maryland. Illustrated with stereopticon

In connection with the address, there will be an exhibition of art anatomies from the collection of the Boston Medical Library

BENJAMIN SPECTOR, M.D.,

Secretary, Boston Medical History Club

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

Quarterly meeting of Worcester North District Medical Society at Leominster Hospital at 4 P M, Wednesday, January 22, 1936 Dr Alexander S Begg, Secretary of the Massachusetts Medical Society, will speak on Legislative matters The legislators for the district have been invited to attend. A turkey dinner will be served by the Ladies' Guild of the hospital promptly at 6 P M

FRANCIS M. McMURRAY, M D, *Secretary*

MASSACHUSETTS GENERAL HOSPITAL

FORTY YEARS OF X RAY

On Thursday, January 23, 1896, Roentgen first gave to the world his discovery of a penetrating ray of light

On Thursday, January 23, 1936, this discovery will be commemorated by the staff of this hospital in the Moseley Memorial Building at 8 15 P M

PROGRAM

- 1 Remarks on Roentgen and "A New Kind of Light."—F T Hunter, M.D
- 2 Reminiscences of Early X-Ray Work in Boston — E A. Codman, M D
- 3 The Present Status of Radiology in the Treatment of Cancer—G W Holmes, M D
Committee on Hospital Meetings,
WILLIAM B BREED, M D, *Chairman*,
MARSHALL K BARTLETT, M D, *Secretary*

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The next meeting of the New England Ophthalmological Society will be held on Tuesday, January 21, 1936, at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston

9 00 A M—Clinic and Operating Room

11 30 A.M.—Neuro-Ophthalmological Conference

Annual Meeting

8 00 P M

Simple Technique for Plotting Diplopia Dr William D Rowland

Paper Interpretation of the Different Forms of Tuberculosis of the Uveal Tract Dr Francis Heed Adler, Philadelphia

Discussion Dr Merrill King

BENJAMIN SACHS, M D, *Secretary*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JANUARY 20, 1936

Monday, January 20—

8 15 P M. The Boston Medical History Club and the Boston Medical Library, at the Boston Medical Library, 8 Fenway

Tuesday, January 21—

9 A.M. 11 30 A.M. and 8 30 P M New England Ophthalmological Society at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston.

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston Diagnosis of Polycythemia Dr William Dameshek

*12 M South End Medical Club at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston

2 30 P M Pediatric Ward Visit Massachusetts Eye and Ear Infirmary

Wednesday, January 22—

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston Some of the Newer Aspects of Cancer Dr William M Shedden.

*12 M. Clinico-Pathological Conference Children's Hospital.

Thursday, January 23—

*8 30-9 30 A M Clinic, Surgical Staff of the Peter Bent Brigham Hospital, at the Peter Bent Brigham Hospital

*9-10 A.M. Boston Dispensary, 25 Bennet Street, Boston Allergy Clinic Dr Joseph Kaplan

*3 30 P M. Medical Clinic at the Peter Bent Brigham Hospital

- 8 15 P.M. Massachusetts General Hospital. Forty Years of X Ray
- Friday January 24—
- *9 10 A.M. Boston Dispensary 25 Bennet Street, Boston. Some Aspects of Hemolytic Streptococcal Infection. Dr. Chester S. Keefor
- Saturday January 25—
- *9 10 A.M. Boston Dispensary 25 Bennet Street, Boston. Presentation of Ward Cases. Dr. Helms Magendanz
- *10 12. Staff rounds at the Peter Bent Brigham Hospital
- Sunday January 26—
- 4 P.M. Free Public Lecture, Harvard Medical School Building. D. Longwood Avenue. Infantile Paralysis. Dr. W. L. Aycock

*Open to the medical profession.
*Open to Fellows of the Massachusetts Medical Society

- January 17—(Evening) A Lecture by Dr. E. V. McCollum (Worcester County Home Economics Association) at the Worcester Girls' Trade School High Street Worcester
- January 17—Boston University School of Medicine Surgical Clinic at the Boston City Hospital. See page 132.
- January 20—The Boston Medical History Club and the Boston Medical Library. See page 131
- January 21—South End Medical Club will meet at 13 noon at the office of the Boston Tuberculosis Association 554 Columbus Avenue Boston
- January 21—New England Ophthalmological Society. See page 134
- January 21—Lawrence Cancer Clinic. See page 87 issue of January 9
- January 23—Medical Clinic at the Peter Bent Brigham Hospital. See page 134
- January 23—Massachusetts General Hospital. Forty Years of X Ray. See page 134.
- January 27—Springfield Medical Association 8 30 P.M. at the rooms of the Springfield Academy of Medicine 20 Maple Street
- January 28—Harvard Medical Society. See page 134
- February 14—William Harvey Society 8 P.M. Beth Israel Hospital, Boston.
- February 21 to May 16—International Medical Post Graduate Courses in Berlin. See page 1311 issue of December 13 1935
- March 2—The American College of Physicians. See page 91 issue of January 9
- June 15-16—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore Md.
- September 1935—First International Conference on Fever Therapy. See page 1325 issue of December 9 1935

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

- February 6—Council Meeting Boston.
- February 12—Wednesday Addison Gilbert Hospital, Gloucester Clinic 8 P.M. Dinner 7 P.M. Speaker and subject to be announced later
- March 4—Wednesday Lynn Hospital, Clinic 5 P.M. Dinner 7 P.M. Speaker Dr. Timothy Leary Subject: Arteriosclerosis.
- April 1—Wednesday Essex Sanatorium Middleton Clinic 5 P.M. Dinner 7 P.M. Speaker Dr. Richard H. Overholt of the Lahey Clinic. Subject Chest Surgery
- May 7—Thursday Censors' Meeting
- May 13—Wednesday Annual Meeting Salem Country Club, Dinner at 7 P.M. Speaker: Dr. Paul White. Subject to be announced later

R. E. STONE, M.D. Secretary
88 Lothrop Boulevard, Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

- Meetings are held on the second Tuesday of March and May at the Veldon Hotel, Greenfield at 11 A.M.
- CHARLES MOLINE, M.D., Secretary
Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

- Meetings to be held at the Bear Hill Golf Club at 13 15 P.M.
- March 11 May 6.

K. L. MACLACHLAN, M.D. Secretary
1 Bellevue Avenue, Melrose.

NORFOLK DISTRICT MEDICAL SOCIETY

- January 28—Hotel Kenmore at 8 P.M. Subject Compulsory Sickness Insurance. Speakers to be announced.
- February 28—Massachusetts Memorial Hospitals at 8 P.M. Papers by the staff.
- March 31—Hotel Kenmore at 8 P.M. Dr. Benedict F. Boland—Cauterization of the Cervix Uteri Using Various Electrical Methods. Illustrated with lantern slides
- May—Annual Meeting (Place date and subject to be announced)
- The censors meet for the examination of candidates May 7 1936 November 5 1936.

FRANK S. CRUICKSHANK, M.D. Secretary
1.26 Beacon Street Brookline.

PLYMOUTH DISTRICT MEDICAL SOCIETY

- March 19—Plymouth County Sanatorium South Han son.
- April 16—Brookton Hospital.
- May 21—Lakeville State Sanatorium
- G. A. MOORE, M.D. Secretary
167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

- January 29—Joint Meeting with the Boston Medical Library at 8 Fenway. Observations Around the World" Dr. Walter B. Cannon.
- March 16—Meeting at the Boston Medical Library The Laboratory and Clinical Story of Fatigue. Dr. Arlie V. Book and Dr. David B. Dill. Discussion Dr. Donald J. MacPherson and Dr. Augustus Thorndike, Jr.
- April 29—Annual Meeting at the Boston Medical Library The Treatment of Septicemia, Dr. Champ Lyons. The Pleurality of Scarlatinal Streptococcus Toxin, Dr. Sanford B. Hooker. Discussion Dr. Hans Zinsser
- The medical profession is cordially invited to attend all of these meetings.

ROBERT L. DENORMANDIE, M.D. President,
CHARLES C. LUND, M.D. Secretary
FRANCIS T. HUNTER, M.D.
Boston Medical Library

WORCESTER DISTRICT MEDICAL SOCIETY

- February 12—Wednesday evening Worcester State Hospital, Worcester Mass. Dinner and scientific program. Subjects of program to be announced later
- March 11—Wednesday evening Memorial Hospital, Worcester Mass. Dinner and scientific program. Subjects of program to be announced later
- April 8—Wednesday evening Hahnemann Hospital, Worcester Mass. Dinner and scientific program. Subjects of program to be announced later
- May 13—Wednesday afternoon and evening Annual Meeting of Society. Time, place and details of program to be announced in an April issue of the Journal.

ERWIN C. MILLER, M.D. Secretary

37 Elm Street, Worcester

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

- January 22—See page 134

BOOKS RECEIVED FOR REVIEW

Behavior Development in Infants. A Survey of the Literature on Prenatal and Postnatal Activity 1920-1934. Evelyn Dewey 321 pp. New York Columbia University Press \$3.50

A Terminology of Operations of the University of Chicago Clinics. Hilger Perry Jenkins. 99 pp. Chicago The University of Chicago Press. \$1.00

Über die Rhythmik der Leberfunktion, des Stoffwechsels und des Schlafes. Erik Forsgren. 56 pp. Göteborg N. J. Gumperts Bokhandel.

The Human Foot, Its Evolution Physiology and Functional Disorders. Dudley J. Morton. 244 pp. New York Columbia University Press. \$3.00

The Bacteriology of Typhoid Salmonella, and Dysentery Infections and Carrier States. Leon C.

Havens 157 pp New York The Commonwealth Fund \$1 75

Russell A Hibbs *Pioneer in Orthopedic Surgery* 1869 1932. George M Goodwin 136 pp New York Columbia University Press \$2 00

Studies from the Rockefeller Institute for Medical Research Reprints Volume 94 603 pp New York The Rockefeller Institute for Medical Research

Fasciae of the Human Body and Their Relations to the Organs They Envelop Edward Singer 105 pp Baltimore The Williams & Wilkins Company \$3 00

The Obstetric Pelvis Herbert Thoms 115 pp Baltimore The Williams & Wilkins Company \$2 50

Injury and Incapacity with Special Reference to Industrial Insurance H Ernest Griffiths 270 pp Baltimore William Wood & Company \$5 00

Regional Anatomy Adapted to Dissection J C Hayner 687 pp Baltimore William Wood & Company \$6 00

Obstetrical Practice Alfred C Beck 702 pp Baltimore The Williams & Wilkins Company \$7 00

Modern Treatment in General Practice Volume II Edited by Cecil P G Wakeley 382 pp Baltimore William Wood & Company \$4 00

Traité de Physiologie Normale et Pathologique Published under the direction of G H Roger et Léon Binet Tome X. Fascicules I and II 1579 pp Paris Masson et Cie 250 fr each

Handbook of Bacteriology For Students and Practitioners of Medicine Joseph W Bigger 458 pp Fourth Edition Baltimore William Wood & Company \$4 25

The Single Woman and Her Emotional Problems Laura Hutton 150 pp Baltimore William Wood & Company \$2 00

BOOK REVIEWS

The Autonomic Nervous System Anatomy, Physiology, and Surgical Treatment James C White 386 pp New York The Macmillan Company \$7 00

This book makes a conspicuous advance in surgery. No longer is the surgical operation directed only at the removal of pathological tissue, guided by a knowledge of anatomy, but now normal structures are attacked with the purpose of changing the function of distant organs. A few such procedures have been carried out in other fields, as, for example, in the removal of the normal thyroid gland, in this book however, some twenty disease entities are discussed that may be treated by sympathectomy. The list includes such important and common disturbances as Raynaud's disease, epilepsy, neuralgia, angina pectoris, hypertension and Hirschsprung's disease. Obviously such work as this requires an intimate knowledge of the anatomy and physiology of the autonomic nervous system. This knowledge the author has in generous measure, not only from reading and dissections, but also from a long series of experiments on animals, and extensive physio-

logical observations on man. In fact one hundred and forty-three pages are devoted to anatomy, physiology and methods. These three chapters give an up-to-date summary that is better than anything the reviewer has seen in this field.

In discussing sympathetic denervations White says, "In order to produce lasting physiological results, sympathetic denervation of an extremity or viscus must be anatomically complete and carried out in such a way that regeneration cannot take place. Following an incomplete denervation, the remaining sympathetic fibres are capable of gradually increasing their activity and bringing about a recurrence of the original disorder within six months. In order to prevent regeneration, the ganglia must be removed. Ramisectomy frequently fails, not only because it is so difficult to cut all of these tiny filaments, but also because the white rami are capable of rapid regeneration. From these facts it is obvious that ganglionectomy is the surest way to achieve satisfactory and lasting results. While it cannot be denied that in resecting even a single ganglion many connections of normally functioning organs are sacrificed, this does not seem to produce any serious effect." The next sixty pages are given to descriptions of cervical, thoracic and abdominal sympathectomies, and to a description of the technique of paravertebral injection.

To internists and neurologists the most readable and valuable part of the book is Part II, where chapters discuss peripheral vascular disease, pain in the extremities, migraine and epilepsy, cardiac disturbances, asthma, gastrointestinal disease, visceral pain, dysmenorrhea and even arthritis. This gives an idea of the breadth of the subject, the whole body must be discussed (if we only stop to consider) for autonomic fibres reach every organ! But the discussions are adequate though brief, and always moderate, even modest. For the psychiatrist there are important data in the discussion of the effects of emotions upon Raynaud's disease, hypertension and angina pectoris. Indeed a new era is at hand when a surgical monograph discusses psychiatry! It is a fine book and is recommended especially to neurologists and psychiatrists, for it suggests many important problems in that no-man's-land of psychosomatic relationships.

Some Facts about Nursing A handbook for speakers and others. Prepared by the Nursing Information Bureau of the American Nurses' Association 46 pp

In this little book are presented, in condensed form, various facts concerning the profession of nursing in this country. The number and distribution, the marital state and the training of nurses, their salaries and opportunities, are given. The national nursing organizations are described briefly. As a reference book for those who require facts about the profession of nursing, "Some Facts About Nursing" will prove to be extremely useful.

The New England Journal of Medicine

VOLUME 214

JANUARY 23, 1936

NUMBER 4

NEW ENGLAND SURGICAL SOCIETY

ACUTE ARTERIAL OBSTRUCTION FROM ARTERITIS*

BY HOWARD M. OLUTE, M.D.†

COMplete occlusion of the lumen of a large arterial trunk by an inflammatory process within the vessel, produces symptoms not only from the failure of blood supply, but also very probably from the stimulation of the sympathetic nerve supply of the vessel by the inflammatory process in its walls. The occurrence of acute arteritis is very rare, yet the condition is one which may be readily recognized when present, and its symptoms considerably improved by appropriate treatment. The writer has had the opportunity of operating in the last few years upon two cases in the Lahey Clinic which are the basis of this report.

The subject of localized arterial obliteration has been studied extensively by René Leriche and he and his associates have carried out a considerable research on this problem. In addition, scattered case reports and discussions have been made by Braeucker in Germany, Ryle in England, and Kramer in the United States. Leriche believes that the occlusion of an artery by an inflammatory process in its walls causes a constant source of excitation of the sympathetic nerve supply of the artery and of the arterial tree beyond. In cases of acute arteritis, therefore, certain signs and symptoms will occur which are due to the loss of blood supply and others will appear because of constant stimulation of the vasomotor sympathetic nerve fibres in the artery. Leriche says the obliterated artery ceases to be an artery, and becomes a diseased sympathetic nerve.

Acute arteritis may arise during the course of overwhelming general infections, such as septicemia or pneumonia. Its occurrence no doubt is related to a slowing of the rate of blood flow in the artery, plus the presence of numerous bacteria in the blood stream. Occasionally in such cases several arteries are involved. This type of arteritis is usually a terminal event noted in the last hours of a serious illness or at the autopsy table, and does not concern us particularly in this study.

Acute arteritis may occur, it is thought, as a localized infection in the arterial wall. Almost

always this is secondary to an infection elsewhere in the body which may be far removed from the involved artery. Thus in the first case here reported, the patient had had a persistent, severe, non specific prostatitis for many months preceding his arteritis. In other patients, infection adjacent to the involved artery, as in a septic amputation stump, has been considered as the etiologic factor.

Trauma received over an artery may well be a factor in acute arteritis and repeated case reports in the literature have associated an injury with the condition. Thus a blow on the dorsum of the foot was reported in one case, a fracture in another, and the use of crutches was noted in several other instances, including my second case. Whether the trauma produces a local injury in the arterial wall which promotes an intramural clot, or whether it merely produces an area in which local resistance to infection is reduced, is a debatable matter.

This present discussion does not include cases of chronic arterial occlusion, such as syphilitic endarteritis, arteriosclerosis and atheromatous involvement of vessels and Buerger's disease.

The symptoms of acute arteritis are slow in onset and gradually become more pronounced as the process involves more of the vessel and its branches. The patient notices first a marked weakness of the arm or leg. This becomes worse with exercise, for example, our first patient found that it was difficult for him to tie his necktie or raise a window. The extremity becomes cold and with any exercise becomes blanched. In some cases cyanosis is present in the hand or foot of the affected side and excessive sweating of the extremity may be noted.

On examination it is noted that the pulsation in the involved artery is absent. The vessel can usually be felt as a tendinous cord which is definitely tender in the early stages of the disease. Blood pressure readings show no blood pressure on the affected side and a pressure normal for the individual on the opposite side. Changes in sensation occur late in the course of the disease, and trophic ulcers that are very painful and chronic have been reported. Atrophy of the muscles of the limb is, of course, associated with long disuse and diminished blood supply of the part.

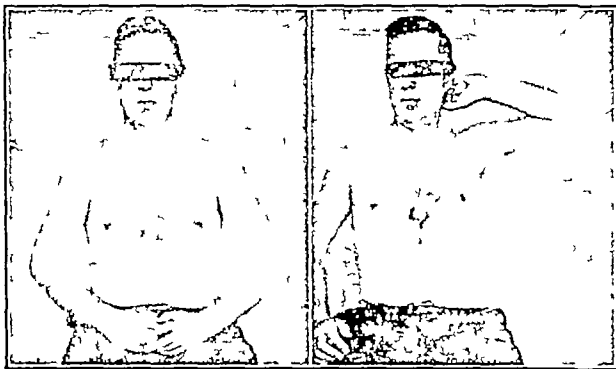
Read at the Annual Meeting of the New England Surgical Society at Manchester N. H., September 23, 1935.

†Chute, Howard M.—Professor of Surgery Boston University School of Medicine. For record and address of author see "This Week" issue, page 143.

CASE 1 Mr E. K. was first seen in March, 1928, because of a nonspecific prostatitis and urethritis. He was thirty-five years of age. He received treatment for the prostatitis at irregular intervals for three years. In April, 1931 he returned because the prostatitis was more severe, and in addition he had noted pain and distress in his left hand. His grip was weak and he could not use his hand even for such a small matter as turning a doorknob.

In August 1931 the pain in the left hand and arm grew more severe, and blanching, coldness, and occasional cyanosis of the hand were noted. The pain in the arm had progressed upward and the patient noted tenderness over the radial and brachial arteries.

Examination showed the left arm and hand to be cold, perspiring and slightly cyanotic. With any motion of the fingers blanching occurred. No radial pulse or brachial pulse was felt. The brachial artery could be palpated as a deep, swollen, tender cord. The subclavian and axillary arteries were pulsating normally. No blood pressure could be obtained on the left side. On the right it was 145/105.



CASE 1 Photographs four years after partial resection left brachial artery for acute arteritis. No radial pulse. Diminished circulation of left arm and partial disability noted with heavy work. Arteritis had extended quite high before operation.

X-rays of the cervical spine showed an area of calcification lateral to the seventh cervical vertebra on the left. The Wassermann test was negative.

Dr Arthur W. Allen of Boston kindly saw this patient in consultation with me, and first suggested the true diagnosis of acute arteritis.

On September 3, 1931 I explored the left supraclavicular area on this patient. No glands were found that could be interfering with the subclavian vessel. The scalene tendon did not seem to press unduly on the subclavian artery, but some of its fibres were cut. Recovery from this operation was uneventful but there was no improvement in the left hand or arm.

On September 9, 1931, therefore, I explored the left brachial artery. This was found to be a firm cord with no pulsation and with definite edema surrounding it. Two inches or more of the artery were removed, and about the same amount of the brachial vein. The brachial vein was apparently normal. Microscopic study of the sections by Dr. Shields Warren showed chronic periarteritis. Antemortem thrombus formed in streaming blood. Bacteriological examination showed no growth.

Within three days after this operation all prickling and burning in the left arm and hand had ceased. The unusual sweating also disappeared and the color of the extremity was good. The arm or hand could be moved for two minutes with no pain, and this ability to use the arm increased rapidly. Three

years after the operation the patient had but slight disability in his left hand or arm. He still had no pulse that could be felt in the wrist, and no blood pressure reading was audible, but otherwise examination was negative.

CASE 2 Mr I. S., aged forty-six, was first seen in September, 1934. He stated that five weeks before he had noted soreness in his right index finger and that later blanching and numbness in all his fingers on the right hand appeared. His right arm tired very rapidly with any use so that he could neither do his work nor use the crutch which he required for walking. The patient had, himself, noticed the absence of his radial pulse, and had followed the course of the ascending obliteration of this artery from day to day.

This man had had infantile paralysis when a child.



CASE 2 Six months after operation for acute arteritis. Good radial pulse. Normal use of arm. Operation done early in course of disease before process had reached high level in brachial artery.

and had a postinfantile paralysis of his right leg. He had used a single crutch for over thirty years.

On examination it was noted that the right hand and forearm were colder than the left. All motions of the joints were normal and there was no swelling. Blanching of the hand and fingers followed movements of these parts. Slight cyanosis was present when the arm was at rest. No pulse or blood pressure was noted in the right arm. The blood pressure in the left arm was 196/126. The subclavian, axillary and upper brachial artery could be felt with normal pulsations. At the junction of the upper and middle thirds of the right brachial artery, pulsation ceased and the artery could be felt as a solid, firm, tender cord below this point. Blood counts and smears were normal. A diagnosis of acute arteritis, possibly related to the trauma of his crutch, was made, and operation was advised.

On September 25, 1934 the right brachial artery was exposed for a distance of six inches. It was found to be a firm, nonpulsating cord with definite edema in its wall and in the contiguous tissues. Two inches of the artery were removed. Its lumen was filled with a thrombus.

Dr. Shields Warren's diagnosis from the specimen was as follows: Subacute periarteritis with thrombosis. Smears and cultures were negative, save for a few diphtheroids.

The day following the operation, the pain and numbness had disappeared from this man's hand. He said he could move his fingers and hand with much less distress. Improvement was rapid and continuous. A month after operation he reported that he had no further pain in the arm, and that he could use it for long periods without tiring. Four months after operation he was working again with no disability. Recent examination shows a good radial pulse in the right wrist and a normal blood pressure in the

right arm. He complained, however of a prickling and burning sensation in his hands and feet. Study showed that he was suffering from a chronic myelogenous leukemia in an acute phase. Review of the blood examination made six months before however showed a normal blood picture at the time of the onset of acute arteritis. It seems unlikely therefore that one can associate the leukemia in any way with the obliterating arteritis.

From the experience gained in these two cases, it appears that resection of part of an occluded artery as Leriche suggests has a beneficial effect both on the trophic disturbances in the limb and the establishment of a collateral circulation. Very probably the increase in the blood supply following arteriectomy is due to paralysis of the vasomotor nerves to the accessory arteries of the part. Leriche and his assistants have carried out interesting experiments to demonstrate this fact. Excellent collateral circulation usually follows the resection of major arteries in dogs, but gangrene frequently followed simple ligation of the same vessels. Leriche recommends resection of the obliterated artery for certain painful amputation stumps when the vessels were ligated in continuity, for trophic ulcers on amputation stumps and for localized arteritis and recent thrombosis in arteriosclerosis. He believes the best results occur when the entire obliterated portion of the artery can be removed. He does not recommend the procedure in Buerger's disease.

The operative procedure in each of my cases was limited to the removal of but a short piece (two inches) of the thrombosed vessel. No attempt was made to remove the entire artery and I should in the future hesitate to undertake such a procedure, first, because it does not appear necessary for good results, and, secondly because such an extensive dissection might well injure some of the collateral arteries.

The end results in the first case were not so good as in the second case. This, I believe, was due to the delay in recognition of the pathology in case 1 until the process had advanced well up the brachial artery to involve more of the main arterial trunk. Early interference in case 2 gave a better opportunity for the development of a good collateral circulation.

One must be impressed in these two cases with the apparent relation of the sympathetic nerves of a main artery to many of the symptoms and signs which follow its occlusion. In a recent case of guillotine amputation for diabetic gangrene, I had occasion to tie the common femoral artery just below Poupert's ligament for secondary hemorrhage in the infected stump. When the vessel was ligated, an inch or more of the artery was removed. This adds but a moment to the operation. Following this procedure there was no apparent interference with the blood supply of the stump, and within a few days there was frank oozing from raw tissue edges. Death occurred some weeks later

from septicæmia, but the blood supply of the stump remained good during life. It may well be desirable in the future to remove a section of the artery when ligation of a major vessel is necessary, as recommended by Leriche and others. By this, one may not only avoid the trophic disturbances that sometimes follow a simple ligation, but may also improve the collateral circulation by paralyzing the vasospastic sympathetic nerves in the main artery.

From the experience gained in these cases it appears that resection of part of an occluded arterial trunk aids the establishment of a collateral circulation and overcomes the symptoms arising from the stimulation of the sympathetic nerves of a diseased artery.

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DISCUSSION

Dr. ARTHUR W. ALLEN, Boston, Mass.: Mr. President and Gentlemen—I regret that I can add very little to this interesting but rare condition. I believe it is quite rare because I have not seen any other patient that had the diagnosis proved except this one that I was fortunate enough to see with Dr. Clute.

It seems to me that, if we were on the alert for such cases, perhaps quite a number might be detected.

I believe the logical way to look at this subject from the standpoint of etiology is that it probably is a combination of two factors, one, infection which may be slight, mild, generalized, overlooked. The other is trauma. I do not believe there was any history of trauma in this first case but sometimes trauma, even so slight that it may not be recalled, will produce something that is very like this in the veins. Such instances have occurred after the swinging of a golf club or a strenuous basketball game.

The other interesting feature about it is that it is not necessary to eradicate all of the infection. Dr. Clute has demonstrated that, by removal of a comparatively small segment of these vessels the symptoms disappear. This interests me because it shows that the method of cure must come about not through the removal of the infection but through some other channel most likely the interruption of the sympathetic nerve pathways.

There isn't the slightest question but that you can interrupt the sympathetic pathways temporarily by dividing the vessel and get a temporary boost in the peripheral circulation. This has been demonstrated in a good many instances and in a number of conditions. Sometimes this temporary boost by tying a patient over the critical period pain that has been present a long time may not return.

Dr. JOSEPH HONAN, Boston, Mass.: Dr. Clute has called attention to the fact that some of these cases are traumatic and some of them are due to infections at a distance—infection of a non-suppurative sort which affects the whole arterial wall.

I think most of Leriche's cases were frankly traumatic.

matic and many were war injuries, some quite complicated, having nerve injuries in addition. I believe, therefore, that the men who see many badly crushed limbs will see perhaps more of this lesion, if they look for it, than the rest of us.

There is one point which is perhaps a theoretical consideration only. Dr Clute is doubtless aware of the fact that sympathetic fibers do not progress along the arteries for a very great distance. But what do progress along the arteries are sensory filaments from the periphery, and although no one is sure about this, it would appear that the interruption of painful sensory impulses passing from this

inflamed area may be the factor which abolishes reflex vasomotor constriction in the extremity.

I do not think that those who have studied the subject and believe in the absence of any continuous vasomotor supply running down an artery, would agree that the mechanism of improvement from resecting an artery was what Leriche has thought it to be. But at any rate Leriche is to be thanked for calling attention to the fact that if one takes out a block of artery, one in some way often abolishes peripheral vasomotor spasm.

I think Dr Clute's experience abundantly confirms that.

HYPERGLYCEMIA AND PARESIS*

Report of Two Cases

BY L. MINOR BLACKFORD, M.D.,† AND JOHN H. VENABLE, M.D.†

SOME of the mystery surrounding diabetes, one of the oldest diseases in medical history, seemed to have been cleared up in 1857 when Claude Bernard performed his famous piqûre of the floor of the fourth ventricle. The following year Leudet found a gumma of this region in a case of symptomatic diabetes. For some forty years after this the question of the etiologic relationship of syphilis to diabetes was kept constantly alive. In 1899, Minkowski discovered almost accidentally that a pancreatectomized dog died rapidly with diabetes. With the establishment of the rôle of the insular tissue in diabetes, the possible etiologic importance of syphilis in disturbances of carbohydrate metabolism subsided to perhaps too great an extent.

In 1929, Lemann, after an exhaustive review of the literature and the study of some original cases, concluded that syphilis of the pancreas in exceedingly rare cases might result in the diabetic syndrome, though coexistent syphilis and diabetes are more often independent. Lemann assembled about a dozen cases from the literature in which it appeared that the clinical picture of diabetes was due to syphilis of the central nervous system, though only Leudet was able to offer postmortem evidence. Dickinson, in 1874, stated, "Syphilitic changes within the skull can undoubtedly be the cause of diabetes." Labbé and Touffet said, in 1923, "It is certain that temporary glycosuria caused by lesions of the nerve centers at the base of the brain—syphilitic or not—do exist, it is probable that certain cerebral lesions can produce glycosuria in relation to permanent disturbance of glyceregulation. It is not, however, demonstrated that syphilis can cause a true diabetes by producing lesions of the nerve centers. Nerv-

ous diabetes, syphilitic or not, is extremely rare."

In a recent book, Cushing pointed out that the frequent association of acromegaly with diabetes mellitus first suggested relationship between the pituitary body and carbohydrate metabolism. Later experimental and clinical studies of hypopituitarism showed a surprisingly high tolerance for sugars. He has suggested that the hypothalamic region is the point of origin of glycogenolytic responses rather than the hypophysis itself.

Byrom and Russell have reported the case of an ependymal cyst of the third ventricle associated with diabetes mellitus. While granting that it could not be unequivocally proved that the association was not a coincidence, yet in the light of the connection known to exist between hypothalamic nuclei and the sympathetic nervous system, they suggested that "chronic irritation of the gray matter of that region may have caused a sympathetic hyperglycemia of sufficient degree and duration to initiate progressive diabetes mellitus in a patient congenitally predisposed to the disease."

Bagley has reported a case in which with the electrosurgical unit he removed a meningioma growing from the dura at the foramen magnum and projecting into the fourth ventricle. The patient had been treated for diabetes before the diagnosis of brain tumor was made. In the first few postoperative days, among other manifestations his blood sugar ranged as high as 273 mg per 100 cc of blood. "From about the tenth day there was rapid improvement and he has continued to do well with no glycosuria or other evidence of diabetes."

The presence of hyperglycemia and glycosuria in the presence of subarachnoid hemorrhage has been commented on frequently.

These references suffice to establish that disturbances of the base of the brain can cause increase in blood sugar. In spite of the paucity of pathologic data, it may be assumed that late

*From the Emory University School of Medicine and the Grady Hospital, Atlanta, Georgia.

†Blackford, L. Minor—Instructor in Medicine, Emory University. Venable, John H.—Assistant Professor of Anatomy, Emory University School of Medicine. For records and addresses of authors see "This Week's Issue," page 163.

syphilis of the central nervous system can affect the same basal nuclei.

REPORT OF CASES

CASE 1—**M. S.**, an illiterate colored woman aged forty-seven, was brought into the hospital in a convulsive state the night of May 1 1932. Her relatives said that she had had severe headaches for many years, that she had been feeling badly for some weeks, with shortness of breath, cough and retrosternal pain on exertion. Four hours before admission she had started to build a fire when her hands began to tremble and jerk. A few seconds later she was seized with a generalized convulsion and there had been some bleeding from the mouth she had had repeated convulsions since.

The pupils reacted sluggishly to light and the patellar reflexes were hyperactive. Catheterized urine on admission showed 4 plus sugar with acetone and diacetic acid. Blood sugar was 377 mg per 100 cc. She was thought to be in a diabetic crisis of some sort and was treated accordingly. Within twenty-four hours the urinalysis was negative and blood sugar within normal limits. Spinal fluid taken on admission gave a strongly positive Wassermann reaction (an increase (2 plus) in globulin and a paretic curve with 50 cells). The Wassermann reaction of the blood was strongly positive then and it remained so during the rest of the time that she was under observation.

Antisyphilitic treatment with bismuth and potassium iodide was begun May 27 and continued at her convenience for seventeen months. There was prompt and marked subjective improvement, with gain in weight and the headache cleared up. July 14 1933 she was brought to the clinic irrational and was admitted to the hospital. Hemiplegia on the left rapidly cleared up and she was dismissed in a few days.

She had many urinalyses after her first admission and none, after May 27 1932, showed the presence of sugar. Her highest fasting blood sugar was 140. She restricted the carbohydrates of her diet. The patient did not return for further antisyphilitic treatment after Nov 3 1933. One of us saw her from time to time during the following year and it appeared that there was further disintegration of what intelligence she had and that she continued to have occasional convulsions sometimes with transient paralysis.

She had been married thirty-two years and stated that her nine living children represented all of her pregnancies. Two of these however had treatment for syphilis in early childhood.

CASE 2—**F. W.**, another illiterate colored woman about the same age as Case 1 was admitted to the hospital Aug 21 1930 in a convulsive state. Her sister stated that she had seemed all right when she returned from work at 7 P.M. She went to bed promptly but about three hours later was seized with a convulsion. After several convulsions they called the ambulance. Further inquiry revealed that she had been noticeably irritable for many months and had often walked around aimlessly much of the day. She had always been very fond of sweets but there had been no increased thirst. Urinalysis on admission was reported "sugar 4 plus, diacetic acid and acetone 2 plus." Many subsequent urinalyses were negative. Her blood sugar on admission was 250 mg. per 100 cc. Insulin in large amounts was administered and she regained consciousness within a few hours. The Wassermann reaction of the blood on the first admission was reported negative. It was noted, however that the pupils react very little to light."

She was admitted to the hospital a second time a year later on account of vague pains in back and hips. At that time blood sugar was 100 mg.

In January 1933 the presence of Argyll Robertson pupils and of markedly hyperactive knee jerks evidenced syphilis of the central nervous system. The Wassermann reaction of the blood then and on two subsequent occasions was strongly positive. The spinal fluid also gave a positive reaction as well as a paretic curve. After a few injections of bismuth she volunteered that her head no longer ached.

On Feb 10 1933 a dextrose tolerance test was done with the following result

Fasting blood sugar 10 a. m.	83 mg
Dextrose administered	
Blood sugar at 10 30 a.m.	142
at 11	323
at noon	275
at 1 p.m.	300

She discontinued treatment after the eighth dose of bismuth on February 23. A few weeks later she skinned her shin and an ugly ulcer developed. She returned to the dispensary on April 14 and received another dose of bismuth and a bottle of potassium iodide. The ulcer promptly healed. In the summer she reported for seven additional injections of bismuth but then the treatment was interrupted when she broke her left humerus. The bone knit uneventfully and she returned for her sixteenth dose of bismuth on Dec 5 1933. We were unable to get in contact with her again.

She died on Sept. 2 1934. According to her sister her appetite remained excellent to the end and she had grown very fat at the time of her sudden death the result of a "stroke."

DISCUSSION

The case reports are submitted not without trepidation. It is to our infinite regret that we could not secure greater coöperation from the patients or their relatives. Since one was buried before we knew of her death and the other has been lost for more than a year, pathologic study is obviously impossible. Both women were admitted to the hospital at night and the house officers, confronted with a grave emergency, can perhaps be excused for considering the hyperglycemia of diabetic origin.

When M. S. was referred to the Special Syphilis Clinic with the diagnosis of paresis and diabetes, the diagnoses were accepted without question. When eight months later F. W. was first seen in the dispensary, the evidence of syphilis of the central nervous system made her case so similar to that of M. S. that the possibility of the hyperglycemia being of syphilitic origin in both patients occurred to us.

In the first place, convulsions can only be explained in relation to diabetes on a basis of an overdose of insulin. Neither patient had ever had insulin at the time of her first convulsion. Convulsions are not infrequent in paresis, and the headaches, disorientation, and at times marked euphoria are, especially in view of the spinal fluid reports, pathognomonic of dementia paralytica. We know, therefore, in spite of the absence of necropsies that in both cases there

was extensive destruction of the brain substance it is not unreasonable to assume that the vital basal structures were damaged

The evidence against the presence of diabetes mellitus independent of the syphilis in the first case is not conclusive. We regret that a dextrose tolerance was not done either time she was in the hospital (indeed we thought it had been it was requested) and that her poor cooperation precluded its being done later. Several times her blood sugar was but slightly above normal, and urinalysis was repeatedly negative for sugar. In view of her own irresponsible state and the apathy and ignorance of her family, we doubt that dietary measures could have so well controlled true diabetes.

In the second case paresis seems to us an adequate explanation of the whole picture. F. W. exhibited glycosuria only when in a convulsive state, and in spite of excessive indulgence in sweets, she gained weight steadily until the

time of her death. Her sugar tolerance curve, though high, is in keeping with that reported from time to time in cases of cerebral lesions.

SUMMARY

Clinical reports of two cases of dementia paralytica in which hyperglycemia was noted are submitted. In one we feel that the hyperglycemia was surely secondary to syphilis of the basal nuclei, in the other we consider this probable. If diabetes were present in either case, it was of a benign type and caused little or no trouble.

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THE AMERICAN NEISSERIAN MEDICAL SOCIETY*

Presidential Address

BY J. DELLINGER BARNEY, M.D.†

GONORRHEA is as old as history. It was described, and means for its sanitary control laid down, by Moses as recorded in the Fifteenth Chapter of Leviticus. Hippocrates called it strangury. To Galen, about 500 A.D., goes the credit for the misnomer, gonorrhea, by which it is still known today. The gonococcus was identified by Neisser sixty-five years ago.

In spite of the disabilities it has caused and the damage it has done since the beginning of time, so little has been accomplished in the direction of its control that it remains, as it has always been, among the most prevalent of all communicable diseases.

The United States Public Health Service¹ has determined after an elaborate survey of twenty-six millions of people, that nearly seven hundred thousand persons in this country apply annually for treatment of acute gonorrhea. "This estimate," says the report, "is obviously a minimum, because at least half the infected individuals fail to seek treatment until after their infections reach the late or chronic stages, and there is an unknown, but large group of individuals who never seek authorized medical care." It is perhaps safe to assume that nearly two million infections with gonorrhea occur annually in the United States.

Reports of the Massachusetts Department of Public Health indicate that in the female a diagnosis of gonorrhea is much more often

missed than made, that at least ten per cent of all infections in the female are in girls ranging from infancy to fourteen years of age, that twenty per cent occur in the fifteen to nineteen year age group, and that more than seventy-five per cent of all infections in the female are in girls and women under thirty years of age.

These reports indicate, further, that sixty-five per cent of the gonococcal infections in the male are in boys and men under thirty years of age, that the peak of prevalence is in the early twenties, and that more than half the infections in adult women have been incurred by marriage to uncured males.

Thus the story of gonorrhea is tragedy. It is the tragedy of public ignorance and a deplorable lack of professional interest in the control of this disease. In his metamorphosis from man to physician, the doctor has emerged retaining still the man's conception of gonorrhea as a "venereal disease", to be found only in those who, deserving their infections, are entitled to little sympathy and less medical consideration.

When the medical profession becomes properly conscious of the prevalence of gonorrhea and of the damage which it has wrought in countless women who are not prostitutes, something may be done for the control of the disease in the male. When the health officer and the physician join in telling people the truth about gonorrhea, there may be created a public demand for the better management of existing infections and for the more effective prevention of new ones. I feel confident that we shall find

*Delivered at the First Annual Meeting of the Society Atlantic City, N. J., June 12, 1935.

†Barney J. Dellinger—Chief of Service, Urological Department, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 163.

as time goes on that we can count upon an increasing coöperation of women doctors in the cure of this disease among patients of their own sex.

In November of this year, five years will have passed since the organization of the Massachusetts Neisserian Medical Society. Some forty or fifty physicians, interested in the more intensive study of gonorrhea, were at that time called together by the Massachusetts Department of Public Health to consider certain "Minimum Standards for the Diagnosis, Treatment and Control of Gonorrhea." The four hours of discussion which ensued that meeting so inspired the group that it agreed as a unit to the proposal that a society be formed which might serve as an authoritative source of information and assistance to the medical profession in the management of gonorrhea. The proposal was offered with the argument that it is a major duty of the specialist to give to the whole medical profession the benefit of his larger experience in this field.

For two years the Massachusetts Neisserian Medical Society groped about, trying to decide what to do. It was addressed by excellent speakers. Discussions often became almost acrimonious, but they served only to expose a wide disagreement not only among physicians from outside the State but among those who met regularly in the same clinics and hospitals. Obviously but little assistance could be offered to the inexperienced by a group in which there was so little apparent unanimity.

Eventually certain of the Society's officers, impatient with the confusion and uncertainty of purpose, proposed the appointment of a Planning Board which would prepare an orderly course of action. The Society became suddenly unanimous and such a board was appointed. Thus was begun a study within the Society itself, of its own conception of gonorrhea and its management.

By the questionnaire method each member was quizzed in minute detail as to his use and opinion of the various laboratory procedures which are available in the diagnosis of the disease. There was encouraging agreement over some procedures, but complete and often disconcerting disagreement over others. The Society met to consider all the answers. A paper was prepared which was a sincere attempt to evaluate laboratory procedures, frankly casting into "outer darkness" those which seemed worthless, giving proper weight to those which seemed useful and reemphasizing the too often forgotten fact that the best of them are, after all only aids to diagnosis. This paper was published as the product not of an individual but of the Society in *The New England Journal of Medicine*, its official organ. Reprints were mailed not only to the six thousand physicians in Massa-

chusetts, but also to every judge and district attorney in the State.

Subsequently, in the same manner, the Society has studied the clinical diagnosis of gonorrhea in both male and female, and it is now attempting to discover how its members actually treat gonorrhea, and why certain therapeutic measures are better than others.

This involved some hard work. It has been participated in by most of the eighty or more members of the Society. Meetings have been devoted solely to the serious study of gonorrhea. The large attendance has been encouraging evidence of a desire to learn and to be helpful. It has been discovered that there is much to be done in the way of "debunking" the management of gonorrhea that traditional procedures may have no value in fact, that the pet methods of one physician may not be in favor with another, and that the gaps in our knowledge are appalling. However, the Society has been able to say to the physicians of Massachusetts "Out of all the chaos, we offer you this as a reasonably sound base line, as determined by our combined experiences."

One year ago this month, at Cleveland, the American Neisserian Medical Society was organized. Today it boasts 173 members from twenty eight states, Porto Rico, and Canada. The very fact that such an association as this could have been organized for the study and improvement of the management of a disease which has been left too long to the ministrations of the quack and of the incompetent, is evidence that the physicians of the Americas have decided that something must be done about gonorrhea, the "stepchild" of medicine.

It now behooves us to think seriously and to plan wisely what we are to do. If we are to become only a society of listeners, before which individual physicians with pet theories to expound may read their papers, we might as well desist before we begin. If we are to take at their face value the objects of the Society as set forth in its Constitution, if we honestly and vigorously pursue the study of gonorrhea as a prevalent disease, as a long neglected and serious public health problem and as a social disgrace, there is hope that we may arrive somewhere.

There is need for dissemination of information among all practitioners of medicine as to the size and nature of the problem which we face. As a Society, how much do we ourselves know at the present moment, of the epidemiology of gonorrhea? How may we contribute to a more exact evaluation of the job we plan to undertake? If we are to teach, must we not know better than anyone else the things we wish to teach?

It should be our aim to lift the management of gonorrhea to the highest scientific and ethical plane. How can we improve unless we know what needs improvement? There is room

for the development of more helpful laboratory procedures. What do we really know about the gonococcus or the value or the shortcomings of existing laboratory aids to diagnosis, or of the pathology of gonorrhea?

The therapeutic armamentarium is a hodgepodge of whatever the drug houses happen to be exploiting at the moment. The very number of drugs in use bespeaks their inadequacy. Who is there who can say that a given urethral irrigant should be used at a certain strength and at a correct temperature and why? There will be a hundred others to "prove" that a hundred other strengths and temperatures are better. Are we to turn one ear to those who cry, while tradition echoes the refrain, "No meat, no spice, no fizzy drinks," and the other to those who deny the patient only alcohol, or shall we determine once and for all, on the basis of careful and thorough scientific study, the exact relationship of diet to the management of gonorrhea?

So on, ad infinitum, until we have called the roll of epidemiology, bacteriology, pathology, immunology, diagnosis, treatment, criteria of cure, education of the medical profession, in-

formation of the public, prophylaxis and preventive social hygiene.

What a vast field this Society looks out upon today! How full it is of the weeds and brambles of tradition, of prejudiced opinion, of unscientific lack of method, of ignorance and of prudery! Shall we burn it over, plow it under, till it well and sow the seed of scientific study in straight rows for a harvest of gonorrhea under control? If we do, this day will live long in medical and social history.

Let us look then to our membership, that while it shall include all those who are qualified, we keep the qualifications high. Let us include and call into consultation the epidemiologist, the bacteriologist, the pathologist, the educator, and the social hygienist. Let us do that kind of work which will attract the financial aid we shall need. Let us think seriously and plan wisely and then go to work. Tennyson voiced our attitude in his line,

"Ring out the false, ring in the true."

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COSTOVERTEBRAL STRAIN*

BY LLOYD T. BROWN, M.D.†

STRAIN of a joint occurs only when that joint has for some cause or other been moved beyond the limits of its motion. Such a strain causes injury to the ligaments or capsule with its accompanying inflammation or swelling. If such a joint is so situated that it is in close approximation to or even partly surrounded by bony walls, swelling or inflammation will of necessity cause pressure on any structures which may be within those walls. The costovertebral joints are so placed that if there should be a strain it would be possible for pressure to come on the nerves and blood vessels which are in the intervertebral foramen as well as on the nerves after they have left the foramen on their way to the inferior surface of the ribs.

From the point of view of the mechanics of the costovertebral region it is of importance to note that there are great variations in the shape of the ribs, the vertebrae and the transverse processes in different individuals at the same vertebral level. There are also great variations in different parts of the spine in the same individual.

There are two articulations of the rib with the vertebra (fig 1), one with the vertebral

body or bodies, and one with the transverse process. Above the tenth dorsal vertebra the

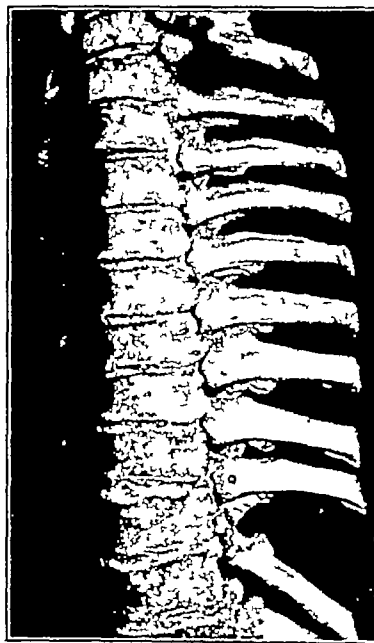


FIG 1. A dorsal spine showing marked hypertrophic changes. Note that the articulation of the ribs crosses the intervertebral fibrocartilage.

*Read at the meeting of the American Academy of Orthopaedic Surgeons, January 15, 1935.

†Brown, Lloyd T.—Orthopedic Surgeon, Faulkner Hospital. For record and address of author see *This Week's Issue*, page 163.

articulation with the vertebral body crosses the intervertebral fibrocartilage and has its joint attached to the upper margin of one vertebral

body, and to the lower margin of the body above. Both the vertebral and the costotransverse process articulations are gliding or arthrodial joints. The articular capsule of the former is composed of short strong fibres holding the head of the rib to the vertebral bodies and intervertebral fibrocartilage (fig 2). This cap-

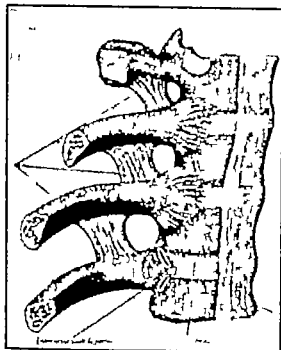


FIG 2. Ligaments of the costovertebral joints. From Gray Anatomy 2nd edition, p. 298

sule is reinforced by the radiate ligament which digitates with the anterior surface of the vertebral bodies compressing the joint and the fibrocartilage. Within the joint is found the interarticular ligament which attaches the intervertebral fibrocartilage to the head of the rib. The articulation with the transverse process, usually absent in the last two ribs, varies somewhat in its position depending upon the particular anatomic structure of the individual and on the region involved. In the slender type the articulation will more commonly be found upon the anterior aspect of the transverse process while in the heavy type of anatomic structure it will more commonly be found on the superior aspect. In some individuals (fig 3) the transverse ar-

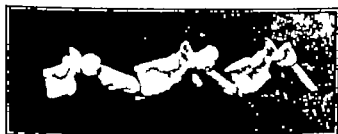


FIG 3. Shows the variations of the position and shape of the articular facets on the transverse processes.

tication will be on the anterior aspect and at other levels it will be on the superior or even the lateral aspect. The shape of the facets on the transverse process will vary from the flat to the cup shaped or crescentic. They may face anteriorly or diagonally upward and forward, or outward, and downward at some levels. Upon the position of the facets will depend the shape of the chest when the body is in the relaxed position or that of faulty body mechanics. For

example (fig 4), if the articulation is on the anterior aspect the whole chest or rib cage can droop downward so that the ribs are nearly vertical, making the chest very long and narrow with a narrow subcostal angle. This type of chest is commonly seen in the slender anatomic

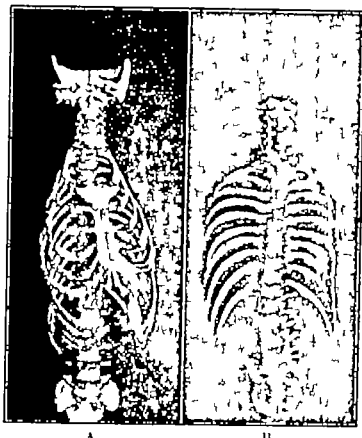


FIG 4. Anterior view of the chest.
A. The drooped long chest commonly seen in this slender type of anatomy. Note that the first rib is nearly vertical and its superior surface is facing anteriorly.
B. The rounded chest commonly seen in the heavy type. Note that the first rib is nearly horizontal.

type. If the articulation (fig 5) is on the superior surface as is commonly found in the heavy structure the chest as a whole cannot sag downward nearly so much, the ribs do not become so vertical, the subcostal angle does not become acute and the chest is never so long as is found in the slender type. Nevertheless in

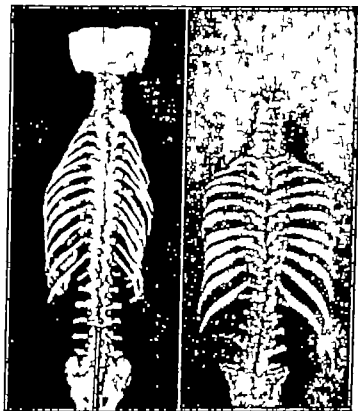


FIG 5. Posterior view of same chests

either type if the costovertebral joints are used in a position at the extreme of their motion, strain with the accompanying symptoms is equally possible

The articular capsule holding the tubercle of the rib to the transverse process (fig 6) is thin

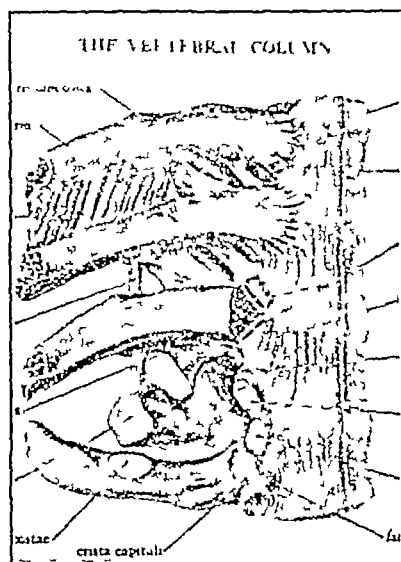


FIG 6 Ligaments attaching the rib to the transverse process
From Warren's Handbook of Anatomy, p 116

and entirely different in character from that at the articulation with the vertebral body. There are several ligaments which strengthen this articulation, the anterior transverse going from the neck of the rib below to the transverse process above, a ligament which could mechanically be strained very easily, the posterior transverse, similar in location but feebler and posterior to the anterior costotransverse ligament, and the middle costotransverse ligament attaching the neck of the rib to the adjacent transverse process and the ligament of the tubercle of the rib.

The ribs are so firmly attached to the vertebral bodies that extensive movements do not occur under ordinary circumstances. In respiration only a slight gliding motion occurs. With more forceful respiration or in muscular effort involving the abdominal musculature a torsion movement of the ribs takes place with the axis of motion along or just internal to the neck of the rib. With the body held in the drooped position so that the chest is in a position of nearly complete expiration there must be a considerable strain not only on the costovertebral joint because of the leverage action of the rib on the transverse process which acts as a fulcrum but also a strain on the costotransverse joint as well (fig 7). This can be demonstrated in the x-ray by evidences of hypertrophic changes along the margins of this joint. Similar changes can be seen at the costovertebral joints as well. When such changes are present there must be limitation of the motion of these joints and this

limitation, combined with the drooped position of the chest, constitutes a still greater potential of strain if there is any extra exertion or sudden unguarded movement.

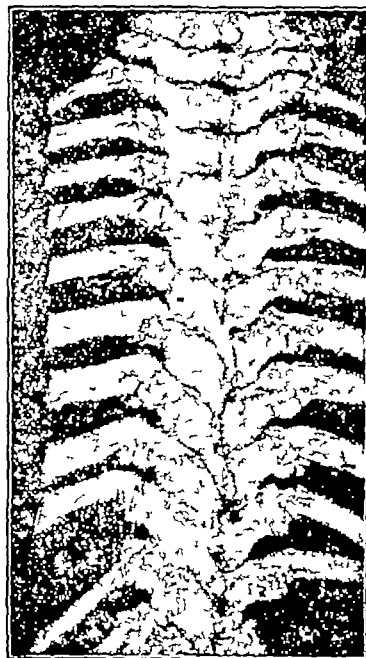


FIG 7 Posterior view of costotransverse joints showing marked hypertrophic changes as evidence of strain (A) See also fig 1

It is important to understand the anatomy of these joints and the structures in their immediate vicinity in order to appreciate the possible symptomatology caused by a strain in this

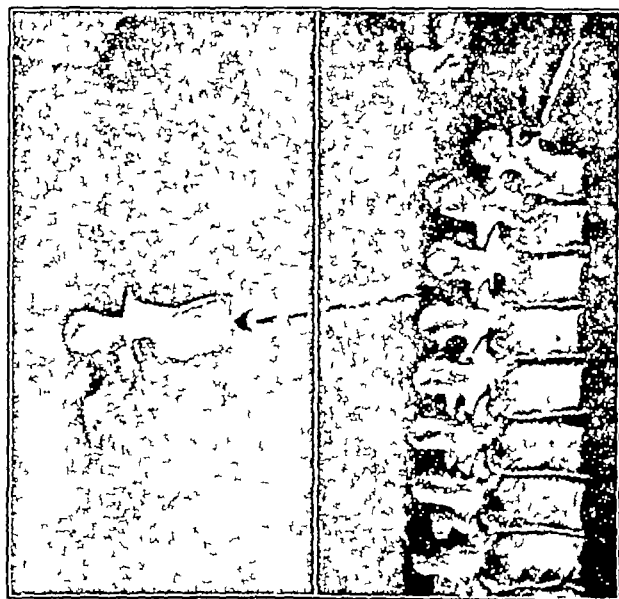


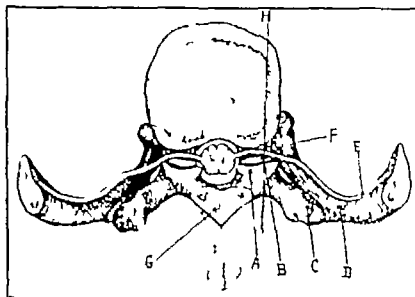
FIG 8 Shows hypertrophic changes in the intervertebral foramen with a consequent narrowing of the size of the foramen.

region. The articular processes of the dorsal vertebrae form the posterior border of the intervertebral foramina. Therefore strain of these

joints may cause inflammation of the ligaments or capsule which will in turn cause pressure on the artery, veins, or nerves which are normally in the foramen. Fortunately the foramen is very large so there is usually more than enough room. Anatomical specimens (fig 8), however, show frequent evidence of hypertrophic changes along the margins of these joints which must narrow the foramen. As the nerve (fig 9) leaves the

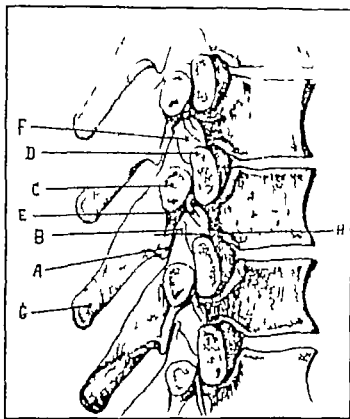
slight pressure over a long period of time may cause interference with the blood supply or the nerves which come out in that region. Such an understanding makes it possible to see why surgeons like the late Dr. Carnett felt that a great many of the obscure thoracic and abdominal symptoms for which there seemed to be no local or visceral pathology could be explained by pressure on the nerve roots. It also makes it

DIAGRAMMATIC SECTIONS OF COSTOVERTEBRAL JOINTS AND INTERVERTEBRAL FORAMINA
(Drawn from frozen sections.)



Viewed from Below

- A. Inferior articular process, 5th dorsal
- B. Superior articular process, 6th dorsal
- C. Transverse process
- D. Rib
- E. Intercostal nerve
- F. Intervertebral foramen
- G. Spinous process
- H. Line of section



Lateral View

FIG. 9 Schematic drawing taken from a series of frozen sections showing the proximity of the nerve root to the articular facets. The possibility of pressure if there is strain or hypertrophic changes not only in the foramen but in the region of the costovertebral joint is evident.

intervertebral foramen it goes outward and upward in close proximity to the capsule and the tip of the articular process, so close in fact that it is hard to understand why there are not more symptoms than are commonly found. From this point the nerve continues outward and upward along the neck of the rib close to the costovertebral joint of the rib above where it finally enters the groove on the under side of the rib.

When it is seen how close to the bone the nerve is and how taut the ligaments and capsule of the joints must be in the drooped position, it is possible to understand how the torsion of the ribs in faulty body mechanics may cause acute strain on these nerves, or how a

possible to understand why these obscure symptoms disappear with the correction of the faulty body mechanics. Reasoning on this same basis we may have a very strong contributory cause for such obscure conditions as shingles, intercostal neuralgia and pleuritic pains not of pleural origin.

In conclusion, we feel that there is sufficient anatomical and clinical evidence to show that in the drooped position of the thorax seen in faulty body mechanics, it is possible to get pressure or stretching of the intercostal nerves with radiating pain along the nerves involved. This pressure may come from acute or chronic inflammation due to strain of the costovertebral or the costovertebral joints.

TWO CASES OF DWARFISM*

BY HAROLD L HIGGINS, M D †

CASE 1

THIS patient is a young woman, twenty one years old. She is a cretin who has received practically no thyroid gland therapy. She is one of a family containing several children. There is no family history of thyroid disturbance or cretinism. At the age of eleven she was admitted to the Massachusetts General Hospital because of trouble with her teeth. At that time the child was given thyroid gland for a few weeks, but it was discontinued when she went home. Six months ago, at the age of twenty-one, she was again brought to the hospital because of trouble with her teeth. Again she was put on thyroid treatment and observed for a period of four weeks. On discharge home, again the patient was taken off thyroid and has received none since. Apparently the thyroid was discontinued in each case because the mother thought that the child did not react well to the medicine.

Cretins seem to see only the happy side of life. They smile and, with their poor insight, fail to have troubles and worries. Giving them thyroid gland is like opening up Pandora's Box. They begin to

realize trouble as well as to show improvement in intelligence and ability. This mother preferred that the child remain a contented baby for twenty-one years rather than be a somewhat irritable, discontented child.

With the patient at her age and her present mental capacity, full doses of thyroid gland—i.e., sufficient to cause a normal basal metabolism—would lead to a marked emotional upset and would make the child almost intractable at home. My recommendation now on this case would be the giving of approximately one seventh of the usual dose of thyroid gland for the present. That would tend to overcome her myxedema, relieve her constipation and produce a better proportioned child, but not so irritable a child as if the full dose were given. The probable full dose to overcome all signs of hypothyroidism would be approximately $1\frac{1}{2}$ grains of Armour's Thyroid daily. The optimum dose could be assayed by following her basal metabolism. One seventh of the usual dose, thus, would be $1\frac{1}{2}$ grains once a week.

The word "cretin" etymologically means "dwarf". This child is certainly a dwarf, her height being forty one and one-fourth inches instead of the normal of about sixty three.

In making a diagnosis of cretinism in the Children's Clinic at the Massachusetts General Hospital, we use the form which follows, the findings with

*These cases were demonstrated at the meeting of the New England Pediatric Society March 22 1935

†Higgins Harold L.—Chief of Children's Medical Service, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 163

CHARACTERISTIC SIGNS AND SYMPTOMS

	Before Treatment	After 4 Weeks' Treatment
Dwarfed	+ $41\frac{1}{4}$ inches	+ No Change
Center of body higher than usual	+ At umbilicus	+ " "
Extremities—short.	+ "	+ " "
Square hands. Short fingers	+ "	+ " "
Delayed dentition	+ 10 years	+ " "
Delayed calcification of bones of wrist.	+ 6 years	+ " "
Delayed closure of fontanelles	+ Ant. Font. Open	+ " "
Doughy, gelatinous, pale to yellow skin (Myxedema)	+ "	o Lost 8 lbs. in wt.
Dry skin, scaly, no perspiration	+ "	o
Puffy face, thick eyelids	+ "	+ No Change
Depressed nasal bridge	+ "	+ " "
Coarse, sparse, dry hair	+ "	? Change
Sparse eyebrows	o	o No Change
No pubic or axillary hair	+ "	+ " "
Tongue—thickened and enlarged	+ "	o
Mucous membranes thickened	+ "	o
Lips thick and prominent	+ "	o
Neck—pads of fat	+ "	Disappearing
Heart—rate slow	+ "	+ Rate faster
Abdomen—protruding (lordotic posture)	+ $30\frac{1}{4}$ inches	Less $26\frac{1}{2}$ inches
Umbilical hernia	?	? No Change
Tendency to constipation.	+ "	? "
Speech—delayed	+ "	+ No Change
Voice—deep and coarse	+ "	o Higher pitched
Grunts	+ "	+ Less
Voluntary motions—slow	+ "	+ " "
Walking—delayed, unsteady	+ "	? Change
Expression—apathetic, complacent	+ "	Less
Occasionally anxious	+ "	+ No Change
Intelligence—backward mentally	+ Mental age 20 mos	+ " "
Disposition—happy but no insight	+ "	o Irritable
Memory poor	+ "	+ No Change
Easily guided (no negativism)	+ "	Not cooperative
Not easily taught	+ "	+ No Change
Body temperature subnormal	o 99°	o " "
Basal metabolism subnormal	+ -26%	o $+12\%$
Anemia—secondary	o	o
Blood cholesterol—high	+ 587 mg	o 250 mg

this patient before and after thyroid therapy are included.

We mark positive findings of cretinism "+" and those absent with a "o". After the examination we then evaluate the symptoms to decide as to whether the child is a cretin. In this case nearly all the signs and symptoms are present. Some of them however had disappeared after four weeks treatment with thyroid gland.

Many cretins will show as few as one-half of the signs and symptoms listed. After treatment with thyroid gland, one is often unable to tell whether the child is a cretin. In treated cases not previously seen the only method of diagnosis is to discontinue the thyroid gland for six to eight weeks and observe whether the signs and symptoms recur. We make it a rule to have a photograph of our patients before thyroid is administered. In this way we can always refer back to the appearance of the child if a question arises as to diagnosis after the treatment with thyroid has begun. In demonstrating the present patient her size and slow motions are unusually characteristic. This patient's smile is what one would expect to see in a slow motion moving picture.

It frequently happens that the question is raised whether a child is a cretin or a mongol. The differential diagnosis should present no difficulty if one evaluates the case from the differential characteristics given below.

POINTS IN THE
DIFFERENTIAL DIAGNOSIS
BETWEEN

CRETINS

MONGOLS

	CRETINS	MONGOLS
Condition apparent	3-5 months of age	At birth
Height	Dwarfs	Normal
Body proportions	Short extremities	Normal
Hands and feet	Square short	Short thick curved in little finger bifid tendency in hands and feet
Closure of fontanelle	Greatly delayed	Some delay (? rickets)
Teeth	Delayed eruption	Possible delay in eruption Peg-shaped teeth
Joints	Normal	Extremely flexible
Skin	Dry doughy thick myxedematous	Soft shiny smooth frequently chapped
Color of face	Pale yellow	Red as if painted
Perspiration	Lessened or absent	Normal
Hair	Sparse thick brittle	Fine soft scanty
Eyelids	Pseudo-edematous thick narrow slit	Slit turned up and out epicanthic fold present
Nose	Bridge depressed mucous membrane thick	Wide depressed bridge button like end
Mouth	Thick lips large tongue	Normal size fissured tongue usually protruding and with small tip
Expression	Apathetic or anxious forehead wrinkled face puffy and full	Cheerful comic or stupid
Heart	Slow rate	Frequently congenital malformation
Speech	Delayed deep bass voice	Delayed difficulty in pronouncing cer- tain letters
Effect of Thyroid Therapy	Rapid improvement of all symptoms	Improvement of constipation hernia, and dentition only
Infections	Usually normal resistance	Very susceptible to and with poor re- sistance to disease
Prognosis as to intelligence	Improvement with early and contin- ued treatment with thyroid gland	I Q almost never above 65 intelli- gence probably not affected by thy- roid gland therapy

CASE 2

Male child Age one year six months nine days
P H. Mother is said to have been shocked by light-
ning two months before the baby was born.

P H. Father mother and three siblings are well and
of normal development.

Birth was normal at term weight 3 lbs 7 oz.
He was not breast fed on account of his moth-
er's illness. He was fed on "Lactogen" during
the first few months of life. Cod liver oil and
orange juice were given. Later other food was
given to him. He was being fed at the time of
admission to the hospital, Grade A milk 4 oz. at
a time, five or six times a day. He also had oat
meal tomatoes potatoes and cod liver oil.

His appetite has always been poor. He has one
to two stools daily which are not unusual. He
never has had diarrhea or digestive disorder.

He had pneumonia at two months.

He will stand with support.

He says papa and mama.

P I. The patient was brought to the hospital be-
cause he did not develop physically as did his
brothers and sisters. One physician had said
he had "water on the brain".

This patient is a dwarf—a symmetrical dwarf. His
size at the present time is that of a child of six
months whereas his chronological age is eighteen
months. The child was small when he was born. He

might have been called a premature baby, but such is hardly the case since he was born at term. He was just a small baby. It is observed that the small babies, whether dwarf as this child or one of twins



Photograph shows patient at the age of twenty-three months beside a boy of normal size age twenty five months

or triplets, tend to do better nutritionally than do premature infants of the same size. They eat and utilize their food better. This child, on growing

up, will become a midget such as we see on the stage

	Patient	Normal
Weight	10 lbs	24½ lbs
Height	25¾ in	31¼ in
Head	16¼ in	18½ in.
Chest	14½ in	18½ in
Abdomen	12¾ in	17 in
Basal metabolism	322 Cal	For age 575 Cal For ht 364 Cal. For wt 230 Cal

Mental tests show this patient mentally to be little better than the twelve-months level. Pituitary dwarfs or midgets ordinarily are approximately normal mentally.

The cause of his small size is probably some deficiency in the pituitary gland. He is smaller and younger than are most pituitary dwarfs when first diagnosed. The problem arises—what should we do about treatment? Treatment, if attempted at all, would be by a pituitary gland preparation. Does one want him to grow up or does one want him to remain a midget? If one could get him to grow faster, he probably would not grow sufficiently to become a normal size, but he might no longer be a midget and thus lack the earning power of that group on the stage.

We have been injecting every other day 2 cc Anterior Pituitary Extract, Squibb's, hypodermically. Up to six weeks we were not able to notice any definite spurt of growth from this treatment. In giving this treatment, one has a bit of hesitancy. The preparations of growth hormone alone are reported not to have much potency. In taking the whole anterior pituitary extract one is also giving a sex hormone and there is a question of possible premature closure of the epiphyses and perhaps a result opposite to that one would try to get. Dr Hoskins advised going ahead and trying for any growth value that could be obtained from this pituitary product we have been using.

In passing we might mention the almost complete absence of nasal sinuses in pituitary dwarfs, with the prevalence of upper respiratory infections in New England, the pituitary dwarf seems to have something to be thankful for.

THE THERAPEUTIC VALUE OF CALCIUM SALTS IN SERUM SICKNESS*

BY THEODORE J. CURPHEY, M.D.,† AND SAUL SOLOMON, M.D.†

CALCIUM salts have long occupied a place in the symptomatic treatment of serum sickness. The literature, however, contains few reported investigations as to their therapeutic value and even these reports are inconclusive because the results were estimated largely on subjective criteria. Moreover, apparently none of these studies have included observations on a parallel group of untreated cases studied un-

der similar circumstances and at the same time. Because of this lack of controlled investigation, inconclusive evidence and conflicting results, a carefully planned study to determine the value of calcium therapy in serum sickness seemed desirable.

An opportunity to make such a study arose in connection with an investigation into the therapeutic value of certain antipneumococcus sera conducted on the Wards of the Fourth Medical Division of Bellevue Hospital during the season 1933-34, and through the courtesy of Dr. Alexander Lambert and Dr. Charles Nam-

*From the Fourth Medical Division, Bellevue Hospital. Dr. Charles Nammack, Director.

†Curphey, Theodore J.—Assistant Professor of Pathology, New York University and Bellevue Medical College. Solomon, Saul—Clinical Assistant, Fourth Medical Division, Bellevue Hospital, New York City. For records and addresses of authors see This Week's Issue, page 163.

METHODS OF OBSERVATION

A series of patients suffering from pneumococcus lobar pneumonia was treated intramuscularly with unrefined antipneumococcus horse serum prepared by a modified method¹. These patients were tested for sensitivity to normal horse serum, and none are included in this report who showed positive skin or conjunctival reactions prior to serum administration. Of these serum treated patients, those who developed serum sickness were divided into two groups (a) those receiving calcium along with other symptomatic treatment, (b) those given the same symptomatic treatment but without calcium, alternate cases being chosen in the order of their development of serum sickness. The control cases received treatment as follows: adrenalin M. X subcutaneously prn, ephedrine gr. $\frac{3}{4}$ t.i.d. by mouth, calamine lotion with phenol locally and sedatives as required. No special diet was prescribed. The cases treated with calcium received in addition to the above, varying doses of calcium gluconate. Thus, as soon as the patient developed a rash, the alternate patient was given 10 or 20 cc. of 20

per cent calcium gluconate (Sandoz)* intravenously and supplemented by 10 cc. of 10 per cent calcium gluconate intramuscularly, followed every twelve hours by 10 cc. of 10 per cent calcium gluconate intramuscularly until the rash or other symptoms subsided. In the administration of the drug, the solution for intravenous injection was warmed to body temperature and injected slowly, 10 cc. requiring two to three minutes for administration. These precautions are advocated by Lieberman² to prevent possible reactions. Such reactions are characterized by a burning sensation over the entire body, a salty taste and a feeling of weakness and nausea. Only the 10 per cent solution was used for intramuscular injection the 20 per cent product being reserved for intravenous injection.

In order to obviate as much as possible the psychological effects of the treatment, our conclusions are based primarily on the average time required for the disappearance of the rash in each group, although the occurrence and course of various other symptoms were also observed and recorded.

Table 1 shows a total of thirty patients ob-

*Material supplied gratis by Sandoz Company

TABLE 1

Name	Sex and Age	Color	Total Serum Admin.	Date of Onset of Rash	Duration of Rash in Days	Severity of Symptoms	Duration of Subjective Symptoms—Days	Total Calcium Administered I. V. 20%	I. M. 10%
A—Control Group									
*J. B.	M32	Negro	450 cc.	8th	3	X	9		
†P. D.	M143	White	750 cc.	9th	3	XX	3		
P. G.	M139	White	600 cc.	10th	5	XX	7		
L. H.	M146	White	300 cc.	8th	8	XX	10		
B. H.	F35	White	400 cc.	10th	3	X	3		
C. H.	M54	White	600 cc.	8th	8	XXX	13		
G. L.	M124	White	400 cc.	9th	4	XX	5		
T. M.	M30	White	350 cc.	7th	5	XX	7		
L. S.	M30	Negro	450 cc.	7th	7	XX	9		
O. W.	F30	White	400 cc.	4th	7	XX	7		
G. O.	M35	Negro	500 cc.	8th	8	XX	8		
E. W.	M65	White	300 cc.	9th	4	XX	10		
T. C.	M143	White	300 cc.	8th	4	X	5		
†P. McK.	F34	White	600 cc.	6th	7	XXX	7		
P. W.	M30	White	180 cc.	8th	5	X	5		
B—Calcium Treated Group									
B. B.	M144	White	350 cc.	8th	2	X	2	20	50
J. R.	M146	White	400 cc.	6th	2	X	2	20	50
†W. R.	M154	White	500 cc.	11th	4	XX	4	20	80
A. R.	M16	White	550 cc.	9th	3	XX	3	20	60
B. M.	M50	White	250 cc.	2nd	12	XX	12	20	30
P. M.	M39	White	350 cc.	8th	4	X	7	10	100
J. M.	M30	White	380 cc.	7th	3	XX	4	20	80
AL. L.	M65	White	850 cc.	15th	2	X	2	20	50
N. E.	M142	White	500 cc.	12th	5	XXX	6	30	170
T. deN.	M143	White	300 cc.	11th	3	XX	3	10	40
T. deL.	M138	White	580 cc.	13th	3	XX	3	20	40
M. R.	F58	White	300 cc.	8th	3	X	3	10	35
E. D.	M37	Negro	300 cc.	8th	3	X	5	20	40
M. D.	F30	White	250 cc.	7th	5	X	5	20	80
G. V.	M63	White	400 cc.	9th	3	XX	2	20	60

Discharged with subjective evidence of serum sickness.
†Serum sickness present at time of death.

ceived, fifteen were treated with calcium, the remaining fifteen constituted the control group. The two groups are reasonably comparable in respect to age, sex and quantity of serum administered. Moreover, if the severity of the symptoms at onset of serum disease be graded from 1 to 4 plus, it is seen that the two groups are also similar in this respect. Table 2 shows that in both groups there was a fairly uniform

TABLE 2
SHOWING AVERAGE VALUES FOR CONTROL AND
CALCIUM TREATED CASES

	Calcium Treated	Control
No. of cases	15	15
Average amount of serum administered to each case	412 cc	425 cc.
Average date of onset of rash following the first dose of serum	8.3 days	7.8 days
Days of rash	2.9 days	5.4 days
Days of subjective symptoms	3.3 days	7.1 days

time of onset of the serum sickness in that all patients showed symptoms beginning either on the eighth or ninth day. Thus, the only variables are the duration of the rash and the subjective symptoms in each group.

From table 2 it is seen that the average duration of the rash in the control group was 5.4 days as contrasted with the shorter period of 2.9 days in the calcium treated cases. Considering in addition the subjective symptomatic improvement, the difference between the two groups is even more striking, the average duration in the control group being 7.1 days as compared with 3.3 days in the calcium treated group.

Despite the small number of cases we believe that these observations are reliable. Our figures are conservatively stated, because in the compilation of the tables there were three cases in the control group where the patients either died or were discharged before the serum sickness had run its course, whereas there was only one such case in the calcium treated group. These cases are so listed in the table. Moreover, considering the development of further manifestations of serum sickness such as arthritis, giant urticaria, cramps, etc., subsequent to the onset of the rash, it was found that six of the fourteen control patients developed new symptoms while only one in the calcium treated group showed any such progression in the clinical picture.

DISCUSSION

While the value of calcium therapy in atopic disorders, particularly bronchial asthma and urticaria, has been the subject of much con-

troversy, nevertheless, Cantarow³ says that calcium salts are extensively employed in the treatment of these conditions and there can be no doubt of their beneficial effects in many cases.

The rationale of calcium therapy in serum sickness is based largely on the alleged ability of calcium to decrease vascular permeability, allay nervous irritability, constrict peripheral capillaries and raise blood pressure. Hanzlik⁴ states that calcium salts prevent or inhibit clinical allergic manifestations owing presumably to their power to lessen cellular permeability. Numerous experimental studies have been made to determine the effect and mode of action of calcium salts in serum sickness and allied conditions, but the results of these studies are by no means in agreement.

Besides these experimental studies there are clinical reports that are similarly conflicting. Thus, Thommen⁵, on studying a rather limited group of allergic diseases including several cases of urticaria and one case of serum sickness, emphatically denied the therapeutic value of calcium salts. Similarly, Hallam⁶ found calcium disappointing in the treatment of urticaria. Hunt mentions the use of calcium salts in serum sickness but is not enthusiastic as to their value.

Probably the earliest report on the value of calcium salts in serum sickness is that of Wright⁷ in 1896, himself a victim of severe serum sickness following antitoxin administration and who noted remarkable improvement following the ingestion of calcium chloride. More recently Bremer⁸, Diasio⁹, and Sterling¹⁰, have reported favorably on the value of calcium in serum sickness. Similarly, Karrenberg¹¹ reports several cases, among them that of a physician who after the injection of a prophylactic dose of tetanus antitoxin developed an extraordinarily severe serum sickness with high fever, marked exanthem and collapse symptoms. At the acme of the disease, 10 cc of 10 per cent calcium gluconate was injected intravenously and 10 cc intramuscularly. The symptoms subsided almost instantaneously. This case parallels that of B. M. in our series who developed a severe generalized urticaria associated with fever, headache and general malaise. Following adequate calcium medication associated with other symptomatic treatment as outlined above, the rash and other symptoms disappeared within three hours after onset.

In the therapeutic use of calcium salts certain conditions must be observed if the best clinical results are to be obtained. Thus, Karrenberg calls attention to the importance of administering adequate amounts of calcium in readily available form and in urticaria recommends as much as 30 cc of the 10 per cent calcium glu-

conate solution daily, in one case of serum sickness he used 10 cc intravenously supplemented by 10 cc intramuscularly and twelve hours later gave another intramuscular injection of 10 cc. This recommendation of dosage and mode of administration is confirmed by Schaffler¹¹ who showed that the intravenous use of calcium gluconate supplemented by intramuscular injections is the most satisfactory means of obtaining a sustained increase in the blood calcium level. While calcium gluconate may be administered by mouth, it is well to remember that with oral dosage, a number of factors may delay or prevent absorption from the intestine including the possible formation of insoluble calcium soap. Consequently when reliable rapid intense and prolonged calcium action is required in such acute, distressing conditions as serum sickness, the combined intravenous and intramuscular mode of administration is preferable. Apparently there is a close connection between the quantity of calcium given and the results obtained with it. Thus, Hunt reports some alleviation of the disease following the use of one Gm. of calcium gluconate intravenously tid. This contrasts sharply with the recommended dosage of Karrenberg as well as with the dosage employed by us. Thus in case N E as much as 30 cc of the 20 per cent solution was given intravenously in one dose with simultaneous injection of 20 cc of the 10 per cent solution intramuscularly along with six Gm. of calcium gluconate by mouth a total of fourteen Gm. This dose was not followed by any untoward effect. The average case however received an initial single dose of five Gm parenterally, followed by one Gm intramuscularly every twelve hours. While a few of our earlier cases were treated with calcium gluconate orally this route was abandoned subsequently because of the uncertainty of absorption.

In conclusion this study seems to show that calcium medication in serum sickness shortens the duration of both the rash and subjective symptoms, in addition it appears to act as a preventive of such further manifestations of this disease as arthritis, giant urticaria enlarged glands, etc. These apparent beneficial results of calcium therapy well warrant further study of this interesting subject.

SUMMARY

- (1) Alternate cases of serum disease have been treated with calcium gluconate by intravenous and intramuscular injection in sufficiently large doses.
- (2) Using a purely objective sign (fading of rash) as the criterion for therapeutic effect, it was found that whereas in the control cases the rash persisted for an average period of 5.4 days, in the calcium treated group it lasted only 2.9 days.
- (3) Using subjective evidence as a criterion the therapeutic effect of calcium is still more striking, for in the control cases the symptoms (itching arthralgia, headache, cramps, nausea etc.) lasted 7.1 days but in the calcium treated cases the duration was only 3.3 days.
- (4) Unfavorable reports in the use of calcium salts for serum disease are in all probability the result of insufficient administration of readily assumable preparations.
- (5) The alternate case method of treatment offers a better means of estimating the therapeutic value of a drug than the treatment of an uncontrolled group.

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CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT, M.D

TRACY B MALLORY, M.D., *Editor*

CASE 22041

PRESENTATION OF CASE

A fifty-nine year old colored American woman was admitted complaining of cough, weakness, and vomiting

About three months prior to admission the patient had severe sore throat which persisted for about a week and was followed by a cough which gradually increased in severity and frequency. At the same time there was progressively increasing expectoration and for about three weeks before entry she raised approximately two teaspoonfuls of yellowish-white frothy material every ten or fifteen minutes. This material seemed to come up to her throat without exerting a cough and she coughed only to bring it out. There was no postural or morning increase of expectoration. There were no sleep disturbances, hemoptysis, or chest pain. About two months after the onset of her illness she developed tenderness in the midepigastrium which was associated with anorexia. The loss of appetite improved but the soreness in the abdomen continued. A week before entry the anorexia returned and was associated with nausea after meals. Two days later she began to vomit a cupful of greenish bitter material before breakfast. Occasionally she vomited recently ingested food directly after other meals. There was no hematemesis or severe abdominal pain. Her weight decreased from 182 to 164 pounds during the three months of her illness. She became rather weak but spent only the two days preceding her admission in bed. During this time she had slight pain in her shoulder upon movement. There were no chills or fever although she thought that she perspired somewhat more than she did previously, especially at night. She had had some slight dyspnea with exertion for several years.

A hysterectomy for uterine fibroids was done fourteen years before entry. An x-ray at that time showed a rather tortuous aorta with a heart slightly enlarged downward and to the left. Six years later a slowly growing cyst of the parotid of some twelve years' duration was removed.

Physical examination showed a well-developed and nourished Negress. The skin was hot and dry. Oral hygiene was poor. The left border of cardiac dullness was 10.5 centimeters from the midsternal line, the right only one centimeter. The supracardiac dullness was 7 centimeters in width. The heart rate was 120 and the rhythm regular. There was a high pitched systolic murmur best heard at the left border of the sternum between the third and fourth ribs. A₂ was present but indistinct. The blood pressure was 140/70. The lungs were clear. An occasional peristaltic sound was heard under the sternum at the fourth interspace. The whole upper abdomen was rather tense and tender. The aorta could be felt pounding violently in the abdomen but no murmur was audible over it. Vaginal examination showed only the stump of the cervix, which was not remarkable.

The temperature was 101°. The respirations were 25.

Examination of the blood showed a red cell count of 4,260,000, with a hemoglobin of 100 plus per cent. The white cell count was 10,650, 68 per cent polymorphonuclears. The stools were negative. A Hinton test was negative. An electrocardiogram showed a sagging S-T₁ with slight inversion of T₃. Lead 2 was not properly standardized.

X-ray examination of the chest showed the heart to be considerably enlarged, more marked in the region of the left ventricle. The aorta was quite tortuous. The lung fields were clear. A gastrointestinal series showed no lesion of the stomach or duodenum. There was a small hernia of the cardia through the esophageal hiatus. A filling defect in the esophagus was considered to be of extrinsic origin, probably resultant upon a localized tortuosity or aneurysm of the aorta. A Graham test was negative.

The patient's temperature remained between 99° and 101°, and the pulse between 90 and 110. She continued to complain of anorexia and also some vague substernal distress. Eight days after admission she had anuria for twenty-four hours. While in the lavatory she fainted. When seen five minutes later she was found to be unconscious and flaccid. The respirations were 20 per minute and regular. The heart had a rate of 80 and the sounds were feeble and regular. The neck veins were distended. Attempts at stimulation were of no avail and she died ten minutes later. The heart continued to beat a few seconds after respirations had ceased.

DIFFERENTIAL DIAGNOSIS

DR WILLIAM B BREED I am going to discuss this case in two phases. Having given it considerable thought and having suffered a lot

of mental anguish over it, at 10 30 last night I decided that a diagnosis could not be made. Furthermore, I felt that if I even mentioned the diagnosis in differential I should consider myself lucky.

This history is reminiscent of the various stories we have heard here lately. It is possible that the increasing cough might be a small cervical gland following tonsillitis which was discharging into the pharynx, but I think that is rather far fetched. One gathers that the trachea may have been irritated and in certain ways the story brings to mind the famous Hartford case we had here two or three weeks ago in which we found the stomach and colon in the left pleural cavity. There is nothing here which leads to any one certain diagnosis. We can say that she has esophageal irritation possibly some obstruction, and some tracheal irritation, which brings up the question as to whether she has an aneurysm. There is the question, again, as to whether she has a diaphragmatic hernia. There is a significant absence of real pain here which I think is important in ruling out some of the conditions that occur to me.

The loss of weight is perfectly consistent with the fact that she has not been eating much. The slight pain in the shoulder might make one think of some reference from the diaphragm, but when they say that the shoulder hurts on motion that rather leads one away from diaphragmatic reference.

A diverticulum of the esophagus occurs to me on reading this over. Later on you will find that there is no diverticulum according to x ray and other findings.

Then there is the question of the soreness in the mudepigastrium. That of course could go along with the possible diaphragmatic hernia. It could go with an abdominal aneurysm. I am only mentioning these various possibilities that occur to me in the history before going on to further examinations.

The past history is really not very important except that it does indicate that she may have had some hypertension, the x ray fourteen years previously showed a tortuous aorta with a heart which was slightly enlarged downward and to the left, presumably on a hypertensive basis. The slowly growing cyst of the parotid removed twelve years previously, with no recurrence, I think is of no importance.

"The supracardiac dullness was 7 centimeters in width." That may or may not be of any importance. It is probably the one physical finding in which there is more error made than any other that I know of. It is important to determine when there is demonstrable supracardiac dullness what the location of it is, either

to the right or left, in seeking a possible aneurysm.

The high pitched systolic murmur means nothing to me at all. Nothing is said about its being persistent and having relation to breathing, and it seems to me without any other findings we must pass it off as being of no help in interpreting the cardiac findings.

The peristaltic sound under the sternum is, in my opinion, not significant because peristaltic sounds are heard in the chest frequently without necessitating a diagnosis of diaphragmatic hernia with the stomach in the chest, but that is a perfectly good lead.

All of these laboratory data are very interesting but they do not confirm any one of the various diagnoses that one thinks of in the history, namely thoracic or abdominal aneurysm, diaphragmatic hernia, or possibly a diverticulum high up in the esophagus. It is very interesting that no mention is made of the urinalysis or blood chemistry. I have to assume that she has no uremia.

She had a temperature by mouth ranging to 100°, once to 101°, a pulse of 90 to 100, and toward the last the respirations were high, up to thirty, not a very impressive looking chart. She has no anemia and no significant evidence of infection. The white cell count was 10,650, with 68 per cent polymorphonuclears. One would certainly think, if this turns out to be a uremic death, that she would have had at this time some anemia.

The best we can say about the electrocardiogram is that it does not indicate any severe coronary disease at the present time, nor any evidence of occlusion in the past, and that it is not of significance, except negatively.

"A gastrointestinal series showed no lesion of the stomach or duodenum." That is important.

"There was a small hernia of the cardia through the esophageal hiatus." That is not an uncommon finding and probably is of no significance in this particular case. Certainly at the time the x ray was taken there could have been no large diaphragmatic hernia and no thoracic stomach or colon. It says, "A filling defect in the esophagus was considered to be of extrinsic origin, probably resultant upon a localized tortuosity or aneurysm of the aorta."

Will you speak about the x rays, Dr. Holmes? Dr. GEORGE W. HOLMES. Studying the films in the brief period that I have had does not lead me to any conclusion. I might go over some of the films briefly.

Here are the gallbladder films. A perfectly normal appearing gallbladder is seen in all the films.

The chest film shows normal motion of the diaphragm on both sides. There is no evidence

of fluid in the pleural space. The lungs are of normal brilliancy. The heart is definitely increased in size and I should say that the greatest increase was downward to the left in the region of the ventricle, with moderate increase in the supracardiac shadow, perhaps due to tortuosity of the aorta.

We will look at some of the lateral and oblique views. Here is one showing the esophagus filled with barium. It shows the aortic knob fairly well. There is some calcification in the walls of the aorta, also an indentation here which I do not think is the one we are interested in. Probably this is the area discussed in the notes. This is the small hernia of the stomach described. A view in the opposite direction shows a mottled defect in the shadow of the esophagus but no actual irregularity of outline. This film shows the hernia with narrowing of the esophagus at this point.

In this film you see the arch of the aorta fairly well, and here the esophagus partially filled with barium. Such a defect as that does not mean very much to me.

Here is a small film showing the esophageal mucosa. It looks perfectly normal to me. Here is one showing a round defect, which looks like the normal aorta and not an aneurysm. This film also shows the mucosal pattern very well in the involved area. There is no irregularity.

The films of the stomach show nothing unusual.

As far as I am able to interpret the findings, there is no evidence of an intrinsic lesion in any part of the gastrointestinal tract. The changes in the heart and great vessels are those of arteriosclerosis with tortuosity of the aorta.

DR BREED: If we may depend upon the x-ray, and I think we can in this case, we can rule out any intrinsic disease of the esophagus, any aneurysm in the thorax, and any diaphragmatic hernia.

If that was really anuria and not sphincter disturbance, with a large bladder, that is of some importance, and I take it that they probably did determine whether her bladder was full, and I have to interpret this as anuria and not a full bladder. When a patient goes into anuria suddenly in one day one is faced with some rather fantastic possibilities. We have no evidence that she had any kidney disease. We can possibly imagine a new growth obstructing both ureters, or pressing on both ureters, also a thrombosis of the abdominal aorta, with a thrombus of the renal arteries, but there is no particular evidence of that. So that we have to take that statement and not explain it very well.

I do not understand why she was in the lavatory. She had a temperature of 101°, but

she got there and fainted. No one saw her, and so we do not know whether she had pain in the terminal episode. We know nothing about it except that she died in the lavatory.

This brings me up to 10:30 last night. I awoke in the middle of the night, and something told me that this woman had a dissecting aneurysm. I said, "All right." So I took the syndrome of dissecting aneurysm and put it back over this history with the data and I must say that except for the absence of pain, it makes more sense than anything else I can think of, and the more one thinks about it the more it seems to fit the diagnosis of a slowly dissecting aneurysm. We know that she had had hypertension in the past, at least we assume she had it fourteen years previously, so she has a setting for that. We know she has arteriosclerosis. We know she does not have syphilis, that the aneurysmal symptoms, as a matter of fact, began in the throat, gradually worked down toward the abdomen. Then we come to this twenty-four hours of anuria which may be explainable on the basis of a dissecting aneurysm down the thoracic and abdominal aorta, involving the renal arteries.

In my first attack on this case I considered this diagnosis but threw it out because there was no history of real pain in the story. Of course that is the hurdle that we have to get over. We do not know how much pain she had before death, no one knows, and I can conceive of a slowly dissecting aneurysm that would not give much pain but would explain this picture better than anything I can think of.

I am going to be either very wrong or very right in this case, and I do not want you to think that this is a guess. I actually believe she did have dissecting aneurysm. She died rather suddenly. She might have had rupture into the pericardium, hemopericardium, that would account for the picture described. Shortly before her death the pulse rate was not rapid. As you know, the neck veins were distended, and—this is rather theoretical—but inasmuch as these people do die of rupture into the pericardium very often, I am going to say that I think she had a dissecting aneurysm which had got as far as the renal arteries and that her death was due to a hemopericardium.

DR T. B. MALLORY: We would welcome any other suggestions.

A PHYSICIAN: How about abdominal aneurysm in the region of the renal artery?

DR BREED: All right.

DR MALLORY: The vote is registered.

DR PAUL D. WHITE: I think the observation of engorgement of the neck veins at the time when she should have been in a state of shock is significant and backs up Dr. Breed's feeling

that there should be something in the pericardium, possibly from a ruptured heart.

CLINICAL DIAGNOSES

Coronary heart disease

Ruptured coronary infarct with hemopericardium?

DR. WILLIAM B. BREED'S DIAGNOSES

Dissecting aortic aneurysm

Hemopericardium

ANATOMIC DIAGNOSES

Rheumatic myocarditis

Endocarditis, chronic rheumatic, with calcification of the tricuspid valve, with stenosis and calcification of the mitral valve.

Hydrothorax, bilateral

Arteriosclerosis, moderate, generalized

Diaphragmatic hernia, small.

Operative scars hysterectomy, appendectomy and bilateral salpingo oophorectomy

PATHOLOGIC DISCUSSION

DR. MALLORY Dr. Breed's explanation of the symptomatology seems very good, a little better than we actually found, however.

The autopsy was done with a good deal of care and Dr. Holmes, who was doing it, was very much perturbed because when he finished the autopsy he could find no cause of death whatever. The positive findings were extremely scant. She had a definitely old but mild mitral stenosis with calcified leaflets, but no great shortening of the chordae tendineae. The aortic valve was negative. The pericardium was negative. The aorta showed only traces of atheroma. The coronaries were capacious. He called Dr. Bradley who went over all the organs with extreme care and could find nothing else. We examined the head. The brain was absolutely normal, but I think that now having seen the microscopic sections, we have the answer to the case.

Will anyone hazard a diagnosis after that statement?

A PHYSICIAN Did the trachea and throat show anything?

DR. MALLORY The trachea and throat were negative. There was a small diaphragmatic hernia. The rest of the esophagus was negative. A few petechial hemorrhages were found in the stomach.

DR. WHITE Are you referring to the microscopic sections of any particular organ?

DR. MALLORY I will even go so far as to say the sections of the heart.

DR. WHITE Syphilitic myocarditis?

DR. MALLORY No, rheumatic.

The heart shows more Aschoff bodies per cubic millimeter than any heart I have ever

seen. I have seen one other death, in an individual in his fifties, with absolutely nothing to show for it but an acute rheumatic myocarditis with essentially negative valves. It is one of the rare possibilities of sudden death. The exact mechanism of death I think is pretty hard to guess. The most reasonable would be heart block although the symptoms of the terminal five minutes do not sound much like it.

DR. BREED What about these symptoms in relation to irritation of the esophagus trachea and various other things? They are not explained.

DR. MALLORY We found absolutely no explanation.

DR. WHITE A severe sore throat might have started it.

A PHYSICIAN Was the heart greatly dilated?

DR. MALLORY Moderately, not particularly.

DR. WHITE How much did the heart weigh?

DR. MALLORY 300 grams.

DR. WHITE Then there must have been dilatation in life. By x ray it was considerably enlarged.

A PHYSICIAN Would you have any idea how old that lesion was?

DR. MALLORY It is consistent with the duration of her symptoms, three months.

DR. BREED Of course the fact that she did not have any pain is an important feature which points away from my diagnosis.

DR. MALLORY Yes.

CASE 22042

PRESENTATION OF CASE

First Admission. A forty-one year old American dietitian was admitted complaining of cough and sputum.

The patient had whooping cough at the age of six and had coughed with varying intensity ever since. She remained fairly well, however, until the age of nine when she developed pneumonia and thereafter was always "quite delicate." At thirteen years of age she was sent to a sanatorium, where she remained six months. All tests done there were said to be negative. Her cough continued and at the age of twenty-five she contracted influenza, which confined her to bed for five weeks. Six years later she again had pneumonia, evidently lobar in type, and was ill for eight weeks. Fluid was said to have been present in the chest although it was not tapped. At thirty-nine she had another attack of influenza at which time during paroxysms of cough, she had two hemoptyses, one of which consisted of about a pint of blood. There had been blood streaked sputum for several years prior to this episode but never any gross hemoptysis. She was then sent to another sanatorium where she remained for a year and a

half and was discharged a month prior to entry here. Her cough was still present and was occasionally paroxysmal and productive of greenish sputum which was frequently noisome. She noticed wheezing sounds in the chest and for the past two years had a fairly constant pain in the left chest aggravated by deep inspiration and cough. She did not think that she had run a febrile course, and never had night sweats. Repeated examinations of sputa showed no tubercle bacilli.

The patient had migrating painful swollen joints in childhood. The details were not recalled. At one time as a child she developed numerous black and blue blotches on the skin. Two years before entry she was told that she had a leaking heart valve. An attack of measles complicated by an otitis media had left some impairment of hearing.

Physical examination showed a well-developed and nourished woman sitting quietly in bed. There was a very marked right congenital torticollis. The right chest was slightly more prominent posteriorly than the left. Expansion was limited in the lower half of both lungs. Tactile fremitus was normal. There was moderate dullness over the entire posterior chest. Bronchovesicular breath sounds were heard in the left infraclavicular region and in the entire posterior chest. Bronchial breathing was audible over the lower dorsal spine and many fine moist râles were heard in both upper paravertebral regions. The heart was not enlarged. There were no murmurs. The blood pressure was 170/105. There was slight clubbing of the fingers.

The temperature was 99°, the pulse 100. The respirations were 20.

Examination of the urine was negative. Examination of the blood showed a red cell count of 5,070,000, with a hemoglobin of 95 per cent. The white cell count was 18,000, 68 per cent polymorphonuclears. The sputum was greenish-white in color and contained no blood, tubercle bacilli or spirochetes. The stools were negative. A Hinton test was negative. Intra-dermal tests with one-tenth cubic centimeter 1:20,000 old tuberculin were negative after forty-eight hours.

X-ray examination showed mottling along the course of the lung markings to both bases. There was bilateral prominence of the hilar shadows. The right leaf of the diaphragm was somewhat irregular in outline. After lipiodol the bronchial visualization was not satisfactory although the findings were considered consistent with bilateral lower lobe bronchiectasis.

The patient was treated with postural drainage. A bronchoscopy showed diffuse congestion of the bronchial mucous membrane and a profuse secretion, the character of which was not

recorded. The patient's condition remained unchanged. The course was afebrile and she was discharged on the seventeenth day.

Second Admission, eight months later

Following her discharge the patient received a series of three x-ray treatments to the chest after which her cough and sputum increased in amount but later decreased. Thereafter her condition was unchanged for about four months, when the cough and sputum began to increase. The latter was approximately 5 to 6 ounces daily and was slightly more tenacious than previously. In a period of seven months her weight decreased from 140 to 127. There was a slight evening rise of temperature to 99.5°. For several weeks prior to reentry she became somewhat short of breath and the pain in the left side of the chest was increased in severity. For three weeks preceding her return to the hospital she had three or four loose watery stools daily. There was no melena.

Physical examination showed moderate pallor of the skin and mucous membranes. Tenderness was elicited over the frontal sinuses. The heart was considered to be at the upper limit of normal size. A presystolic rumble and a loud snapping first sound were heard at the apex. The blood pressure was 140/95. Bronchovesicular breath sounds were heard in both infraclavicular regions, and some fine moist râles were present in the lower axillae and bases posteriorly.

The temperature was 99°, the pulse 100. The respirations were 25.

Examination of the blood showed a red cell count of 5,700,000, with a hemoglobin of 90 per cent. The white cell count was 13,400, 84 per cent polymorphonuclears. The sputum contained neither spirochetes nor tubercle bacilli. The stools were semi-formed but otherwise normal.

X-ray examination showed a spread of the disease with complete collapse of the left lower lung and marked displacement of the heart to the left. The entire right lung field was mottled and showed several areas of dullness about 3 centimeters in diameter in the midlung field.

She was treated with postural drainage and a ketogenic diet with but little improvement. Ten days after entry the lower half of the left chest posteriorly showed diminished tactile fremitus with dullness to flatness upon percussion. In this region there were bronchial breath sounds, egophony, and bubbling râles. An x-ray after the injection of lipiodol showed some dilated incompletely filled bronchi in the left lower lobe. Those in the right middle and lower lobes were also dilated. There was an outpouching of the right main bronchus opposite the region of the branching of the upper lobe bronchus. Later a bronchoscopy was attempted but the patient developed marked dyspnea and cy-

anoxia which persisted for eighteen hours. Thereafter, however, drainage improved slightly and she was discharged seven weeks after entry. Her temperature had fluctuated between 98° and 100° during this admission.

Final Admission, four months later

For a short time after her discharge the patient felt considerably better but in about a month she began to have increased breathlessness to such a point that even walking produced respiratory distress. Later the cough became progressively worse and more paroxysmal in character. She expectorated about two ounces of sputum daily. It no longer had a foul odor. Four weeks preceding reentry she noticed swollen ankles. This persisted and was accompanied by slight swelling of the hands. There was also tenderness in the right subcostal region and epigastrium. Shortly afterwards she began to have attacks of sharp pain and a sensation of constriction under the left breast. The pain radiated to the left shoulder and down the ulnar side of the arm. These attacks were usually precipitated by exercise and were relieved promptly by immobilization. There was also slight swelling of the abdomen and occasional small hemoptyses.

Physical examination showed a poorly nourished woman who was markedly cyanotic and dyspneic, with evidence of expiratory difficulty. There was slight exophthalmos but no other ocular muscle dysfunction. An increase in the anteroposterior diameter of the chest was noted. Both bases posteriorly up to the angles of the scapulae were flat to percussion. The remainder of the chest was hyperresonant. There were numerous coarse moist râles audible generally. The left border of cardiac dullness extended 11.5 centimeters from the midsternal line and the right border was percussed at the right sternal edge. The sounds were rapid but regular. One examiner found no murmurs or thrills, and another recorded the observation of a presystolic rumble and a snapping first sound in the mitral area. The abdomen was distended, with shifting dullness in the flanks. The liver was enlarged to percussion and tender. The spleen was not palpable. There was massive edema of the extremities up to the sacrum. The temperature was 98°, the pulse 130. The respirations were 35.

An electrocardiogram showed sino-auricular tachycardia, a low T₁, flat T₂ and inverted T₃. P. was prominent and slightly notched. There was slight elevation of the S-T₄ take-off and an upright T₄.

X ray examination showed marked increase in all lung markings. The heart shadow was considerably increased in size, particularly on the right side and in the region of the pulmonary conus. There was believed to be some fluid present at the bases.

She was treated with diuretics and palliative

measures but her condition failed to improve. The temperature rose to 103° and tubular breathing became audible in the left lower chest posteriorly. She became progressively more dyspneic, cyanotic, and edematous, and died after being in the hospital two weeks, fourteen months after the first entry.

DIFFERENTIAL DIAGNOSIS

DR. EDWARD F. BLAND. This lengthy clinical record may be discussed briefly. There appear to be two important aspects, namely, a long history of (1) pulmonary disease beginning with whooping cough at the age of six and ending with (2) the signs of rapidly progressive right-sided heart failure. It seems likely that the two conditions are closely related.

The important features of the pulmonary history are the frequency of acute respiratory and pulmonary infections during the earlier course followed by symptoms indicative of chronic pulmonary disease becoming worse during the last four years of the patient's life, together with clinical, x ray, and bronchoscopic evidence of extensive bilateral pulmonary disease, fibrosis, and bronchiectasis. The finding of clubbed fingers in the absence of clear evidence of congenital heart disease or of subacute bacterial endocarditis further supports the impression of important and long-standing pulmonary disease.

Tuberculosis seems unlikely in view of the clinical course, the x ray findings, the repeatedly negative sputum examinations for acid fast bacilli, and the negative tuberculin reaction. The possibility of malignant disease of the lung (either carcinoma or lymphoma) is remote. Mention is made of "three x ray treatments to the chest" following the patient's second admission to the hospital. At first glance it suggests that malignant disease was suspected. However, upon further consideration it is obvious that if this possibility had been seriously entertained more extensive exposure would have been carried out. Further more, a short while ago a therapeutic test with minimal exposure to roentgen rays was being tried in this hospital for various nontuberculous and nonmalignant pulmonary conditions. In the absence of positive results, it has subsequently been discontinued. I must assume that this is the explanation for the above reference to the three x ray treatments. It is reasonable to suppose then that this patient had chronic nontuberculous pulmonary infection with extensive fibrosis and bronchiectasis.

The second and more or less terminal phase of the clinical course began four months before death with the appearance of symptoms and signs of rapidly progressive heart failure which did not respond to the usual therapeutic measures. The x ray picture and the physical

signs are primarily those of right ventricular dilatation and failure. I believe we are dealing here with the so-called pulmonary type of heart disease (cor pulmonale), the result of long-standing strain primarily on the right side of the heart with ultimate hypertrophy, dilatation and failure of the right ventricle. Extensive pulmonary fibrosis is the most frequent cause, less often obliterative disease of obscure etiology involving the pulmonary arteries is responsible.

The electrocardiogram is of considerable value when cor pulmonale is suspected. We expect to find right axis deviation and its absence casts considerable doubt upon this probable diagnosis, unless there is also present some other complicating factor causing left ventricular strain also. Hypertension and aortic valve disease are the most frequent causes of left ventricular hypertrophy. No mention is made in the clinical report of axis deviation in the electrocardiogram and we have no way of knowing whether it was present. The upright T wave in lead four suggests that it may have been present.

It is of some further interest to speculate on the possibility of rheumatic heart disease and mitral stenosis. The vague rheumatic history in childhood, the discovery of an apical systolic murmur in later life, and the presence during the last admission of an inconstant pre-systolic rumble are of interest but do not constitute conclusive evidence of rheumatic heart disease. It may be that the inconstant diastolic rumble was a functional murmur dependent upon right ventricular dilation and comparable to a similar murmur frequently observed during severe rheumatic carditis in children. In these latter instances it has been shown recently that the diastolic rumble is dependent upon cardiac dilatation, presumably of the left ventricle. In this patient, although we cannot exclude minimal rheumatic mitral valve disease, it seems unlikely that it was an important factor in the ultimate failure of the heart. Furthermore, the last x-ray film shows considerable enlargement in the region of the right ventricle and the pulmonary conus, but no clear evidence of left auricular enlargement. This suggests that the important point of obstruction to the blood flow was not at the mitral orifice but farther back and in the pulmonary circuit itself.

A final symptom warrants further comment, namely, during the last admission to the hospital mention is made of attacks of constriction and pain under the left breast radiating to the shoulder and down the left arm and promptly relieved by "immobility." Lead four of the electrocardiogram is suggestive of coronary disease. Whether we will find evidence later at postmortem of coronary changes,

I am unable to predict. It seems unlikely that the terminal heart failure was dependent upon important coronary artery disease.

In closing then the most reasonable deductions to be made from this clinical record are that we are dealing here primarily with long-standing nontuberculous pulmonary infection, fibrosis, and bronchiectasis, and "cor pulmonale" with right ventricular hypertrophy, dilatation, and congestive failure. Although unlikely, we cannot definitely exclude the possibility of minimal mitral valve disease or of coronary artery sclerosis.

CLINICAL DIAGNOSES

Bilateral bronchiectasis
Bronchopneumonia
Rheumatic heart disease with congestive failure

DR EDWARD F. BLAND'S DIAGNOSES

Bronchiectasis, bilateral
Pulmonary fibrosis
Cor pulmonale
Mitral stenosis?
Coronary artery sclerosis?

ANATOMIC DIAGNOSES

Bronchiectasis, bilateral, lower lobes
Bronchopneumonia, diffuse, bilateral
Pulmonary edema, diffuse
Pulmonary emphysema, slight, bilateral
Pleuritis, chronic fibrous, bilateral
Pulmonary tuberculosis, healed, left apical
Rheumatic heart disease, healed, with mitral and tricuspid stenosis, moderate
Bacterial endocarditis, recent, mitral
Cardiac hypertrophy, right ventricular (cor pulmonale)
Mural thrombus, right auricle
Pericarditis, acute fibrinous and chronic fibrous with calcification
Chronic passive congestion of liver, spleen, and kidneys
Cholecystitis, chronic
Cholelithiasis
Calculi in cystic duct with obstruction
Peritonitis, acute generalized, ? origin
Ascites
Peripheral edema
Pulmonary osteoarthropathy, fingers
Torticollis, right
Leiomyoma uteri
Follicular cysts of ovaries

PATHOLOGIC DISCUSSION

DR TRACY B. MALLORY: Dr Bland was quite correct in his two chief diagnoses. The physicians on the ward agreed on the matter of bronchiectasis but felt that the heart condition was probably rheumatic with mitral stenosis. The

autopsy, I believe, supports both points of view. There was definite rheumatic heart disease with both mitral and tricuspid involvement. A small patch of acute endocarditis was found on the mitral valve. The right auricular appendage was filled with a firm adherent thrombus. The degree of mitral stenosis was, however, not very great and the tricuspid involvement would at most, have caused only a very slight regurgitation. The right ventricle, however, was markedly hypertrophied, measuring 10 millimeters in thickness. I should doubt if the valvular lesions were adequate to explain this, and I am inclined to agree with Dr. Bland that there was a significant element of cor pulmonale. The stabbing substernal pain which had been complained of was certainly not due to coronary disease, and since we found a slight, fresh apparently healing, fibrinous pericarditis I imagine there is little question that it was caused by that. Interestingly enough, there was evidence of a localized old area of calcified pericarditis about 3 centimeters in diameter. I am inclined to tie this up with several calcified nodules found at the apex of the left lung and assume that at one time she had an active in-

berculosis with beginning involvement of the pericardium. This was evidently far back in the patient's history; however, since no active tuberculous lesions were discovered. The bronchiectasis was limited to the two lower lobes and was accompanied by a considerable degree of pulmonary fibrosis. The upper lobes showed a complex mixture of emphysema, diffuse edema, and localized patches of bronchopneumonia.

A complete surprise in the case was a very early generalized peritonitis. This was most marked in the left upper quadrant, just beneath the diaphragm. Although no definite sub-diaphragmatic abscess could be made out, there was evidence of some purulent infiltration of the left leaf of the diaphragm itself, and since the lower lobe of the lung was densely adherent it was felt that one of the bronchiectatic cavities had probably penetrated the diaphragm and was responsible for the beginning peritonitis.

The liver, as might be expected with such marked right-sided heart hypertrophy, showed an extreme grade of chronic passive congestion. The gallbladder contained no bile pigment and many small stones. One stone completely plugged the cystic duct.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.05 per year \$8.52 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine 8 Fenway, Boston, Mass.

ARE EXAMINATIONS ADEQUATE?

A STOCK objection to the introduction into the statute of the characterization of a medical school that it be "approved by the board", if its graduates are to be accepted for examination for registration is that the examination now provided by law furnishes adequate protection against incompetent practitioners of medicine. Is this assumption justified?

The wording of the statute is that the "examination shall be sufficiently thorough to test the applicant's fitness to practice medicine". The first question is whether any examination which the board can give can be adequate to test fitness for practice. The qualifications are knowing, knowing how and that peculiar quality which ensures that the physician shall do the best he knows how at all times. They may be stated in other terms as knowledge, skill and character. Which of these is most important? The qualified physician must have them all and none can be omitted. It is irrelevant, therefore, to say that one is more important than another since all are essential.

To what extent can the examination test these

three qualities? Information can be tested well. The examination can be made so long, so thorough, so rigorous, so exhaustive, that the informational content of the mind of the candidate can be adequately exposed by written and oral exercises. Skill can be brought out by confronting the candidate with situations which exhibit and test his ability in practice. But how shall character be tested? Many persons insist that character is the most important qualification for practice. Knowledge and skill grow with experience in practice; they doubt if character is improved *pari passu*.

How then can the board assure itself of the character of the candidate? It cannot assure itself by any test which will give it first-hand knowledge. Since it must depend on other persons, on whom shall it depend? Shall it depend on friends of the candidate, likely to recommend without discrimination? Shall it depend on the hospital where the candidate has had an internship? Shall it depend on the medical school where the candidate has spent four years?

It might depend on the hospital, if the internship were required before admission to the written examination, and if the hospital would make a careful study of its interns and report faithfully and honestly. This is a responsibility few hospitals are likely to assume unless identified with medical schools in preparing the candidate for his medical degree.

It is the medical school which ought to have in mind at all times throughout the four years this question: is this candidate a suitable person to be entrusted with the responsibilities of the practice of medicine? In the school also, the examinations may adequately test knowledge and skill, but only close personal contact with the student will reveal his character. Many medical schools are accepting this responsibility and consequently many state boards are depending on such schools as are meeting this responsibility well, for information as to character.

If medical schools fail in this duty, if their recommendation is found to be of little value, if it is a matter of experience that they show little discrimination in the kind of person on whom they confer degrees, their recommendation should not be accepted. It is in this respect that the nonapproved schools are seriously deficient. If the candidate can pay the tuition and can learn enough to pass the examination (often deplorably low) and conducts himself while in the school without flagrant disregard of its rules, little attention is paid to his past record or to those personal qualities without which the candidate is not a physician but a mere trader, bartering for money the health and welfare of the sick and suffering.

The character of the physician may be no more essential than his knowledge and his skill, but it is the finest flower of his years of study and discipline and cannot be tested by examination.

"CONCERNING MR MILQUETOAST"

PROBABLY since the very beginning of medicine there have been conceptions and ideas having to do with matters of health that have been more or less generally accepted by the lay public, but to which the medical profession has given little attention. The particular ideas of this kind that have been disregarded have varied from time to time according to the remoteness of their concepts to the particular aspects of scientific medicine that have been stressed at the time. The scientist has ever been averse to work in fields where he had no or very poor scientific tools with which to work and was (and is) just not interested in such things. An example was the almost universal point of view twenty five years ago that infection was the cause of practically all ills. Now we know that the outcome of many infections is much more related to the patient's resistance than it is to the fact that a certain infection had gained a foothold on the system. This resistance at times is frequently connected with the diet and manner of life of the individual over a period of years preceding the infection. Since the impetus given to the scientific study of the diet that has been stimulated by the work of Minot, Sippy, Joslin and many others the knowledge in this field has grown rapidly and is probably on the threshold of much greater discoveries in the near future. For example relationships between vitamin C (Cevitamic Acid) and the suprarenal cortex have been established thereby bringing vitamins and hormones into relationship.

Now let us go back to the sentence at the start of this editorial and consider the wide spread conception expressed by the compound word "milkop", or the similar conception recently popularized in the "funnies" concerning "Mr Milquetoast." This idea has certainly existed in the English literature for hundreds of years and indicates a feeling that the person who drinks a lot of milk is not so much of a man as the person who drinks other fluids or eats, perhaps, more red meat. Now is it scientifically possible that an excessive milk diet over a long period of time might produce a "Mr Milquetoast" in an individual who would have been a "tough guy" on some other diet? We certainly do not know this, but there is a very interesting possibility that this might be true if the newly recognized pituitary hormone, prolactin, which governs the secretion of milk is itself in some part secreted in milk. As yet no experiments have been published that show whether this is true. But consider the indirect effects of prolactin. Riddle¹ and his co-workers have shown that when an animal has been properly "primed" with injections of prolactin or theelin, injections of prolactin will change the personality of the animal to such an extent

that it will take care of a young animal that it would otherwise eat. This gives us a hormonal explanation of motherly love. From this concept it is not a far jump to the concept that possibly too much of this hormone taken in the form of food will tend to produce maternal characteristics in an individual who might otherwise be a "he-man."

REFERENCE

1. Riddle, O. Lehr, E. L., and Bates, R. W. Maternal behaviour induced in virgin rats by prolactin. *Proc. Soc. Exper. Biol. & Med.* 53: 739 (Feb.) 1945

WHY SHOULD PRACTITIONERS GO TO THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY?

THE *New England Journal of Medicine* will report accurately the scientific program presented at the June meeting in Springfield as well as the other medical and nonmedical problems which come up at the Council Meeting and the Annual Meeting. The representatives of the commercial houses will call at the practitioner's office and keep him posted on the new appliances that may be of use in the diagnosis, treatment and prevention of disease.

The postgraduate courses offered by the Society will bring to the practitioner's door the recent advances in medicine. With all these opportunities to keep the practitioners up-to-date, why should one spend the time and money to attend the Annual Meeting? No amount of reading (if it is done) can take the place of contact and conversation with the men who present the scientific program. The value of a man's work can be much better appreciated after one has seen and heard the individual. The broadening influence of meeting and talking with fellow practitioners must be apparent to everyone.

The scientific exhibit cannot be brought home to the individual. The practitioners will see that equipment for complete medical study exists in Springfield and will realize that there may be several centers in Massachusetts to which they may turn for consultations. Finally, the three days' vacation will be good for the practitioner's health and make him the more appreciated by his patients.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

CLUTE, HOWARD M. B.Sc. M.D. Dartmouth College Medical School 1914. F.A.C.S. Professor of Surgery, Boston University School of Medicine. Surgeon in Chief, Massachusetts Memorial Hospitals. Surgeon New England Baptist Hospital and New England Deaconess Hospital. His subject is "Acute Arterial Ob

struction from Arteritis " Page 137 Address 171 Bay State Road, Boston

BLACKFORD, L MINOR B S, M S, M D University of Virginia Department of Medicine 1923 Instructor in Medicine, Emory University Associate, American College of Physicians, December 1935 Address 104 Ponce de Leon Avenue, N E, Atlanta, Georgia Associated with him is

VENABLE, JOHN H B S, M D Emory University School of Medicine 1933 Assistant Professor of Anatomy, Emory University School of Medicine Address Emory University School of Medicine, Atlanta, Georgia Their subject is "Hypoglycemia and Paresis" Page 140

BARNEY, J DELLINGER A B, M D Harvard University Medical School 1904 F A C S Chief of Service, Urological Department, Massachusetts General Hospital Assistant Professor of Genito-Urinary Surgery, Harvard University Medical School His subject is "The American Neisserian Medical Society Presidential Address" Page 142 Address 87 Marlboro Street, Boston

BROWN, LLOYD T A B, M D Harvard University Medical School 1907 F A C S Instructor in Orthopedics, Harvard University Medical School Orthopedic Surgeon, Faulkner Hospital, Children's Island Sanitarium, and Boston Home for Incurables President of the Board of Directors, Robert Breck Brigham Hospital His subject is "Costovertebral Strain." Page 144 Address 372 Marlboro Street, Boston

HIGGINS, HAROLD L A B, M D Johns Hopkins University Medical School 1919 Chief of Children's Medical Service, Massachusetts General Hospital Assistant Professor of Pediatrics, Harvard University Medical School His subject is "Two Cases of Dwarfism." Page 148 Address Massachusetts General Hospital, Fruit Street, Boston

CURPHEY, THEODORE J M D C M Queen's University, Canada, 1921 Medical Director, Simon Baruch Foundation for Research in Pneumonia. Assistant Professor of Pathology, New York University and Bellevue Medical College Pathologist at St John's Hospital, Brooklyn, New York, also at Meadowbrook Hospital, Nassau County, New York Consulting Pathologist, St Giles Hospital, Brooklyn, New York Address St John's Hospital, 480 Herkimer Street, Brooklyn, New York Associated with him is

SOLOMON, SAUL B A, M D McGill University Faculty of Medicine 1930 Formerly, Pneumonia Resident, Simon Baruch Foundation Research Laboratory, Fourth Medical Division,

Bellevue Hospital, New York City Now, Clinical Assistant, Fourth Medical Division, Bellevue Hospital Assistant Physician, Stuyvesant Polyclinic Hospital, New York City Address 309 W 19th Street, New York City Their subject is "The Therapeutic Value of Calcium Salts in Serum Sickness" Page 150

The Massachusetts Medical Society

STATED MEETING OF THE COUNCIL

A STATED meeting of the Council will be held in John Ware Hall, Boston Medical Library, 8 Fenway, on Wednesday, February 5, 1936, at 12 o'clock noon

Business

- 1 Call to order at 12, noon
- 2 Reading record of last meeting in abstract
- 3 Obituaries of Councilors who have died since the last meeting
- 4 Report of Committee of Arrangements for the Annual Meeting next June
- 5 Report of Auditing Committee and of Treasurer
- 6 Reports of Committee on Membership and Finance
- 7 Reports of committees appointed to consider petitions for restoration to the privileges of fellowship and appointment of new committees
- 8 Report of Committee on Medical Education and Medical Diplomas
- 9 Appointment of three delegates and three alternates to the House of Delegates, American Medical Association, for two years from June 1, 1936
- 10 Appointment of delegate to Annual Congress of the American Medical Association on Medical Education and Licensure at the Palmer House, Chicago, February 17 and 18, 1936
- 11 Appointment of two delegates to each of the annual meetings of the five New England State Medical Societies in 1936
- 12 *Incidental Business*

ALEXANDER S BEGG,
Secretary

Boston, January 28, 1936

Councillors are asked to sign one of the two attendance books before the meeting The Cotting Luncheon will be served immediately after the meeting

LOCAL COMMITTEE OF ARRANGEMENTS
FOR THE ANNUAL MEETING IN
SPRINGFIELD

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Ladies—Dr William A. R. Chapin
Historical—Dr George L Schadt.
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Sports—Dr Richard A. Rochford.
Transportation—Dr Alfred M Glickman
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Springfield Hospital—Dr Frank K. Dut
ton.

Mercy Hospital—Dr George B Corcoran.

Wesson Memorial Hospital—Dr Frederic
Hagler

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Chairman Secretary
524 Commonwealth Ave., 472 Commonwealth Ave
Boston Mass. Boston Mass.

EXTRAUTERINE PREGNANCY

The typical picture of an unruptured extra
uterine pregnancy is about as follows. The pa
tient skips her regular menstrual period and a
few days or a week or two later begins to drib
ble blood, usually dark in color. Repeated at
tacks of severe sharp unilateral low abdominal
pain occur, sometimes accompanied by faint
ing.

Examination at this time shows a very slight
ly enlarged uterus and a unilateral tender mass,
which increases definitely in size if examination
is repeated at intervals of two or three days.
Temperature, white count, and sedimentation
time are normal.

Unfortunately there are many factors which
may obscure the typical picture of an ectopic
pregnancy. The differential diagnosis in the
main is from pelvic inflammation, cystic ovary
early miscarriage and rupture of Graafian fol
licle with unusual bleeding.

A large percentage of tubal pregnancies are
preceded by chronic pelvic inflammation, so that
the new symptoms may be misinterpreted as a
continuation of the previous trouble.

Cystic ovaries often cause sharp pain and by
interference with the estrin progesterin balance
cause irregular menstruation simulating ectopic

gestation. On the other hand, the patient may
have a cystic ovary on one side and an extra
uterine pregnancy on the other.

In the above conditions the Aschheim Zondek
test, if one dares to wait for it, provides conclu
sive evidence.

An early miscarriage with severe pain may
simulate extrauterine pregnancy with impend
ing rupture, and in doubtful cases ether ex
amination and perhaps curettage must be re
sorted to, to clear up the diagnosis.

Rupture of Graafian follicle with undue hem
orrhage may simulate tubal abortion in that
the patient has an attack of severe pain, usual
ly midway between periods with development
of a tender boggy resistance in the posterior
cul-de-sac. Regularity of the periods and a neg
ative Aschheim Zondek test should enable one
to make the diagnosis clear.

Atypical histories are perhaps more common
than typical ones in early ectopic pregnancy.
Some patients have amenorrhea and no suspi
cion that they are otherwise than normally
pregnant until rupture suddenly occurs. Less
commonly, menstruation may be perfectly regu
lar. Sometimes the slow leaking of blood into
the peritoneal cavity with consequent protein
decomposition and absorption may cause eleva
tion of temperature and leucocytosis.

The most valuable points in the early diag
nosis of extrauterine pregnancy are any irreg
ularity of menstruation with intermittent at
tacks of pain, plus a rapidly increasing, ex
quisitely tender mass, with a temperature nor
mal, or only slightly elevated, and a positive
Aschheim Zondek test.

Unrecognized extrauterine pregnancy may
terminate in one of three ways: first by tubal
abortion, secondly by rupture, and thirdly (very
rarely) development to term when so called
"missed labor" occurs.

When abortion of the embryo through the
fimbriated extremity of the tube occurs, there
is an attack of severe pain and on examination
a boggy, very tender mass of varying size lo
calized in the pelvis may be palpated.

When rupture occurs there is a history of
severe abdominal pain with faintness and the
signs of internal hemorrhage: pallor, feeble
pulse (not usually very rapid, however), low
blood pressure and cold and clammy skin. The
abdomen is slightly distended, very tender, es
pecially on the side of the rupture and there is
shifting dullness in the flanks. Vaginal ex
amination shows a diffuse, boggy resistance and
marked pelvic tenderness.

When extrauterine pregnancy develops to
term there are usually vague pains suggestive
of labor, followed by disappearance of fetal
heart tones and movements but nothing further
happens. Usually examination, under anesthesia

A series of short selected articles by members of the Section
is being published weekly.
Comments and questions by subscribers are solicited and
will be discussed by members of the Section.

if necessary, will show the uterus of small size and distinct from the mass due to the pregnancy. It is not uncommon, however, for the diagnosis to be missed by several consultants before the correct solution of the problem is arrived at.

The treatment of extrauterine pregnancy at any stage is immediate operation. In ruptured ectopic pregnancy, however, with the patient in extreme shock, operation should be deferred until transfusion has been performed or intravenous glucose solution, heat, morphia, etc., have improved the patient's condition sufficiently to stand surgical intervention.

QUARTERLY BULLETIN OF THE BOSTON MEDICAL LIBRARY

JANUARY 1936

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The purpose of this publication is to extend more widely, if possible, the service that the Boston Medical Library is in a position to render the members of the Massachusetts Medical Society particularly, and more broadly, even, the physicians of New England.

LIBRARY SERVICES

- 1 *Bibliographic* Looking up references in medical literature from original sources
- 2 *Packet Service* Pamphlets, reprints and monographs covering any medical subject from the accumulations in the Library, loaned upon request.
- 3 *Photostatic Service* Photographic reproduction of pictures, the printed page, etc
- 4 *Library Extension Service* Monthly, regional extension books and periodicals

SERVICES

For the first three of these services and their costs, application should be made to the Director of the Boston Medical Library, 8 Fenway, Boston, Mass. The fourth service may be in-

augurated after a survey of the needs of Districts, where such service might be practicable and when plans have been worked out for defraying the costs.

It is the purpose of the Library Committee within the limits of its budget, to purchase the best of medical literature in whatever form it is presented and they will give notice in these Bulletins of such acquisitions. Citations of reviews of significant books, appearing in the columns of *The New England Journal of Medicine* and elsewhere, may serve to draw attention to authoritative information otherwise overlooked.

Physicians visiting in the City are invited to call at the Library where information is available as to what is going on at most of the Clinics, when and where Medical Society meetings are being held, the subjects to be discussed and the speakers.

The Library has for many years sought to encourage an interest among physicians in the History of Medicine and will continue to do so in these Bulletins, and in biographical sketches of noteworthy contributors to medical science, appearing in *The New England Journal of Medicine*, at other times than the regular issues of the Bulletin. During the fall and winter, the Medical History Club holds regular meetings at the Library to which all interested physicians are welcome. To render appropriate recognition of significant events in the history of medicine is one of the purposes of the History Club and the Bulletin will endeavor to call attention to these events and their celebration.

For out-of-town physicians, Members of the Library, having a little free time to while away, 8 Fenway has many interesting things to offer: the Prince Memorial Room in which one may quietly read, a Periodical Room in which are available some hundreds of the world's current medical journals, a very unusual collection of Incunabula and ancient manuscripts of great historical value, as well as numerous items of local antiquarian and historic interest and a very valuable collection of medals not duplicated anywhere else.

RULES GOVERNING THE USE OF THE LIBRARY

Hours During the months from October to June, inclusive, the Library will be open daily except Saturdays, Sundays and Holidays from 9 30 A M to 6 P M. Saturdays, the Library closes at 5 P M. From October 16 to May 31, the Library will be open Monday and Wednesday evenings from 6 to 10 o'clock. During July, August and September, the Library will close daily at 5 P M, except on Saturdays when it will close at 12 Noon.

Most books and periodicals may be borrowed by members for periods varying from three to fourteen days.

MASSACHUSETTS LEGISLATIVE NOTES

S. 69 This bill has been introduced by Senator Miles and is a modification of that submitted last year and if enacted will relieve doctors and hospitals of the unjust burdens imposed under present conditions.

The text of the bill follows

SENATE 69

AN ACT PROVIDING SECURITY TO HOSPITALS AND PHYSICIANS IN THE ENFORCEMENT OF REASONABLE CHARGES FOR TREATMENT OF CERTAIN PERSONAL INJURY CASES

Be it enacted by the Senate and House of Representatives in General Court assembled and by the authority of the same as follows

Chapter two hundred and fifty five of the General Laws is hereby amended by adding at the end under the heading Liens Of Hospitals And Physicians the following six new sections —

Section 40 Every registered physician, and every person maintaining within the commonwealth a hospital other than one maintained by the commonwealth or a political subdivision thereof shall have a lien upon any and all rights of action suits claims counterclaims or demands which any person treated by such physician or admitted to such hospital and receiving treatment, care and/or maintenance therein on account of personal injuries received by him as the result of the wrongful or negligent act or failure to act of any person may have, assert and or claim against such last named person such lien to be for all reasonable charges of such physician for medical and/or surgical treatment, or for all reasonable expenses and charges of such hospital at ward rates as the case may be for such treatment, care and/or maintenance of such injured person up to and including the date of payment of damages for such injury provided that a written statement containing the name and address of the injured person, if known the date upon which his injuries were sustained the name of the physician, or of the hospital or of the person maintaining the same as the case may be and his or its location or address and if known, the name and address of each person alleged to be liable to pay damages to such injured person for such injuries shall be filed in the office of the clerk of the courts (in Suffolk county in the office of the clerk of the superior court for civil business) of the county wherein such injuries were sustained prior to the payment of such damages and provided, further that such physician or such hospital or the person maintaining it, shall immediately upon filing such written statement mail post age prepaid a copy of such statement, with a record of the date and place of filing thereof endorsed thereon, to each person so alleged to be liable to pay damages whose name and address are known to the lien claimant. The claim of a registered physician made under authority of this section may

be included in, and made a part of the claim of a hospital hereunder

Section 41 The reasonable charges for which a lien under the preceding section may be claimed by a registered physician shall not exceed the charges specified for the services performed in the schedule of charges established for the county within which the lien is claimed by the Massachusetts Medical Society which is hereby authorized forthwith to establish such a schedule for each county within the commonwealth and shall file promptly a copy thereof and of all subsequent changes amendments and additions therein and thereto in the office of the clerk of the courts (in Suffolk county in the office of the clerk of the superior court for civil business) of the county wherein such schedule is or is to be effective. Before any such schedule, or any change amendment or addition therein or thereto shall become effective, a public hearing thereon shall be held by a judge of the superior court sitting within and for such county public notice of the time and place of which hearing shall be given by publishing the same at least thirty days before such date in a newspaper having a general circulation in such county. If after such hearing the judge shall be satisfied of the reasonableness and sufficiency of such charges, or of such change amendment or addition therein or thereto he shall issue an order to such effect and file the same with the clerk and thereafter in any proceeding in such county to enforce a lien established under section forty such schedule may be introduced as evidence of the reasonable value of the services so performed but in no event shall any lien be enforced for any charge in excess of such schedule

Section 42. Any lien referred to in section forty shall attach to any verdict, report, decision, decree award or final judgment or order made or rendered in any action or proceeding in any court of the commonwealth, or by any board or commission thereof, in any suit, action or other proceeding brought by such injured person or by his estate in case of his death against any person for the recovery of damages on account of such injuries as well as to the proceeds of any settlement of any such suit or of the settlement of any such claim or demand effected by any such injured person with such other person

Section 43 After the filing of the notice as provided by section forty-one no release of any judgment, claim or demand by such injured person shall be valid or effectual as against such lien and any person making any payment of damages to such injured person or to his legal representative for injuries sustained or for death caused by such injuries shall for one year from the date of such payment remain liable to the lien claimant for the amount of his or its reasonable charges due at the time of such payment to the full extent of the services and expenses to the date of such payment, and any such lien claimant may within such period enforce his or its lien by a suit at law against the person making such payment of damages

Section 44 The clerk of courts of each county (in Suffolk county the clerk of the superior court for civil business) shall at the expense of his county provide a proper docket, to be called the physician and hospital lien docket, in which, upon the filing of any lien claim under section forty-one, he shall enter the name of the injured person, the date of the accident and the name of the registered physician, or of the hospital or person maintaining the same making the claim. Such clerk shall also prepare and keep up to date a proper index of said docket, and shall be entitled to the following fees

For filing such claim _____, and at the rate of _____ cents per folio for each entry made in the lien docket and _____ cents for each search made by him in his office for a lien claim.

Section 45 Any person against whom a claim for compensation for injuries suffered by a person referred to in section forty shall be made may examine the records relative to the treatment, care and/or maintenance of such injured person made or kept by the lien claimant.

Hearing on this bill was held January 21

MISCELLANY

THE APPOINTMENT OF DR LINDE

Dr Joseph I Linde, clinical professor of pediatrics at the Yale University School of Medicine, has been appointed health officer of New Haven, succeeding Dr Leonard Greenberg, who recently resigned to become associated with the New York State Department of Labor

APPOINTMENTS AT THE CARNEY HOSPITAL

At a Meeting of the Advisory Board of Carney Hospital on January 6, 1936, the following appointments were made

Dr James P O'Hare was made Consulting Physician to the Medical Department of Carney Hospital

Dr William E Browne, for many years a member of the Surgical Staff, was appointed Surgeon-in-Chief of the Second Surgical Service of Carney Hospital

THE DRIVE AGAINST VENEREAL DISEASES

At a meeting in New York City January 15, attended by more than 2,500 representatives of the medical and nursing professions, social workers and public health officials, the problem of venereal diseases was discussed with a view to designing an efficient program for the management of this great burden on the human race

Dr Alfred Potter, Director of Dermatology and Syphilis at the Kings County Hospital, estimated that the number of cases of syphilis in the United States is 10,000,000 with 400,000 new cases developing yearly, and an annual mortality of 26,000. Comparing syphilis with other communicable diseases he cited 35,000 more reported cases of syphilis than scarlet fever, 79,000 more cases than all forms of tubercu-

losis, 500,000 more cases than of diphtheria and many more than those reported of typhoid fever

Other speakers gave statistical evidence of the new cases reported substantiating these figures

The consensus expressed by the speakers is that the remedy consists in bringing the facts out into the open. The therapy applicable to the treatment of syphilis and gonorrhea is available but the "conspiracy of silence" is thwarting the efforts of the medical profession, social hygiene programs and health departments

The solution of the problem lies in general understanding of conditions and a determined and co-ordinate movement to prevent venereal diseases

ANTI VACCINATION ACTIVITY

Members of a citizens' committee opposed to the present compulsory vaccination law held a meeting recently in Boston for the purpose of organizing a movement to secure the repeal of the mandatory provision for the vaccination of public school pupils

The proposed plan is to organize groups in various sections of the state for the development of a concerted movement to influence the Legislature to repeal the existing law. With the remarkable record of the value of vaccination in preventing smallpox, any interference with the general use of this prophylactic practice would be unfortunate

Doctors should antagonize this movement by a campaign to educate the people as to the importance of vaccination.

SERVICE RENDERED BY NEW YORK HOSPITALS

Dr S S Goldwater, Commissioner of Hospitals, New York City, is quoted in the daily papers as having said in his report for 1935 that "at least half the population of New York City depends on the city hospitals for medical care and ambulance service." This demand, Dr Goldwater explains, will necessitate the creation of new municipal hospitals in order to give that quality of service now provided in private institutions in that city. In specific details he sets forth the necessity of reducing overcrowding, tripling facilities for outpatient service, laboratory extensions, larger nursing staffs, the further development of scientific research, control of clinical appointments, modernizing therapeutic equipment, closer relations with medical schools, better instruction for internes and provision for convalescents

The beds under the Commissioner's charge number 18,986 and cover long term and short term uses chronic diseases, communicable and mental illnesses

Referring to alcoholic cases the statement is made that there seems to be a substantial increase since prohibition, although in general there has been a decrease since 1916. The total days' care was 6,544,472 and the average stay was 25.1 days which is two days less than in 1934

The problems under Dr. Goldwater will interest those who hold responsible positions in maintaining these institutions.

In addition to the municipal service, private hospitals of New York City accommodate about 440,000 bed patients and 1,500,000 outpatients yearly. These figures show to some extent the importance of medicine in the social scheme.

The relation of medical practice in general to hospitals is being studied throughout the country. This great service to the victims of disease has an important bearing on the economics of medical practice within and outside hospital walls.

PSYCHIATRIC SERVICE AT MICHAEL REESE HOSPITAL

On January 1, 1936, a Psychiatric Service in the Department of Nervous and Mental Diseases was organized at the Michael Reese Hospital, Chicago, Illinois.

This service will be headed by Dr. Jacob Kasanin, formerly the clinical director of the Rhode Island State Hospital of Mental Diseases and lecturer in Psychiatry at Brown University and Smith College School of Social Work. Previously Dr. Kasanin was connected with the Boston Psychopathic Hospital, Boston, Mass., where he was the Senior Research Associate in connection with the research investigating the Social Causes for Mental Diseases under the auspices of the Rockefeller Foundation.

The Psychiatric Service at Michael Reese Hospital will have an outpatient department as well as a small number of beds in the hospital and also in the Sarah Morris Children's Memorial.

NEW YORK STATE CAMPAIGN TO CONTROL PNEUMONIA

Reduced mortality from pneumonia may be expected if plans of the Medical Society of the State of New York are successful.

In a statement issued by Dr. Thomas P. Farmer of Syracuse, chairman of the Public Health and Medical Education Committee of the Society, the campaign will be a joint project of the medical Society of the State of New York, the New York State Department of Health, the State Association of Public Health Laboratories, the Metropolitan Life Insurance Company and the Commonwealth Fund.

The development of the work is in direct charge of Dr. Russell L. Cecil of New York City, chairman of the pneumonia subcommittee.

A PHYSICIAN'S FEE

In the following letter of Surgeon General Cummings to the Secretary of the Massachusetts Medical Society, the information is set forth that reports of illness requested of physicians to amplify facts found in the Chronic Disease Survey will be paid for at the rate of twenty-five cents.

Mirabile Dictum! Twenty-five cents for time consumed in the examination of records and recording facts. Even with this the likelihood of requests for more details. Official correspondence is about as voluminous as a department or bureau is able to make it.

Here is another opportunity for the long suffering doctor to serve his country with niggardly recognition by the government.

COOPERATION OF THE MEDICAL PROFESSION AND THE PUBLIC HEALTH SERVICE

Treasury Department
Public Health Service

Washington

December 28, 1935

Dr. Alexander S. Begg
Secretary, Massachusetts Medical Society

Dear Dr. Begg:

With further reference to my letter of October 15, 1935, it has seemed to me that your State and local medical societies may be somewhat in doubt as to the kind of cooperation which is needed on the Chronic Disease Survey between the Public Health Service and the medical profession.

Our regional State and city supervisors have been told to get in touch with the various medical societies in their districts. I believe that in many instances this has been done but I am afraid that the explanations which have been made have not been sufficiently clear and that after the first contact the medical societies are wondering why the matter seems to be dropped especially when they read in the newspapers and hear over the radio that the survey is actually being carried on.

The principal reason for the first contact was to let the medical society know that the survey was about to start. The cooperative action between the Service and the Society will come at a later time.

The survey itself as you know is purely the collection of factual data from families. We have been very careful in the preliminary part of the survey to avoid having the lay enumerator collect medical information. The enumerator simply asks the householder what diseases have occurred in her household and records the exact words of the informant. Many such schedules will record no illness. For those that record an illness it is planned to obtain further data from the physician who treated the case. The exact method of obtaining this information has not been completely worked out. Methods are now being tested to determine which are most satisfactory. Before being applied in any area the method will be presented to the official committee of the medical society for judgment and action. Whatever the details of the method used we can say that the request for information will be mailed to the physician direct from the Surgeon General and be returned by mail to the Surgeon General where it will be treated as strictly confidential, used only for statistical analysis and will

not be returned to the local office, thus complying with the ethical standards of the medical profession. No requests for such information will go out for a month or two when a considerable part of the canvass will have been completed.

A sum has been set aside from which to pay twenty five cents for the filling out of each medical schedule.

Regional or State supervisors will visit the Secretary of the State and County Medical Society and request that the local societies designate committees to act in an advisory capacity to State and local supervisors.

Very truly yours,

H. S. CUMMING,

Surgeon General

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1934 AND 1935 AND SEVEN YEAR AVERAGE

MONTH ENDING JANUARY 4, 1936

Diseases	Week ending Dec 14, 1935	Week ending Dec 21, 1935	Week ending Dec 28, 1935	Week ending Jan. 4, 1936	Average cases reported for week corresponding to Jan. 4 for past seven years	Week ending Dec 15, 1934	Week ending Dec 22, 1934	Week ending Dec 29, 1934	Week ending Jan 5, 1935
Actinomycosis	—	—	—	—	—	—	—	—	1
Chickenpox	277	145	70	100	134	216	183	122	149
Conjunctivitis Infectious	—	—	—	—	2	—	—	—	—
Diphtheria	5	7	1	1	16	1	2	1	4
Dysentery Bacillary	—	—	—	—	—	1	—	—	3
Encephalitis Epidemic	1	—	—	1	—	—	—	1	—
German Measles	52	65	53	52	8	5	5	2	8
Influenza	5	7	6	31	131	6	8	81	236
Measles	134	76	48	93	127	314	316	278	433
Meningococcus Meningitis	—	2	—	2	—	1	—	—	1
Mumps	53	83	69	97	61	41	33	29	32
Paratyphoid Fever	2	—	—	2	—	—	—	—	—
Pneumonia (Broncho)	26	28	26	46	41	22	20	36	33
Pneumonia (Lobar)	46	51	41	76	55	21	33	41	63
Poliomyelitis	1	—	1	—	—	—	—	—	1
Scarlet Fever	59	40	50	40	69	39	39	46	51
Smallpox	—	—	—	—	2	—	—	—	—
Streptococcus Sore Throat	1	1	3	1	4	2	5	4	3
Tetanus	—	2	—	—	—	—	—	1	—
Trachoma	—	—	—	—	—	—	2	—	—
Trichinosis	—	1	—	—	—	—	—	—	—
Tuberculosis (Pul)	25	21	8	15	28	25	15	17	13
Tuberculosis (O F)	3	2	1	1	2	2	—	—	—
Typhoid Fever	2	1	—	2	—	1	—	1	1
Undulant Fever	1	3	—	1	—	—	—	1	—
Whooping Cough	141	94	67	43	52	65	72	45	73
Gonorrhea	13	30	31	31	29	45	18	31	31
Syphilis	36	44	46	53	33	45	44	33	55

Remarks No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DIVISION OF ADULT HYGIENE

Number 30 *Cancer Clinic Bulletin* January 1, 1936

The following will appear in a pamphlet issued for general distribution in the near future. A copy

of this pamphlet may be obtained by writing the Department

THE MASSACHUSETTS CANCER PROGRAM

The Cancer Program of the Department of Public Health of Massachusetts was inaugurated in 1926 by legislative enactment. According to law, there are four major activities—first, statistical research

for the evaluation of the problem secondly clinics whereby group diagnosis is made available to every individual in the State thirdly the Pondville Hospital wherein it is possible to adapt the best-known methods in diagnosis and treatment of cancer to the needs of the State and fourthly education for the dissemination of exact information concerning cancer for every individual in the State with the hope of eventually sublimating the current groundless fears and phobias

STATISTICAL STUDIES

The studies have covered the volume of the problem the existing hospital facilities in the State including the availability of radium and x ray the medical social and economic aspects of the disease as well as such etiological findings as would be obtained by statistical analysis of death records, hospital records and home visits to cancer patients. This work is continuing and reports are made on new evidence as it is acquired.

CLINICS

The State-aided cancer clinics are administered by committees appointed by the local medical or organizations. These committees have charge of the administrative details connected with their respective clinics but in all cases they must conform with the minimum standards set by the Department. These are as follows

(a) Group diagnosis. The group must consist of at least three men preferably surgeon pathologist, and radiologist. When any of these are not available other physicians may be substituted.

(b) Uniform records. Forms are furnished by the Department for this purpose as is also money for clerical service when needed

(c) Social service. All cases of cancer and precancer are referred to social service for follow up. The follow up continues until death in the case of cancer and until removal of the lesion in the case of precancer. The State either furnishes money to help defray the expenses of the social worker or furnishes the clinic the services of a part time social worker

Every physician in the Commonwealth may bring or send his patient to the clinic for free consultative service with the group. If the individual case requires such diagnostic procedure as gastro-intestinal series this must be paid for by the patient if he is able to do so. If he is not able to do so, funds are available for this service

Each case is returned to the physician who sent him to the clinic, and this physician decides whether he desires the assistance of social service in securing treatment for his patient.

The clinics must meet at least twice a month. At intervals determined by the clinic committee but in no instance less than once a year some form of teaching for the physician in the community is required. Some clinics perform this service by having consultants come to the clinics at stated intervals others have adopted the plan of having all

the physicians in the community serve on the clinic staff while still others confine their activities to having an address on cancer by some surgeon from another city

The clinic itself is furnished the following services by the State first, advice information and literature secondly funds for or services of social workers thirdly funds for travel of social worker fourthly funds for x ray diagnosis for those unable to pay fifthly funds for teaching clinics sixthly funds for clerical assistance in clinics seventhly funds for postage telephone stationery etc. eighthly special clinics for the staffs of the clinics and ninthly reference of cancer cases to Pondville through social service.

The purpose of the clinics is to furnish physicians and the public group consultation service in cancer as well as to improve the knowledge of cancer among the medical profession and the laity. The group furnishes a diagnosis and outlines a plan of treatment for any person suspected of having cancer regardless of financial status. Every effort is made to have the family physician either come with his patient to the clinic or send the patient with such information as he cares to furnish. Any individual is admitted to the clinic although it is preferred to have the patients referred by physicians so that any tendency to use the cancer clinic in order to establish a diagnosis of a condition originally not suspected of being cancer may be eliminated

PONDVILLE HOSPITAL

The Pondville Hospital with a bed capacity of 140 cares for any patient with cancer or suspected cancer of all types and stages provided that the patient has lived in Massachusetts for two out of the preceding three years and is certified for admission by a practicing physician.

The charges for individuals able to pay are \$10.50 per week. All others are hospitalized at no expense to themselves. Hospital charges to cities and towns for patients unable to pay their own fees are \$2.50 per day. No additional charge is made for service or treatment. Diagnostic services are free in the out patient clinic while the charge for treatment is \$150

Diagnostic, surgical, therapeutic, radium, x ray (diagnosis and treatment) medical, and nursing services are available. An out patient clinic for diagnosis and treatment is held on Thursday afternoons for new patients at 1 P.M. and old patients at 2 P.M.

The Pondville Hospital is located in the township of Norfolk, between Walpole and Wrentham, on the Boston Providence turnpike U S Route No 1A. The hospital can be reached by the New England Transportation Company buses which leave from Park Square Boston. Patients may be visited from 2-4 and 7-8 P.M. every day

Application blanks must be filled out by a registered physician and sent to Pondville Hospital. The applicant will be notified when he may be admitted.

Physicians are requested to send letters with their patients

Application blanks may be obtained from the Hospital, post office address Wrentham, Massachusetts, telephone Walpole 386, at 546 State House, Boston, from local overseers of the poor, or local boards of health. When practicable, a member of the Department staff will visit each case before admission.

EDUCATION

In order to carry out our instructions to disseminate knowledge to every individual in the State a Coöperative Cancer Control Committee is either established or is in the process of being established in every one of the more than 350 communities. This committee is composed of a small central group or steering committee, and a larger group contacted directly by the central committee, and finally, every individual in the community. The steering committee is composed of key people who have friendly and vital contacts with every type of group and individual represented in the community—religious, political, labor, foreign, social, fraternal, patriotic, and service. The members of this steering committee contact representatives of every club in the community. These clubs promise to have at least one meeting a year on cancer. A club does not have to have an impressive membership to become corporate in this plan. The small group of eight or twelve is an ideal size. The group, itself, determines the type of cancer talk it will have. Some groups prefer a formal talk followed by a question period while others prefer the round table discussion with the physician during which questions are asked. In any case a question period is desirable. It is at these small group conferences where an individual feels free to ask the questions about cancer where the real basic educational work is done.

The local physician is the one who is asked to be the teacher in this program because the decline or increase in early detection of cancer is entirely in his hands, because he will obtain more coöperation from his community if he knows exactly what to do in case of early symptoms and what the early symptoms are, because the local physician knows his community, and because it has always been the natural prerogative of the physician to teach.

STATE AIDED CANCER CLINICS IN MASSACHUSETTS

Boston—Beth Israel Hospital, Tuesday and Thursday, 9 A.M.

Boston—Boston Dispensary, 25 Bennet Street, Tuesday and Friday, 9 30 A.M.

Brockton—Brockton Hospital, Thursday, 10 30 A.M.

Fitchburg—Burbank Hospital, Alternate Tuesdays, 9 30 A.M.

Gardner—Henry Heywood Memorial Hospital, 2nd and 4th Fridays, 9 A.M.

Gloucester—Addison Gilbert Hospital, 1st and 3rd Wednesdays, 9 A.M.

Greenfield—Franklin County Hospital, 1st and 3rd Fridays, 10 A.M.

Lawrence—Lawrence General Hospital, 1st and 3rd Tuesdays, 10 A.M.

Lowell—Lowell General Hospital, Friday, 10 A.M.

Lynn—Lynn Hospital, Friday, 10 A.M.

New Bedford—St. Luke's Hospital, Wednesday, 2 P.M.

Newburyport—Anna Jaques Hospital, 2nd and 4th Mondays, 10 30 A.M.

North Adams—North Adams Hospital, 2nd and 4th Wednesdays, 4 P.M.

Northampton—Cooley Dickinson Hospital—1st and 3rd Thursdays, 10 A.M.

Pittsfield—St. Luke's Hospital, 2nd and 4th Thursdays, 4 P.M.

Springfield—Springfield Hospital, Friday, 4 P.M.

Worcester—Memorial Hospital, Wednesday, 11 A.M.

Pondville Hospital (Post Office, Wrentham)—Thursday, 1 P.M.

THE NEW OPERATING ROOM OF THE MASSACHUSETTS MEMORIAL HOSPITALS

The formal opening of the operating floor in the new wing of the Massachusetts Memorial Hospitals, Harrison Avenue and Stoughton Street, was initiated with a series of four operations performed by distinguished surgeons who are prominently connected with the Hospitals and the Boston University School of Medicine.

According to the announcement of the Hospitals' superintendent, Dr. Henry M. Pollock, three former chiefs of the surgical service participated in programs, Dr. J. Emmons Briggs, and Dr. Charles T. Howard, both professors emeriti of surgery in Boston University's school of medicine, and Dr. Ralph C. Wiggin, who is chief of the genito-urinary surgery department of the school.

Dr. Howard M. Clute, who was recently appointed chief of the Hospitals' surgical service and professor of surgery at Boston University, was included in the group. There are four regular operating rooms, another for orthopedic work, and a sixth for obstetrical cases.

Unique among modern hospitals, the recently completed new wing at the Massachusetts Memorial Hospitals, incorporates in its plans, many novel and essentially scientific devices. Members of the Hospitals' board of trustees and other distinguished guests who had been invited on the necessarily limited list observed the operations from a balcony above the operating room proper. Benches which have flat desks before them are provided for the purpose of making notes. Guests gazed through glass partitions at the operating scene below. Shut out from the operating room itself, so that no contaminating germs may drift into the sterilized area, and no bothersome visitors will be in the way of the work at hand, the observers can listen to the voice of the surgeon explaining as he proceeds with the operation. A loud speaker microphone system will make these explana-

tions more audible than if the listener were posted beside the physician

Remembering that these balconies above the operating rooms have been designed primarily for the education of medical students Dr Pollock had built into the walls, a tube connecting balcony and operating room. The inquiring student with a question will write it out on a piece of paper put it in the carrier slip it into the tube an attendant will see it below and read it to the operating surgeon who in turn will answer for the benefit, not only of the one student with whom the question originated but for all the spectators.

Constant temperature chambers for solutions and the warming of blankets simplify this ever present problem. In the large preparation room arrangements for the making and putting up of dressings mean that only the workers in these rooms are in contact with the materials. As soon as the dressings are ready, they are put on shelves or racks and pushed into a wall container which is opened from the hall side. Thus they are not touched by other than the sterile hands which prepared them. Nor are these workers on the dressings in contact with the world outside of their own rooms, as no one is allowed inside.

The operating rooms are equipped with the most modern lighting systems. Giving the effect of daylight, the high powered lamp provides at all times a shadowless blaze of illumination. It is adjustable in all directions. Thus from whatever angle the surgeon may be compelled to work the light is always clear strong and he is never in his own shadow. The operating floor is air conditioned as to temperature and humidity. The electric switches and other fixtures are all protected to prevent sparking with resultant explosions. A double supply of electrical power to all fixtures has been arranged. Thus, in case of the failure of power on the regular lines without a winking of the lights even the other power will come on and the operating may continue uninterrupted. Apparatus is installed so that each room has air pressure and suction. By the arrangement of elevators in the new wing the patient will be moved directly from there to the operating room not having to be transported through any part of any corridor in the building.

A lounge room, comfortably appointed for the surgeons will be a popular place with the staff and a waiting room for the medical students will be the latter's headquarters when off duty. A lighted number flashing on in a glass panel on the wall will indicate to the waiting students which operating rooms they are expected to attend.

CONNECTICUT NEWS ITEMS

At the Annual Meeting of the Voting Staff of the Hartford Hospital held December 4 1935 Dr E. R. Lampson and Dr H. G. Jarvis were reelected President and Vice-President, respectively for the ensuing year and Dr James R. Miller was elected secretary.

The Hartford Medical Society held its annual meeting on January 6 1936. The following members were elected to office:

Edward A. Deming President
Henry F. Stoll Vice-President
J. Tyree Woodson Secretary
Louis P. Hastings, Assistant Secretary
Franklin L. Lawton Treasurer
Walter R. Steiner Librarian
Ernest Caulfield Assistant Librarian
C. Brewster Brainard, Alfred M. Rowley, E. Terry Smith Trustees for one year
Stanley B. Weld Executive Committee for 3 years

PUBLIC HEALTH IN HARTFORD

Hartford Connecticut, with its population of 164,072 has as yet no regularly appointed health officer the position being filled until April 1 by Dr Thomas F. O'Brien, acting health officer. The health program of this city as it exists today is considered by many as entirely inadequate. In a radio broadcast on January 7 Dr C. Brewster Brainard, chairman of the joint committee of the Council of Social Agencies and the Hartford Chamber of Commerce urged that there be appointed a city health officer who would be the administrator of the Department of Health not subordinate to a Board of Health composed of citizens none of whom have been trained in public health work. Dr Brainard briefly referred to the Health Conservation contests sponsored by the Chamber of Commerce of the United States and the American Public Health Association and inaugurated in 1929. In 1934 214 cities took part, representing over 33 million people. There were 29 cities in Hartford's population class of 100,000 to 250,000. Hartford has competed each year beginning in 1930 and never ranked lower than fourth. In 1933 it was the winning city.

In spite of its high rating Dr Brainard emphasized the point that Hartford should make a better showing in the reduction of its infant mortality record its house visits to school children and in the hospitalization of incipient cases of tuberculosis. Educational work relative to the prevention of cancer heart disease, and communicable diseases is very inadequate. He quoted Dr Ira V. Hiscock, professor of public health at Yale who made an exhaustive study of Hartford's health guidance agencies and problems to the effect that there is lacking a coordinated, comprehensive public health education program in this city. This program might include more information concerning the importance of early diagnosis and prompt treatment of cancer the significance of measles and whooping cough, the need for periodic medical checkup of convalescents the prevention and care of heart disease the problems of social hygiene the value of a well rounded community health program and the importance of a trained personnel. Much of the credit for the public health program in Hartford has been due not

to the Board of Health, but to nonofficial agencies as the Hartford Tuberculosis and Public Health Society, the Visiting Nurse Association, and the Hartford Dispensary

It is a striking fact that in 1934 less than one per cent of the city budget was devoted to the Department of Health. The total expenditure for public health activities for that year amounted to \$2 20 per capita, but of this the city paid less than one-fourth, while the greater part was contributed by private agencies. Hartford's program of public health lacks many things, yet it is spending \$2 20 per capita, which is well within the range of \$2 00 to \$2 50 estimated as all that is required to purchase a complete public health program.

Hartford needs a trained personnel to carry on its public health work. This means a city health department 'under the direction of a health officer who is a physician especially equipped by training and experience for administrative health work and who should at least meet the requirements set up by the Conference of State and Territorial Health Officers. He should be the actual administrator of his department of the city government and not subordinate to a group called the Board of Health that is and always has been since the city was incorporated composed of citizens none of whom have been trained in public health work. The health officer should select his trained medical assistants, public health nurses, sanitary officers and clerks and should be secure against political interference or dismissal during competent performance."

All this will necessitate a change in the city charter, the same as has been done in several Connecticut cities

CORRESPONDENCE

A DISCUSSION OF DR DONALD S KING'S CRITICISM

December 30, 1935

Editor, *New England Journal of Medicine*,

I have read with interest and appreciation the excellent criticism by Dr Donald S King, in the current issue of the *Journal*, of the paper "Diathermy in Lobar Pneumonia" by Drs Resnik, Foley, and myself, which appeared in the *Journal* of October 24, 1935, on page 796

On my own behalf, as well as that of my colleagues, I should like to make some reply, especially in view of the fact that Dr King's letter may be read by some who did not read our paper

In regard to Dr King's Point 1 (dealing with pneumococcus antiserum) We wrote "we do not imply that serum, for instance, has no value, even in our present small series of cases several patients seemed to improve markedly after receiving it, the fact remains, however, that in any large series of cases, the mortality is about what it was before serum was used" If we had written "in any large series, of

unselected type, etc", which we considered would be assumed from the context, our meaning might have been clearer. We were not attempting to evaluate serum therapy, but to point out that the mortality of pneumonia, all types considered, has changed but little during the past generation

Point 2 (dealing with the debatable question as to whether or not the lung is heated by diathermy) I am referring to Dr Resnik, the physiotherapist of the group, for anything he may care to say on the subject, or on any other subject in connection with Dr King's letter

With Point 3A we are in complete accord

Point 3B brings up the question as to our method of selecting patients for each group. As in most hospital services, we had to take patients as they came in, and they did so at very irregular intervals. In addition, and as explained in our paper, there were admissions just before week ends and holidays, and at other times when the giving of diathermy would have had to be delayed or interrupted, these patients, therefore, were placed in the control group, other upsets occurred when patients were moribund on admission, also as mentioned in our paper. The discrepancy in the dates does exist, nevertheless, our series were composed as nearly as possible of alternate cases, and it was due to mechanical difficulties rather than to any "selection" for other reasons that they were not entirely so. The "selection" thus is more apparent than real, and although as Dr King points out, it does cause the time element to enter into it, we felt that this was the fairest method we could use under the circumstances

Points 3C and 3D are likewise perfectly fair in their criticism. We can only say that, as described under "Selection of Patients" in the paper, no factors such as age, condition, type of organism, and the like were taken into consideration, and that the attempt was made to select as nearly as possible one of alternate cases

We agree with Dr King that there is need for a larger series of cases before coming to any definite conclusions in regard to the use of diathermy, that, in fact, was stated several times in the paper. Thus, "From our present series it is hardly possible to draw any definite conclusions. The number of cases is so small that statistics especially must be regarded with suspicion, and we feel that our results are suggestive rather than conclusive. We feel justified in continuing with this form of treatment until a sufficiently large series of cases, with controls, has been accumulated, and more definite conclusions may be drawn. It (diathermy) appears to lower the mortality, although the present series of cases is too small to permit drawing any definite conclusions in this respect." Our article was a preliminary report, and so subtitled

Finally we wish to thank Dr King for his letter of excellent and just criticism. It was one of our hopes in writing the paper that it might arouse comment and discussion, and such constructive crit-

icism is most welcome. We are writing this reply not in any attempt to refute any of Dr King's statements, but to clarify matters for any who may have read his letter and not our paper and who may be interested in the subject.

Sincerely yours

WINTHROP WETTERDEZ, JR. M.D.

Boston City Hospital,
Boston, Mass

UNPAID BILLS OF DOCTORS AND HOSPITALS

Editor *New England Journal of Medicine*

The old Chronic Disease of Neglecting and Refusing to pay physicians and hospitals for services rendered in accident cases and for which the bills of physicians and hospitals were taken care of in the settlements by the insurance companies has again reached an acute condition

The Norfolk District committee arranged for personal conferences recently with the director of the insurance companies in Boston to ascertain the attitude of these companies toward House Bill 1109 introduced by H. M. Landesman M.D., last year. This Bill was recommended to Massachusetts by Dr William C Woodward Legal Adviser of the American Medical Association and was based on the now existing Lien law in Nebraska, which is apparently working out successfully. This petition, with modifications to eliminate honest and serious objections by the insurance companies and yet to protect physicians and hospitals, has been again introduced.

The directors of the insurance companies were all agreed that an injustice was being perpetrated upon the physicians and hospitals in certain cases which almost bordered on larceny by some lawyers and patients and were very agreeable to the suggestion of the medical committee member to get together at a friendly conference to see whether some gentleman's agreement could be worked out to protect the physicians and hospitals and aid them as far as possible in collecting for services rendered.

Friday January 10 1936 was the day set for this conference. The following were invited

Mr P W Linscott, Employers Liability Assurance Corp., Ltd. Mr James Holland Liberty Mutual Insurance Company Mr Martin L Hines Travelers Insurance Company Mr Arthur V Sullivan Great American Indemnity Insurance Company Mr Benjamin Brooks American Mutual Liability Insurance Company Mr John W Cronin Counsel for the Liberty Mutual Insurance Company Mr R J Dunn, Lumbermens Mutual Casualty Company Mr John W Downs Counsel from the Insurance section Dr Joseph B. Howland Supt., Peter Bent Brigham Hospital Dr Nathaniel W Faxon Supt., Massachusetts General Hospital Dr Henry M Pollock, Supt. Massachusetts Memorial Hospitals Dr Charles F. Wilinsky Supt. Beth Israel Hospital, from the Hospital group Dr Charles E. Mongan, President, Massachusetts Medical Society Dr A. S. Begg

Secretary Massachusetts Medical Society Dr Channing Frothingham Suffolk District Medical Society Dr David O Dow Sr Middlesex South District Medical Society and Dr Henry M. Landesman Norfolk District Medical Society comprising the Medical group

The chairman made the following introductory remarks

Gentlemen

We have come here today for the purpose of bringing about a more amicable association. There has existed an inharmonious and a distrustful feeling among us for no good reason for we come in close contact with each other in our daily professional life. It is absolutely necessary that our business intercourse should be carried on in an honorable and friendly way for we all suffer otherwise.

You are all aware of the fact that physicians and hospitals lose tremendous sums of money annually in accident work. The sad and grievous part of the story is that moneys have been set aside by your insurance companies to pay for the medical and surgical services rendered, but these moneys too frequently are not distributed to physicians and hospitals due to some dishonest patient or lawyer. This practice is becoming worse and must be halted either by legal methods or healthy and friendly relations between insurance companies, and physicians and hospitals. The latter procedure may be the wiser.

It is not necessary to burden you and take up time to cite a series of cases in which substantial settlements were made and yet physician and hospital were not paid for their services of the highest type and efficiency. Perhaps a few cases may better be cited

1. Aeroplane accident — patient injured almost beyond likelihood of recovery. Treated by a Boston surgeon. An unlooked for excellent result was obtained. Patient got well case was settled without a lawyer for a very large sum. Patient was to pay physician, but disappeared after cashing the check.

2. Automobile accident — Mrs M O — patient struck by car traveling 40 miles per hour. Case was settled for \$2500 lawyer accepted \$1000 Patient received \$1500 and was to pay her medical expenses she refused to pay and suit was brought. Judgment rendered by court for \$110 full amount of bill. Patient again refused to pay judgment, patient brought before Poor Debtors court. Patient appeared in old clothes and told judge that those were her only earthly possessions. He let her go.

3. Patient, A. K., injured in automobile accident in hospital a month. Case was settled a few months later for \$400. This fact was found out about six months later. Lawyer took \$260 and patient was told that the lawyer would pay the hospital and physician. A release shown by the lawyer read that the patient received \$260 (this the patient denied and made affidavit) and was to pay medical and hospital bills. Bar Association claimed that it could do nothing about it.

Hundreds of such cases could be presented here, it would take time so we will dispense with them. You can prevent the above, are you willing?

The chairman then presented what he thought and knew from his experience and study of all sides of the question, a pamphlet containing the requests by insurance companies and requests by the physicians and hospitals

REQUESTS BY INSURANCE COMPANIES (A)

- 1 That physician and/or hospital notify insurance companies early of accident case under treatment
- 2 That honest diagnosis be given to investigator, and probable prognosis
- 3 That early arrangement be made for company examination of patient
- 4 That reasonable bills be rendered for services
- 5 That physicians and/or hospitals discourage and refuse to accept fake cases
- 6 That physicians and/or hospitals refuse to deal with ambulance chasers
- 7 That physicians and/or hospitals should reply promptly on notification of prospective settlement by insurance company and answer to questions of procedure physicians and/or hospitals wish to take in cases of doubtful or no liability

REQUESTS BY PHYSICIANS AND HOSPITALS (B)

- 1 That check or draft be mailed to physician and/or hospital on same day as patient receives his draft in cases of substantial settlement
- 2 That in cases where liability is doubtful but insurance company is willing to offer some sum for settlement, if, after deduction of lawyer's fee and bills of physician and/or hospital, nothing remains for patient, physician and/or hospital should be seen by patient and a definite agreement be brought about, and company notified by patient, physician and/or hospital on the final agreement
- 3 That in case disagreement between physician and/or hospital takes place with patient, settlement need not be held up, case may be settled, but above allowed time to attach amount, if so desired
- 4 That in case where there is no liability and insurance company wishes to rid itself of same by offering a pest amount, insurance company should notify physician and/or hospital that such are the circumstances

The meeting was opened for discussion.

Dr Howland discussed the New Jersey bill of five years ago and said that he was instrumental in its introduction. He said that it went to a third hearing but was finally defeated.

Dr Pollock inquired whether the objection by the insurance companies of the constitutionality of the bill was correct. The chairman replied that according to the Legal Adviser, Dr Woodward, of the American Medical Association, the bill was constitutional.

Mr Downs claimed that the insurance companies, as far as he knew, never doubted the constitutionality of the bill, and said he did not see how we

could get anywhere because the physicians and hospitals would get special preferences by their liens even ahead of the injured man and the lawyer. For instance, in Section 1 of B, the insurance companies cannot agree in all cases to mail checks or drafts to physicians when cases are settled. They cannot quite agree to Section 2, under B, and in Section 3, insurance companies can sometimes settle a case in a day or two after an accident so they cannot agree to that, but he did feel that perhaps something can be done. Mr Downs continued, that whenever he is counsel for an injured person he always tries to send checks to physicians and hospitals directly. Of course he cannot do that in every case.

Mr Linscott said that they tried to take care of physicians and hospitals at all times possible, and he felt that some plan could be worked out to cover the abuses.

Dr Baker of the Massachusetts General Hospital said in part that emergency cases were sent to the ward after treatment, and then at the request of the patient, he would be moved to a semi-private room.

Mr Hines was of the opinion that there was an injustice done to physicians and hospitals at the expense of the insurance companies who were really not to blame, and he, too, felt that a remedy could be prepared to eliminate the loss to physicians and hospitals.

Mr Cronin felt that something could be accomplished. The case is not only a medical pay problem but involves a great deal more. The lien law refers to cases where "it is solely by fault of the other party." Many cases are settled to avoid suit where the other party is not to blame. Then again let us see the effect of the lien on another type of case. In this case, lawyer brought suit for \$2000. Insurance company felt that it was willing to pay \$800 in settlement including all expenses. There were bills of physicians and hospital for \$500. The patient was willing to take \$800 if the insurance company paid the hospital and medical bills. Without a lien law, the insurance company could settle the above case, but with a lien law, it would cost the insurance company at least \$1300 out of court. This would be a handicap to insurance companies. After discussing this matter in his office with Dr Landesman, at length, he feels that the insurance companies and the physicians and hospitals can get together on some agreement to eliminate the abuses. He cited another case of an injury to a woman's shin to show how inconsistent and ridiculous some patients can be. This woman was hit on the shin, and because she could not go away to the beach that summer, she spent \$70 for awnings for the house. She and her husband were trying to save every dollar they could to invest in stocks. Their investments brought them about 700 per cent. She also had an old colitis of many years back and this flared up again. Now she felt that the insurance company should pay her for all those conditions. Of course, this sounds ridiculous, but it is fact.

Mr Cronin suggested the following plan which

could be of use: That when a physician begins to treat a patient, if he has the patient make out an affidavit to insurance company and attorney which authorizes them to pay physician and hospital when settlement takes place, the insurance company could probably do so. He also said that the Liberty Mutual Insurance Company has always tried to take care of physicians whenever possible.

Mr Sullivan mentioned a case that the lien law might have prevented settling. Patient was badly injured and the medical and surgical bills amounted to about \$1700, case was settled for \$2500. He asked the chairman how he felt about this case and Dr Landesman replied that physicians and hospitals have always been very decent and not money mad and in a case like that if the patient was crippled, they would reduce their bills to help the patient. Mr Sullivan felt that the case could not have been settled if there was a lien law and said there were many other cases in which the bills of physicians and hospitals would actually prevent early settlement of cases.

Mr Ring of the Lumbermens Mutual Insurance Company said that this company always tries to take care of physicians and hospitals whenever possible.

Mr Britten of the American Mutual Liability Insurance Company felt that Mr Cronin had covered the subject quite thoroughly and there wasn't much more he could say except that he also felt that some definite, workable plan could be adopted.

Dr Mongan said that he was at the conference in the capacity of a general practitioner and would not discuss the lien bill. The doctors hope to work out something worth while any workable plan is worth while.

Mr Downs then asked whether Dr Miles bill would also be withdrawn in case of an agreement upon a plan. The chairman advised Mr Downs that as soon as an agreement could be arranged, he would withdraw his bill and since the hospitals and physicians were satisfied with the plan adopted, Dr Miles would likewise withdraw his bill.

Dr Pollock said that the present system is very unfair to hospitals and physicians that a committee of three should be appointed to formulate some definite plan and physicians hospitals and insurance companies be represented.

The chairman felt that three men would not be sufficient to cover the situation, for there were three types of insurance companies mutual groups bureau groups, and non bureau groups. The chairman asked the insurance company members whether it would not be advisable to have each of these groups represented and they all felt that that would be the best plan.

It was then decided that another meeting be arranged for as soon as possible on account of the pending bills in the Legislature, and that a representative from each group be chosen for the next Conference at which time a definite plan could be worked out. This meeting has already been held.

H. M. LANDESMAN M.D., Chairman

EXAMINATION FOR POSITION IN NEW YORK

January 14 1936

Editor, *New England Journal of Medicine*

This Commission is soon to proceed with an examination for the important position of Assistant Director of the Bureau of Health Education at \$5500 per annum in the New York City Health Department.

The success of this examination depends in a great measure upon the number of well-qualified persons who compete therein. May we have your personal assistance and cooperation in bringing this examination to the attention of qualified candidates?

The dates for the receipt of applications have been extended from January 14 to February 11 1936

WM. H. ALLEN Secretary

Municipal Civil Service Commission,
Municipal Building Manhattan,
Centre and Chambers Streets,
Fourteenth Floor

THE AMERICAN PSYCHOANALYTIC ASSOCIATION

January 15 1936

Editor *New England Journal of Medicine*,

I have the honor to inform you that The American Psychoanalytic Association founded in 1910 met in Boston December 28 at which time it adopted a new constitution. The American Psychoanalytic Association now a Federation of the American Psychoanalytic Societies has as its membership the Boston Psychoanalytic Society the Chicago Psychoanalytic Society the New York Psychoanalytic Society and the Washington-Baltimore Psychoanalytic Society

The following officers were elected Honorary President, A. A. Brill, M.D. (New York) President, C. P. Oberndorf, M.D. (New York) Vice-President, Isador H. Coriat, M.D. (Boston) Secretary Ernest E. Hadley M.D. (Washington, D. C.) and Treasurer Leo H. Bartemeler M.D. (Detroit)

The scientific program consisted of papers entitled

"Humor and Hypomania" by Isador H. Coriat, M.D.

"A Contribution to the Psychogenesis of Migraine" by Frieda Fromm-Reichmann, M.D.

"The Omission of Grief Contributions to the Psychology of Effects" by Helene Deutsch, M.D.

"Envy of the Mother and the Wish to Take from Her" by Catherine L. Bacon, M.D.

"Psychoanalytic Aspects of Some Gynecological Disorders" by Karl Menninger M.D.

"A Case of Compulsive Masturbation" by John A. P. Millet, M.D.

Sincerely yours,

ERNEST E. HADLEY Secretary

RECENT DEATH

MAHONEY—FRANCIS X. MAHONEY M.D., for more than twenty years health commissioner of Boston

died on January 14, at the Deaconess Hospital, after an illness of several weeks. He was sixty four years old.

Born in Boston, Dr Mahoney attended Boston College and Holy Cross, receiving his degree in medicine from Harvard University. He was appointed to the board of health in 1910 by Mayor John F Fitzgerald, becoming head of the department in 1914, and continuing in that capacity until his death, except during the administration of Mayor Peters.

His long and eminent service in the health department witnessed striking reductions in infant mortality, typhoid fever and diphtheria, and the establishment of the health units in various sections through the income of the George Robert White Fund.

Dr Mahoney was a member of the American Medical Association, the Massachusetts Medical Society, the American Public Health Association, the Massachusetts Association of Boards of Health, the Harvard Club of Boston, the Elks, Foresters, and New England Pilgrim Fathers. He is survived by his widow, and two brothers, Lt. George Mahoney of the Boston police force, and John Mahoney, chief food inspector of the health department.

NOTICES

WORCESTER CANCER CLINIC

COÖPERATING WITH THE MASSACHUSETTS DEPARTMENT
OF PUBLIC HEALTH

The Diagnostic Cancer Clinic will be held each Wednesday at 11 A.M. at Memorial Hospital Out-Patient Building.

A group of physicians who are specialists in particular fields will be present at each clinic and careful reports will be sent to the referring doctors.

ERNEST L. HUNT, M.D., *Chairman*

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M. on Thursday, January 30, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr Henry A. Christian, Physician-in-Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students.

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr Christian.

REPORTS AND NOTICES OF MEETINGS

NEW ENGLAND HEART ASSOCIATION

The November meeting of the New England Heart Association was held at the Boston City Hospital on the evening of November 25.

Dr Samuel A. Levine opened the meeting with a

short address and then turned it over to Dr Soma Weiss who presented the first of a series of interesting and instructive papers. His subject was a "Demonstration of Pathological Specimens." The first specimen was a heart from a case of rheumatic heart disease in which there was a very extensive stenosis of the mitral valve and a marked "fish mouth" appearance. A dissecting aortic aneurysm was then shown, remarkable in that it had ruptured back into the aorta, thus establishing two main vessels in that region. A fairly strong wall had been formed for the new passage and the patient lived for about a year after the acute episode, at which time he had had epigastric pain with cardiac failure. Two specimens from cases of bicuspid aortic valves were shown, in one of which there was a terminal history of subacute bacterial endocarditis.

In the other case there were extensive partially calcified vegetations on the valve leaflets and Dr Weiss felt that this might represent an old healed subacute bacterial endocarditis. Congenital bicuspid aortic valves usually give no murmurs unless subacute bacterial endocarditis is present. The fourth demonstration was of two unusual congenital malformations, one with constriction of the pulmonary conus and a communication just above the intraventricular septum, the other with four leaflets in the pulmonary valve. The last specimen was from a case of subacute bacterial endocarditis in which there were vegetations in both the right and left sides of the heart. In life there had been a loud double murmur in the pulmonary area.

The subject of the second paper of the evening was "Amyloid Heart" and was delivered by Dr Kenneth Mallory. In about 24 per cent of cases of chronic pulmonary tuberculosis there is some amyloid deposited within the heart musculature as well as in other organs, but this is not extensive enough to cause heart failure. A second type involves the tongue, heart, and smooth muscle of the gastrointestinal tract. Ten cases of this type have been reported and three of these died of cardiac failure, but no such cases were found in the pathological records of the Boston City Hospital. There is also a third group in which the amyloid is found only in the heart musculature, and there have been four such cases recorded in the Boston City Hospital. These cases were described in detail by Dr Mallory and he showed several lantern slides to demonstrate the histopathology. There may be a focal or diffuse amyloid infiltration and in one case the infiltration was in the intraventricular septum alone and caused Stokes-Adams attacks with heart block. Dr Mallory concluded with the statement that amyloid disease of the heart, either primary or secondary, may contribute to or even cause cardiac failure.

Dr L. B. Ellis spoke on the "Mechanism and Treatment of Postural Hypotension." The normal adaptation to the upright position is chiefly carried

out by peripheral vasoconstriction which maintains the blood pressure. In certain conditions this adaptation is not adequate and the systolic pressure falls and syncope results. In the majority of cases this is not due to a failure of the vasomotor reflex but rather to deficient tone of the skeletal or vascular musculature leading to pooling of blood in the periphery. The mechanism of postural hypotension however is different. Here there is a failure of the vasomotor reflex to operate. In cases of this condition there is a marked fall in the systolic and diastolic blood pressures and the rate of the heart may not change at all on assuming the upright position. Although only twenty-six cases of this condition have been reported in the literature in the last two years six cases have been seen in the Boston City Hospital indicating that the condition is probably more common than has been believed. A careful study of two of these cases showed the total blood flow and cardiac output to be essentially normal when standing in spite of the drop in blood pressure.

There are multiple causes for this failure of the vasomotor reflex. The condition is not infrequently associated with disease of the central nervous system and four of the six Boston City Hospital cases had such disease two cases of tabes dorsalis one of syringomyelia and one of transection of the spinal cord. A study of the postural blood pressure reflex in cases of combined system disease and tabes dorsalis showed little that was abnormal in the first group but ten of the seventeen cases with tabes dorsalis showed an unusual drop in the systolic or diastolic pressures on assuming the upright position. One of the cases showed amyloid disease of the cortex of the adrenals and some of the cases in the literature had Addison's disease.

Treatment of postural hypotension consists of the following first, the treatment of the underlying cause where that is possible secondly mechanical measures such as bandaging the legs and thirdly drugs, the most important of which is ephedrine sulphate in doses of three-eighths of a grain three or four times a day. Although ephedrine usually relieves the symptoms it frequently does not change the abnormal fall in pressure.

"The Significance of Precordial Leads in Cardiac Infarction" was the subject of a paper by Dr. James M. Faulkner. The evolution of characteristic electrocardiographic patterns following acute cardiac infarction was illustrated graphically. In fifty-one cases with electrocardiograms characteristic of infarction, the changes were present only in the precordial lead throughout. Correlation of electrocardiographic signs with the particular coronary arteries occluded was better than with the site of the infarct as designated by the anterior or "posterior" wall of the left ventricle. It was suggested that the terms "anterior" and "posterior" were unsatisfactory for this purpose because the heart was not fixed but liable to rotation on its longitudinal

axis. In discussion Dr. Paul White suggested that the terms "apical" and "basal" be substituted for anterior and posterior respectively as more accurately expressing the location of the infarcts which give the two distinct types of electrocardiograms.

Dr. Soma Weiss spoke on "Recent Observations on the Functional Properties of the Vascular System and on the Hemodynamics in Arterial Hypertension." In primary hypertension, although the pressure within the arteries and arterioles is above normal that of the capillaries and veins is not increased. This suggests that the arterial hypertension is a readjustment to an increased peripheral resistance. The hemodynamics of this problem have been reinvestigated recently at the Boston City Hospital and it has been found that the cardiac output, blood volume and velocity of flow are all normal even when the pulse pressure is high. Therefore the blood supply to the tissues is not increased.

Dr. Myron Prinzmetal then discussed "The Nature of the Peripheral Resistance in Arterial Hypertension with Special Reference to the Vasomotor System." In the investigations at the Boston City Hospital the blood flow through the tissues of the arm in patients with arterial hypertension and in normal subjects has been found to be about the same. Since the head of pressure forcing the blood through the vascular bed is greater in hypertensive cases, the peripheral resistance must be greater than normal when the blood flow is the same. This indicates that the increase in peripheral resistance in arterial hypertension is general and not localized to the splanchnic area. By studying the tissue blood flow before and after the arm had been put into hot water it was found that the increase in flow was normal in hypertensive subjects, suggesting that there are no obstructing organic changes in the arm vessels of the hypertensive. Direct blocking of the vasomotor nerves to the arm by novocaine injection led to the same increase in flow in both normals and hypertensives. This indicates that the increased peripheral resistance in arterial hypertension is not vasomotor but must be intrinsic in the vessels themselves, and for this reason the common surgical procedures for the relief of hypertension do not appear logical. Four cases of coarctation of the aorta were studied in a similar way and a definite increase of four times the normal increase in blood flow through the arm was found after novocaine block so that the arterial hypertension in the upper extremities in coarctation is felt to be a physiological compensation, vasomotor in origin.

Dr. McGinnis read Dr. M. S. Segal's paper on "The Electrocardiogram in Bacterial Endocarditis as Contrasted with Rheumatic Carditis." In a comparative study of the irregularities occurring in these two conditions as seen in cases at the Boston City Hospital between 1900 and 1934 auricular

fibrillation had an incidence of forty-eight per cent in rheumatic heart disease and only two per cent in subacute bacterial endocarditis. Flutter was also much less frequent in subacute endocarditis. There was a prolonged conduction time in thirty seven per cent of the rheumatic carditis cases, and this occurred in only seven per cent of the cases of subacute endocarditis. The same is true of gallop rhythm and premature beats.

Dr R. W. Wilkins presented a paper on "The Significance of Differential Venous Pressure Measurements" by Dr E. B. Ferris, Jr. A simple apparatus for determining venous pressures was demonstrated. Femoral venous puncture for this and other purposes is simple and at times is the only method of administering intravenous therapy or of withdrawing blood without resorting to surgery. The femoral vein lies about one centimeter medial to the artery at a depth of about two and one-half centimeters in the femoral triangle. Venous pressure is normally four to ten centimeters of water and anything above twelve is abnormal. Pressure in the femoral vein represents the pressure in the inferior vena cava, that in the antecubital veins represents pressure in the superior vena cava. One or both may be elevated unilaterally or bilaterally, and the combined measurement offers an excellent method of localization. Mediastinitis, with fibrosis or mediastinal tumor, often causes superior vena cava obstruction. Ascites may cause a femoral pressure of 40 to 50 centimeters of water. Rightsided cardiac failure causes increased venous pressure in both legs and arms.

Dr Weiss delivered the last paper of the evening on "Malignant Hypertension of the Pulmonary Circuit." Dr Parker and he have studied the minute structure of the normal and pathological lung. Several excellent colored slides were shown. The normal alveolus has four layers in its wall: the capillary endothelium, two basement membranes, and the epithelial lining of the alveolus. In mitral stenosis the number of capillaries is not only increased but their diameter is three times normal and their walls are much thicker with an increase in the number of collagen fibres and a pericapillary edema. These abnormal vessels easily rupture which explains the pulmonary hemorrhage that occasionally occurs in these patients. The arterioles of the lung in mitral stenosis were frequently found to be almost obstructed by fibroblast-like cells. Dr Weiss spoke of this process which may have the character of a necrotizing arteriolitis due to hypertension of the pulmonary circuit and compared it with the arteriolar changes in the kidney in arterial hypertension of the systemic circuit.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

At a meeting of the Middlesex East District Medical Society held January 8, at the Bear Hill Golf Club, Stoneham, Mass., Dr William E. Browne

of the Surgical Staff of the Carney Hospital spoke on treatment of infections and injuries of the hand and demonstrated the use of new splints used in such cases.

There were sixty members present.

OPPOSITION TO THE ANNUAL REGISTRATION OF PHYSICIANS IN MASSACHUSETTS

At this meeting it was unanimously voted that the Society go on record as opposing the bill for the Annual Registration of Physicians. Councillors of the Massachusetts Medical Society who were present were so instructed.

KENNETH L. MACLACHLAN, *Secretary*,
Middlesex East District Medical Society

SUFFOLK DISTRICT MEDICAL SOCIETY BOSTON MEDICAL LIBRARY

8 Fenway

Joint Meeting at the Boston Medical Library on
Wednesday, January 29, 1936, 8 15 P.M.

"Observations Around the World" Walter B. Cannon, M.D.

JAMES M. FAULKNER, M.D.,
CHARLES C. LUND, M.D.,
Secretaries

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

Meeting on Wednesday, January 29, 1936, at the
Hotel Commander, Cambridge

Luncheon at noon

Short but important business meeting after the
luncheon

Speaker Dr A. Warren Stearns, Dean of the Tufts
College Medical School

Topic "The Role of the Situation in Nervous
Disease"

ALEXANDER A. LEVI, M.D., *Secretary*

HAMPDEN DISTRICT MEDICAL SOCIETY

The regular Winter Meeting of the Society will
be held in the rooms of the Springfield Academy
of Medicine, 20 Maple Street, Springfield, on Tues-
day, January 28, 1936, at 4 15 P.M.

PAPER FOR THE AFTERNOON

"Thrombosis in Veins as a Complication of Medical
and Surgical Diseases"—Dr John Homans of the
Peter Bent Brigham Hospital

Discussion by Fellows

Dinner at 6 P.M. at expense of the Society

HERVEY L. SMITH, *Secretary and Treasurer*
249 Union Street, Springfield.

CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

The 1936 annual Clinical Congress of the Amer-
ican College of Surgeons will be held in Philadel-
phia October 19-23

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance) Tuesday evening, January 28 at 8 15 P.M.

PROGRAM

Presentation of Cases.
Reactions to Ovarian Hormones. By Edgar Allen M.D., Yale University
Medical students and physicians are cordially invited to attend.

MARSHALL N. FULTON M.D. Secretary

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at the Beth Israel Hospital Boston - Mass Monday February 3 1936 at 8 15 P.M.

PROGRAM

1. A Case of Coronary Occlusion with Interesting Features Dr Harry B. Levine.
2. Evaluation of Medicinal Treatment of Angina Pectoris. Dr Joseph E. F. Rdseman
Studies on the Effect of Nitroglycerin on Angina Pectoris. Dr Morton G. Brown.
3. Incidence of Coronary Heart Disease and Hypertensive Heart Disease in Different Population Groups Dr Louis Silver
4. The Cardiac Output in Patients with Congestive Failure after Total Thyroidectomy Dr Mark D. Altshuler.
5. A Clinical and Pathologic Study of Aortic Stenosis Dr Louis Wolff and Dr Monroe Schlesinger
6. A Summary of Clinical Experience in the Treatment of Chronic Heart Disease by Total Thyroidectomy Dr Herrman L. Blumgart.

All members of the New England Heart Association and interested physicians are invited to attend.

JAMES M. FAULKNER, M.D., Secretary

SOCIETY MEETINGS
CONGRESSES AND CONFERENCESCALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY JANUARY 27 1935

Tuesday January 28--

- *9 10 A.M. Boston Dispensary, 25 Bennet Street, Boston. X-Ray Demonstration Dr Alice Ettinger
- 2 30 P.M. Pediatric Ward Visit, Massachusetts Eye and Ear Infirmary
- 8 15 P.M. Harvard Medical Society Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance)

Wednesday January 29--

- *9 10 A.M. Boston Dispensary 25 Bennet Street, Boston. Pediatric Case Presentation. Dr Francis McDonald.
- 11 2 M. Clinico-Pathological Conference. Children's Hospital.
- 5 P.M. Arthritis Clinic. Robert Breck Brigham Hospital.
- 8 15 P.M. Suffolk District Medical Society joint meeting with the Boston Medical Library at the Boston Medical Library

Thursday January 30--

- *8 30-9 30 A.M. Clinic, Surgical and Orthopedic Staffs of Children's Hospital, at the Children's Hospital.
- *9 10 A.M. Boston Dispensary 25 Bennet Street Boston. Case Histories in Brain Tumors. Dr J. J. Skirball.
- 3 30 P.M. Medical Clinic at the Peter Bent Brigham Hospital.

Friday January 31--

- 9 10 A.M. Boston Dispensary 25 Bennet Street, Boston. The Heart and Aorta in Chronic Hypertension Dr Paul Dudley White
- 13 M. Massachusetts General Hospital, Clinical Meeting of the Staff of the Children's Medical Service. Ether Dome.

Saturday February 1--

- 10 12. Staff rounds at the Peter Bent Brigham Hospital.

Sunday February 2--

- 4 P.M. Free Public Lecture, Harvard Medical School Building D Longwood Avenue The Prevention and Treatment of Physical Diseases of the Mouth. Dr L. M. S. Miner

Open to the medical profession.
Open to Fellows of the Massachusetts Medical Society

January 23--Massachusetts General Hospital. Forty Years of X-Ray 8 15 P.M. Moseley Memorial Building

January 27--Springfield Medical Association, 8 20 P.M. at the rooms of the Springfield Academy of Medicine, 0 Maple Street

January 28--Harvard Medical Society See notice elsewhere on this page.

January 30--Medical Clinic at the Peter Bent Brigham Hospital. See page 178

February 3--New England Heart Association. See notice elsewhere on this page

February 14--William Harvey Society 8 P.M. Beth Israel Hospital, Boston.

February 24 to May 16--International Medical Post-graduate Courses in Berlin See page 1211 issue of December 12, 1935

March 2-6--The American College of Physicians. See page 91 issue of January 9

June 18-19--The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore, Md.

September 1935--First International Conference on Fever Therapy See page 1235 issue of December 6, 1935.

October 19 23--Clinical Congress of the American College of Surgeons. See page 130

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

February 6--Council Meeting Boston.

February 12--Wednesday Addison Gilbert Hospital, Gloucester Clinic 5 P.M. Dinner 7 P.M. Speaker and subject to be announced later

March 4--Wednesday Lynn Hospital, Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr Timothy Leary Subject: Arteriosclerosis.

April 1--Wednesday Essex Sanatorium Middleton, Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr Richard H. Overholt of the Lahey Clinic. Subject Chest Surgery

May 7--Thursday Censors Meeting.

May 13--Wednesday Annual Meeting Salem Country Club. Dinner at 7 P.M. Speaker Dr Paul White. Subject to be announced later

R. E. STONE M.D., Secretary

83 Lothrop Boulevard Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings are held on the second Tuesday of March and May at the Weldon Hotel Greenfield, at 11 A.M.

CHARLES MOLINE, M.D., Secretary

Sunderland.

HAMPTON DISTRICT MEDICAL SOCIETY

January 28--See page 130

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings to be held at the Bear Hill Golf Club Stoneham at 12 15 P.M.

March 11, May 6.

K. L. MACLACHLAN M.D. Secretary

1 Bellevue Avenue Melrose.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY
January 29—See page 180

NORFOLK DISTRICT MEDICAL SOCIETY

January 28—Hotel Kenmore at 8 P.M. Subject "Compulsory Sickness Insurance"

February 25—Massachusetts Memorial Hospitals at 8 P.M. Papers by the staff.

March 31—Hotel Kenmore at 8 P.M. Dr. Benedict F. Boland—Cauterization of the Cervix Uteri Using Various Electrical Methods. Illustrated with lantern slides

May—Annual Meeting (Place, date and subject to be announced)

The censors meet for the examination of candidates May 1, 1936 November 5, 1936

FRANK S. CRUICKSHANK, M.D., Secretary
1236 Beacon Street, Brookline

PLYMOUTH DISTRICT MEDICAL SOCIETY

March 19—Plymouth County Sanatorium, South Hanson

April 16—Brockton Hospital.

May 21—Lakeville State Sanatorium

G. A. MOORE, M.D., Secretary
167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

January 29—Joint meeting with the Boston Medical Library See page 180

March 18—Meeting at the Boston Medical Library "The Laboratory and Clinical Story of Fatigue, Dr. Arlie V. Bock and Dr. David B. Dill. Discussion Dr. Donald J. MacPherson and Dr. Augustus Thorndike, Jr.

April 29—Annual Meeting at the Boston Medical Library "The Treatment of Septicæmia Dr. Champ Lyons "The Pleurality of Scarletinal Streptococcus Toxin," Dr. Sanford B. Hooker Discussion Dr. Hans Zinsser

The medical profession is cordially invited to attend all of these meetings

ROBERT L. DeNORMANDIE, M.D. President,
CHARLES C. LUND, M.D., Secretary,
FRANCIS T. HUNTER, M.D.,
Boston Medical Library

WORCESTER DISTRICT MEDICAL SOCIETY

February 12—Wednesday evening Worcester State Hospital, Worcester, Mass. Dinner and scientific program. Subjects of program to be announced later

March 11—Wednesday evening Memorial Hospital Worcester, Mass. Dinner and scientific program. Subjects of program to be announced later

April 8—Wednesday evening Hahnemann Hospital Worcester, Mass. Dinner and scientific program. Subjects of program to be announced later

May 13—Wednesday afternoon and evening Annual Meeting of Society Time, place and details of program to be announced in an April issue of the Journal.

ERWIN C. MILLER, M.D., Secretary
27 Elm Street, Worcester

BOOKS RECEIVED FOR REVIEW

Demonstrations of Physical Signs in Clinical Surgery Hamilton Bailey 287 pp Fifth Edition, Revised Baltimore William Wood & Company \$6.50

Localized Rarefying Conditions of Bone as Exemplified by Legg Perthes' Disease, Osgood Schlatter's Disease, Kummell's Disease and Related Conditions. E. S. J. King 400 pp Baltimore William Wood & Company \$7.50

The Radiology of Bones and Joints James F. Brailsford 571 pp Second Edition. Baltimore William Wood & Company \$9.00

The Special Procedures in Diagnosis and Treatment. An Outline for Their Understanding and Performance Don Carlos Hines 66 pp Stanford University Stanford University Press \$1.00

The Patient and the Weather William F. Petersen. Volume I Part I 127 pp Ann Arbor Edwards Brothers, Inc \$3.75

A B C of the Endocrines. Jennie Gregory 126 pp Baltimore The Williams & Wilkins Company \$3.00

Complete Handbook on State Medicine J. Weston Walch 158 pp Portland Debaters Information Bureau \$2.50

International Clinics A quarterly of illustrated clinical lectures and especially prepared original articles Edited by Louis Hamman Volume 4, forty fifth series, 1935 331 pp Philadelphia, Montreal and London J. B. Lippincott Company

The Parathyroids in Health and in Disease David H. Shelling 335 pp St. Louis The C. V. Mosby Company \$5.00

Essentials of Psychopathology George W. Henry 312 pp Baltimore William Wood & Company \$4.00

New Pathways for Children with Cerebral Palsy Gladys Gage Rogers and Leah C. Thomas 167 pp New York The Macmillan Company \$2.50

Short Wave Therapy and General Electro-Therapy Heinrich F. Wolf 96 pp New York Modern Medical Press \$2.50

BOOK REVIEWS

A Textbook of Bacteriology Thurman B. Rice 551 pp Philadelphia and London W. B. Saunders Company \$5.00

This short textbook of bacteriology covers the field in a fairly adequate manner for elementary students of the field. It is, however, insufficient in its considerations of the subject to satisfy the medical student or physician who turns to it for information. Thus, the Brucella group is dismissed in five pages and the paratyphoid in less than three. The first ten chapters are devoted to a brief introduction of bacteriology and methods of staining, cultivation and disinfection.

Traitement des Fractures et Luxations des Membres Jacques Leveuf, Charles Girode et Raoul Charles Monod 447 pp Paris Masson et Cie 50 fr

This textbook by the pupils of Professor Pierre Delbet is the outgrowth of thirteen years' experience in teaching the treatment of fractures and dislocations to medical students at the Hôpital Bretonneau. It is written in a clear and simple manner, with excellent illustrations of the various therapeutic procedures. There is no bibliography and practically no discussion. The methods used differ very little, with few exceptions, from those in common use in the United States. The most striking departure, on the whole commendable, is the widespread advocacy of constant traction in most ingenious fashion, for the reduction of both fractures and dislocations. The book, designed chiefly for medical students, is written in a somewhat dogmatic manner. It should prove to be a most useful textbook, as well as a helpful book of reference for practitioners.

The New England Journal of Medicine

VOLUME 214

JANUARY 30, 1936

NUMBER 5

NEW ENGLAND SURGICAL SOCIETY

CONGENITAL ABSENCE OF THE PERICARDIUM*

With Report of a Case

BY WILLIAM E. LADD, M.D.†

ABSENCE or deficiency of the pericardium is one of the rarer of the congenital malformations. The condition was first accurately described by Bailhe¹ in 1788 though it had been mentioned by Realdus Columbus as early as 1559. Since that time reports of individual cases have been made in the literature occasionally. By 1925 Moore² was able to collect sixty-four cases and by 1931 Beck³ was able to collect sixty-seven cases including one reported by himself. In this series there are several in which other congenital anomalies were found but only three which were associated with diaphragmatic hernia. These three cases were reported by Risel (see Moore). Two of the cases were found in the fetus and the third in an infant who died immediately after birth.

In one fetus the hernia was a true diaphragmatic hernia on the left side with displacement of the thoracic and abdominal organs. In the other fetus and infant dying at birth the hernia was a false one with displacement of the abdominal and thoracic organs. In all these three instances there were numerous other associated anomalies quite incompatible with life. It is surprising that these two malformations have not been found together more commonly when one considers the very intimate developmental connection between the pericardial, pleural and peritoneal cavities. All the cases of pericardial deficiency in the literature have been autopsy reports. The condition is apparently not incompatible with an active life, nor does it have an effect on longevity. In no instance was it considered to be responsible for the death of the patient. The case here to be reported is, so far as I know, the only case in which the condition has been recognized during life. In this instance it was not diagnosed but was a chance finding in the course of an operation for the repair of a diaphragmatic hernia.

The patient, a female child two years of age, was referred by Dr. Walter L. Sargent of Quincy for the treatment of diaphragmatic hernia.

P.H. The mother is twenty-nine years old, the father thirty-three years old and both are living and well. There are four other children all living and well. There were two pregnancies antedating the living children which terminated at six months. One premature baby lived one hour only and the other twelve hours. There is no family history of lues and there is no other relevant factor in the family history.

P.H. The patient was born at full term and by a normal delivery. The birth weight was 7 lbs., 14 oz. When feeding was attempted the baby became cyanotic, choked and regurgitated. This difficulty appeared to be more marked with breast than artificial feeding. She was therefore removed from the breast and fed on a lactogen formula. At this time diaphragmatic hernia was suspected and confirmed by x-ray studies. For several weeks the baby continued to have cyanotic attacks when fed and remained on the danger list at the Quincy Hospital. At the end of three months sufficient improvement had taken place for the patient to be discharged from that hospital. From that time until she was two years old and entered the Children's Hospital she had weathered an attack of measles, German measles and chickenpox but had failed to gain weight satisfactorily. At two years of age she weighed 13 lbs. which is slightly under the normal weight for an infant of one year.

P.E. Examination showed an undernourished small girl of good color. Chest. Percussion over the left chest posteriorly revealed dullness below the 3rd rib and from the midline to the posterior axillary line. Anteriorly the percussion note was tympanic. Breath sounds on the left were distant and only vaguely heard. Percussion of the right chest was hyperresonant but the breath sounds were normal and no rales were heard. Heart. The borders of the heart were difficult to define by percussion. The apex impulse could not be felt. The heart sounds were distant without murmurs of normal rhythm and rate of 100. Abdomen. This was flat or perhaps a little scaphoid in appearance. The liver edge was 1½ cm. below the costal border in the nipple line. The spleen was not palpable. No tenderness, muscular spasm or palpable masses were felt.

Laboratory Data

Urine normal
Blood 70 per cent Hgb 4 150 000 R.B.C. 8700
W.B.C. Normal smear Type IV Mother type IV compatible Tuberculin test negative.

X-Ray. Fluoroscopic examination showed the esophagus displaced slightly to the right. The

*Read at the Annual Meeting of the New England Surgical Society at Manchester N.H. September 24, 1935.

†Ladd, William E.—Chief of Surgical Service, Children's Hospital, Boston. For record and address of author see "This Week's Issue," page 217.

barium entered the stomach without difficulty. The whole of the stomach was in the thoracic cavity, inverted, and with the greater curvature against the chest wall lying superiorly while the pylorus was lying inferiorly. At six hours after the administration of the barium it was all in the colon. The cecum and ascending colon were in the left side of the chest with the appendix visualized just lateral to the heart. There was apparently a portion of the left side of the diaphragm present anteriorly and a portion posteriorly.

Interpretation Left sided diaphragmatic hernia



FIG 1 Preoperative anteroposterior x-ray of stomach in thorax.

Preliminary Operation

Under avertin and novocain anesthesia a small transverse incision was made in the left side of the neck an inch above the clavicle. The outer border of the sternomastoid was retracted toward the midline and the phrenic nerve exposed on the scalenus anticus muscle. The nerve was crushed with a small hemostat and the wound closed with interrupted silk sutures to the fascia, platysma muscle and a subcuticular silkworm gut suture to the skin.

Second Operation

Four days after the preliminary operation the abdomen was opened under avertin ether anesthesia. A left rectus incision was made extending from the costal border to a point about an inch below the umbilicus. The peritoneum was incised and the peritoneal cavity and diaphragm inspected. There was an opening about three inches by two in the left side of the diaphragm extending from the nipple line toward but not connecting with the esophageal opening. Above the opening in the diaphragm in the thoracic

cavity was found the whole of the stomach, the spleen, the splenic flexure, half the transverse colon and about four or five inches of the descending colon. These organs were very easily delivered from the thoracic cavity there being only a few light adhesions around the cardiac end of the stomach. The abdominal viscera presented the not very uncommon condition of an unrotated colon with a rudimentary mesenteric attachment. There was no oblique attachment to the posterior abdominal wall of the mesentery of the small bowel and only a small area of attachment of the hepatic flexure of the colon. The cecum and ascending colon were lying loose in the epigastrium just under the hernial opening. An incision was made around the edge of the hernial opening through both the peritoneal and pleural layers. As soon as the pleura was opened and air entered the thoracic cavity the sac was delivered with no difficulty and completely excised. On looking through the opening in the diaphragm the lung was seen collapsed and the heart next to it.



FIG 2 Preoperative lateral x-ray of stomach in thorax

in the same cavity without any pericardial covering. The ventricles stood out plainly to their base. I could not see the auricles and do not feel sure there was not a rudimentary pericardium as found in some of the autopsy reports. The hernial opening in the diaphragm was closed with one row of interrupted sutures of silk to the pleural layer, one row of mattress sutures of silk to the musculature of the diaphragm, and another row of interrupted silk sutures to the peritoneal layer of the sac. The abdomen was closed in layers without drainage.

Pathologic Report

GROSS DESCRIPTION The specimen consists of a thin-walled sac measuring approximately 10 cm. in diameter. The wall of this sac is composed of two layers of thin membranes which are entirely separated from each other except along one side for a distance of approximately 4 cm. In this region the membranes are fused and between them is a thin layer of muscle fibres. Both surfaces of each membrane are clear grayish in color smooth moist, glistening free from exudate and inflammation. Several petechial hemorrhages are noted in both

mation of a cavity in the manner in which the pericardial and other serous cavities are formed in the embryo. There are no definite masses of cells however. In addition, bundles of smooth muscle are found from place to place.

DIAGNOSIS Diaphragmatic hernial sac.

SUNNY FARRER, M.D., Pathologist

Convalescence

The first twenty four hours after operation were somewhat stormy. The temperature rose to 104 F., the pulse to 160 and the respirations to 60 to the minute. The systolic blood pressure was 70 and the diastolic 20. At the end of another 24 hours the temperature had dropped to 101, the pulse to 130 and the respirations to 25. The blood pressure was 96/58. During this period there was an almost complete left sided pneumothorax with an almost complete collapse of the left lung. A 90 per cent collapse of the left lung was estimated by the roentgenologist at this time but without displacement of the heart. From this time on the convalescence progressed satisfactorily and uninterruptedly. The patient was kept in the hospital a longer



FIG 3. Preoperative lateral x ray of colon in thorax.



FIG 4. X ray four months postoperative.

layers. Sections are fixed in Zenker's. The rest of the specimen is preserved in formalin.

MICROSCOPIC Six sections. Both surfaces of the sections are covered by very dense connective tissue. There is no inflammatory reaction. The mesothelial cells are seldom seen and in the few areas in which they are preserved marked fragmentation is seen. The central portions of the tissue are composed in part of bands of collagen fibers which run roughly parallel to one another and are very closely packed together. Striated muscle is almost entirely lacking. Among the collagen fibers are numerous duct like structures. These are lined by cuboidal epithelium. They present lumina of various sizes but the lumina are most ly small. All of them are empty. They are not surrounded by a definite connective tissue wall and there is no inflammatory cellular infiltration in that region. The interpretation of the histogenesis of these structures is difficult. Dr. Wolbach suggested that they might be small portions of mesenchymal tissue with early for

time than usual to make sure that there were no circulatory disturbances and until the lung was entirely expanded. She was discharged on the 26th day after operation. The wound was healed per primam with a firm scar. The abdominal organs were in the abdominal cavity. The lung was completely expanded and there was no air or fluid in the pleural cavity. The x-ray report at this time stated that the heart was slightly displaced to the left, but there was no other abnormality. The child's general condition was excellent. Follow up examination was made September 23 1935 four months after the operation. The child has gained four pounds in weight, has had a good appetite and the bowels have moved normally. The systolic blood pres

sure was 86 and the diastolic 50. The x ray examination showed the left diaphragm in the normal position and moving with respiration. It also showed the stomach and abdominal viscera in their normal position.

It is interesting to speculate as to whether the somewhat stormy convalescence of this child for the first forty-eight hours after operation had any relation to the absence of the pericardium. There are no clinical data on this particular situation and for the nearest analogous conditions one must turn to experimental work and to human beings who for one reason or another have had the pericardium opened.

Beck and Cox⁴ did some experimental work to determine what effects on the mechanics of the circulation were produced by exposure of the heart to atmospheric pressure. They concluded from their experiments that when the heart was exposed to atmospheric pressure the minute output of the heart fell about twenty per cent. They considered the changes produced as a pressure phenomenon and applied the term of pneumocardiac tamponade for this mechanism. They suggest that atmospheric pressure on the heart might be a factor in producing cardiac failure.

Blalock⁵, on the other hand, exposing the heart to atmospheric pressure in experiments performed with a slightly different technic, concluded that, "No definite alterations in the arterial pressures were noted and the changes in the output of the heart were not marked."

Amerio⁶ concluded from experimental work on rabbits that total resection of the pericardium did not affect the life of the animal. These conclusions of course tally with certain clinical data and with the histories of patients with the condition that is the subject of this paper and, for what it is worth, with the progress of this reported case so far. The patients who have had the pericardium opened for pericarditis or other reasons do not, so far as I know, suffer from the heart being exposed to atmospheric pressure.

COMMENT

A case of congenital deficiency of the pericardium is here reported increasing the number to be found in the literature to sixty-eight. It is believed that this is the only case of this condition to be recognized during life. From the literature one may conclude that the condition is compatible with an active life of normal duration.

The question of the effect of atmospheric pressure on the heart is debatable and depending on this, one should consider the desirability of taking steps to reduce the pneumothorax which follows this type of operation. In this instance the air was allowed to absorb gradually and the outcome was fortunate.

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DISCUSSION

DR. THOMAS H. LANMAN, Boston, Mass. This case of multiple anomalies just presented brings up the question of how often these developmental defects are multiple. I think the teaching, as I remember it, was that they very frequently are. However, in a series of 592 cases of congenital anomalies only eighty-two, or 13 per cent, showed more than one anomaly. But in these 592 cases there is a series of 167 that had anomalies of gastrointestinal tract and in this 167, seventy, or 41 per cent, showed more than one anomaly.

I think it is fair to say then that in discussing multiple anomalies, they are very likely to be present in cases that involve the development of the gastrointestinal tract, as was the case here.

In the treatment of a case of this sort, there are three things that we have found of value. In the first place, the preliminary crushing of the phrenic nerve has seemed to us to be of very distinct value in diaphragmatic hernia and lobectomy. It is easily done. Even in infants it can be done under avertin and novocain.

The abdominal approach for the repair of diaphragmatic hernia, we believe, is best in these children where it is very likely to be a true hernia with a true sac. In the first place, it seems advisable whenever possible to do as little as we can in having a wide open wound of the thorax. If you are unable to reduce the hernia you can always make an additional incision exposing the thoracic cavity.

As regards the reexpansion of the lung, and that brings in the question of anesthesia, we feel quite confident that in a case of this sort and in the few cases where we have done lobectomies, that the complicated intratracheal anesthesia is not needed to give us reexpansion or control over the expansion of the lobe of the lung. As was true in this case, the lung came out very readily. While we do have suction apparatus to get rid of the secretion which, of course, is important in some of these cases, we do not feel that it is necessary to complicate the anesthesia with its added danger of using the intratracheal tube.

I think in this case, the absence of the pericardium probably did not have anything to do with the somewhat stormy convalescence this youngster showed the first twenty-four or forty-eight hours. Certainly, after any lobectomy or operation that involves manipulation around the thorax, they are very apt to have a stormy time.

Also, against opening wide the thorax, is the fact that we like to minimize in so far as we can, the accumulation of serum in the chest cavity, and it seems to us the abdominal approach does minimize that better than a wide thoracic approach.

PRESIDENT JOHNSON Dr. Parker:

DR. DAVID W. PARKER, Manchester, N. H. I appreciate the courtesy of being asked to discuss this paper. I must confess, however, that I have had no personal experience with the condition.

Upon consulting the literature, I found three articles, one by Richard L. Moore of Boston, in the Archives of Surgery November 1935 one by James O. Watt, Professor of Anatomy at the University of Toronto in the Archives of Surgery December 1931 and another by C. S. Beck, Archives of Surgery February, 1931. All of these articles were highly technical and dealt to a great extent with the embryology of this anomaly. Watt, in his article, however did state that in three hundred and seventy one years, only sixty-six cases had been reported in the literature. He also stated that the diagnosis of this condition had never been made during life but always from autopsy and that in none of the cases reported had it been a factor in the cause of death. It occurred not infrequently in men who had done hard work all their lives. I was unable to find in any of the articles which I reviewed that this anomaly was inconsistent with an active life or a factor in dilation or enlargement of the heart. I think, therefore, it is fair to assume that the absence of the pericardium is of more interest as a rare anatomical curiosity than as a clinical entity.

It is very interesting that Dr. Ladd should oc-

cupy the unique position of being the only man who has ever made a diagnosis of this condition during life.

Dr. JAMES W. SEVER, Boston, Mass. I should like to ask Dr. Ladd one question, if I may.

What was the cause of the original diagnosis at Quincy Hospital? What led to the diagnosis originally in the baby you saw a few weeks old? What were the indications at that time?

Dr. LADD She had the typical symptoms which almost all these babies with diaphragmatic hernia have, cyanosis, difficulty of feeding and regurgitation. Of course, with the congenital hernia in the left side which is very much the most common place some of them have true hernial sacs, some are false hernias but the result is much the same. The operation for true hernia is rather easier to perform.

The other conditions of course, which might be confused with this are the esophageal atresia, tracheal esophageal fistulas and the other forms of esophageal obstruction.

THE QUESTION OF "INFLUENZA" AND ATYPICAL PNEUMONIA*

BY JOHN W. CASS, JR., M.D.†

INTRODUCTION

THERE have been mild "influenza" epidemics throughout Greater Boston during the winter and spring of the past two years. Accompanying these epidemics, there have been an unusual number of atypical pneumonias.

It has been my privilege to see a number of these atypical infections in private practice, on the wards of the Massachusetts General Hospital and among the nursing staff at the New England Deaconess Hospital. It was very striking to notice the degree of confusion regarding the diagnosis, treatment, and prognosis of these infections. A total of seventy two cases furnished the material for this discussion. A division into three groups is made to simplify the presentation of the material.

The first group consists of fifty three cases, each of which it was felt justifiable to call "influenza." In doing this the criteria laid down by Thomas Francis¹ were used, namely, "sudden onset with constitutional symptoms, chilliness, fever, myalgia, headache, mild respiratory symptoms without coryza, the presence of leucopenia, and a course of two or three days which was followed by considerable asthenia and exhaustion." These patients all recovered and the only points of interest were that six developed mild paranasitis with symptoms of this complication of from four to seven days' duration. These cases all responded to medical

treatment. Two other patients developed acute otitis media both unilateral, and both requiring paracentesis.

The second group consisted of seventeen cases in which, in addition to the clinical picture of influenza, definite signs of chest involvement were present and the active course of the disease extended over a period of five to sixteen days.

The third group consisted of two cases, both fatal, which developed hemolytic streptococcus empyema.

CLINICAL PICTURE

The physical examinations of the patients in the first group revealed marked prostration, and injection of the conjunctiva and nasopharynx. Similar findings were present in the Group II cases, plus dullness and impaired breath sounds, this being usually at one base, commonly the left, and rarely bilateral. These findings were the usual ones when the patient was first seen. A customary course in the Group II cases was that fine, moist, crepitant râles were next heard over the involved area and these persisted even after the dullness and impaired breathing cleared. Frank bronchial breathing was picked up rarely.

In Group III, the findings were essentially the same with a rapid extension of the physical signs in the chest, the process in one case rapidly extending to the other lung.

In addition to the symptoms considered necessary for diagnosis, all patients complained early of vague abdominal distress with marked distention and anorexia. The outstanding com-

I wish to acknowledge the general help and advice of Dr. Donald S. King and Dr. Dwight L. Sisco, also the bacteriological aid of Dr. Morris Leader of the Massachusetts State Department of Health.

*Cass, John W., Jr.—Assistant in Medicine, Massachusetts General Hospital. For record and address of author see "This Week's Issue" page 217.

plaint in addition to prostration was cough, this being harsh, dry, nonproductive, and coming in paroxysms. Paroxysms were particularly frequent during the latter part of the afternoon and during the night. They were also brought on at any time by movement or physical effort on the part of the patient, or marked change in temperature of the room.

The patients with chest involvement were subject to waves of cyanosis which were particularly alarming, in addition to the constant appearance of extreme toxicity.

The two patients with empyema complained of severe pleural type of pain. The temperature was of the septic type and varied only in degree and duration in the different groups. The temperature returned to normal in all cases by lysis. The pulse, characteristically, was not so high as one would expect in all except the fatal cases.

BACTERIOLOGY

The bacteriology was inconsistent and very little was done in the first group, eleven cases having throat cultures, all of which showed the usual mouth organisms plus a predominance of hemolytic streptococci. Good sputum specimens were not obtainable. Sputum of a sort was obtained in seven cases of Group II, and in only three of these seven were pneumococci found of sufficient viability to kill a mouse, two being subgroups of the usual Group IV, namely Groups XXII and XIII. The third was a definite Type II pneumococcus. Sputum of all seven cases on culture yielded predominantly hemolytic streptococci. Blood cultures in all cases of Groups II and III were negative. Likewise, agglutination tests for typhoid and undulant fever were negative. Hemolytic streptococci were found in the urine of five cases from the second group. Hemolytic streptococci were found in the chest fluid of both fatal cases.

BLOOD PICTURE

The blood picture in the first group of cases showed a mild leucopenia of four to six thousand with a polymorphonuclear count of 75-80 per cent. Leucopenia was usually more marked in the second group, being characteristically between 2500 and 4500 white blood cells with a polymorphonuclear count of 80-90 per cent. In this group, the sickest patients had the lowest white blood counts, the most marked being that of 1800 white blood cells. Both fatal cases rapidly developed an extreme leucocytosis of 70,000 to 90,000 white blood cells with a polymorphonuclear count of 93-96 per cent.

X-RAY EXAMINATION

Chest films were taken in twenty of the first group, and all were negative. Fourteen of the second group were x-rayed and all showed areas of increased density conforming to the physical

signs. One of the fatal cases was x-rayed and the findings were interpreted as diffuse consolidation with no evidence of fluid. Streptococcus pus, however, was obtained on paracentesis.

In regard to the point of contagion, it was interesting to find that in Group II, four of the cases were in one family, two in another, and two more in still another family, while most of the Group I cases were among the nurses at the Deaconess Hospital, but three of these having pulmonary involvement.

COMPLICATIONS

Very few complications were met with among the simple cases, those found being mild sinusitis and otitis media as previously stated. Rather severe pyorrhea occurred in five cases of the second group with some degree of loss of hair in all, none going on to total alopecia. One patient in the second group at the time of discharge still had evidence of atelectasis. Another patient in this group developed Type II pneumonia. Of the fatal cases the patients died with a hemolytic streptococcus empyema, one proved by autopsy, the other by chest paracentesis prior to death.

An interesting case seen and not included in the report because it was not seen during the phase of respiratory infection gave a history of typical influenza and then after five days developed symptoms of peritonitis. At operation, a localized pocket of pus was found under the liver. No cause could be demonstrated for this infection and a pure culture of hemolytic streptococci was obtained from the material. The patient died, but a postmortem examination was not obtained.

It is interesting to note that two cases of Group II had a similar pulmonary infection six to ten months following their initial pneumonia.

TREATMENT

Symptomatic therapy was the only available routine. There was a definite tendency of all patients not to perspire unless given aspirin and they were very uncomfortable with a temperature of 102-104 degrees unless perspiration was induced. Aspirin, grains ten, with codeine, grains one quarter or one half, given three to five times during the twenty-four hours, gave very satisfactory results. Morphia, grain one-eighth or one-quarter, by hypodermic injection, was occasionally used. Nucleotide was given on the advice of a consultant in one case in the second group and a severe reaction followed this therapy. The cough was particularly troublesome and difficult to control. Oralsodium or phenobarbital taken throughout the day seemed to help by promoting general relaxation of the patient. Expectorants and benzoin inhalants appeared to aggravate the

cough. The fatal cases were too fulminating to allow any thought of surgical intervention and received simply symptomatic treatment.

PROGNOSIS

The question of prognosis is an extremely difficult one. All the cases were identical at onset, and there appeared no way of determining which would terminate in a few days which would develop chest involvement, or which the fatal complication of empyema. A good prognosis appears to be present in which the picture is typically that of straight influenza with no chest involvement. If there is evidence of chest infection, the prognosis is probably good no matter how sick the patient appears if the leucopenia persists and if the remainder of the clinical picture is satisfactory. The fatal cases developed chest pain, rapidly increasing leucocytosis, and signs of a rapidly advancing process in the chest.

DISCUSSION

There appears to be a specific infection which we now call "influenza." The etiology of this clinical picture is still in doubt. The weight of evidence in the literature in the past has been in favor of the influenza bacillus. However, Francis¹, working in the Rockefeller Institute, and Topley², in the London School of Tropical Medicine and Hygiene, have claimed the etiological agent to be a filtrable virus. There is also the possibility that a specific hemolytic streptococcus may be the etiologic agent.

The literature on this disease is extremely confusing, the great bulk of it dealing with epidemics. A clear-cut clinical picture is commonly present only during the early period of the various waves constituting an epidemic. During the height of the waves, the variety of complications is so great that the data collected may be misleading.

The typical case is so similar to what is commonly called "grippe" that the diagnosis is probably not made unless there is a recognized epidemic present. The complications of the typical cases are usually infections of the sinuses and ears. These seldom require surgical treatment other than paracentesis of the ear. Rarely, there may be a true pneumococcus pneumonia as a complication. The cases of pulmonary involvement included in this material were strikingly similar. Many other pneumonias were seen with white blood counts of 6 to 20 thousand and which were not proved pneumococcus pneumonias but whose clinical pictures were so different one from the other that no consistent material could be obtained from them.

With the present available data it is impossible to state that the cases classified as Group II were not simply complications of in-

fluenza. However, their clinical pictures were so strikingly similar and hemolytic streptococci were so commonly found associated with the disease that it is difficult for me to classify them other than as a specific type of pneumonia. They were not seen during the height of a severe influenza epidemic and their similarity thus conforms to the proper time element. The two fatal cases definitely terminated with a hemolytic streptococcus empyema or pleurisy, and undoubtedly also a septicemia.

It appears important to be familiar with the specific picture of what is called simple influenza and cases showing chest involvement with similar clinical pictures, as well as being cognizant of the possibility of the manifold clinical pictures that can occur once a real epidemic is present and during which a clear resemblance to a specific infection is lost. Prognosis, at the best, is extremely difficult but a more rational attempt can be made if one is familiar with the specific simple case as well as the specific cases with chest involvement. The disease is unusually treacherous because of the complete submission of the resistance of the patient and there appears to be no way in which to predict the ultimate clinical course.

All patients should be promptly put to bed and the convalescence prolonged well after the termination of clinical activity, no matter how mild the clinical course has been. It is now felt by many that bronchiectasis is definitely a late complication to fear in influenza, particularly in those patients having evidence of infection in the lungs during the active course of the disease.

The following material is presented to illustrate some of the most interesting clinical points.

CASE L. M. The chart is presented to demonstrate a typical temperature and white blood count curve in the cases showing pulmonary involvement. These curves vary only in duration from the curve found in the simple cases. As the temperature curve falls the white blood count tends to rise and a mild leucocytosis finally occurs. The chart presented is that of a case representing one of a group of four identical infections in a single family.

CASE D. P. The chart is that of a fatal case. The onset in no way varied from that in any other patient. On the sixth day of the disease there was severe pleural pain followed by leucocytosis which rapidly increased to 87,000 shortly before her death. A complete postmortem report follows.

Fifteen and one-half hours postmortem.

Anatomic Diagnoses

Pleuritis, acute purulent bilateral with multiple empyema cavities on the left.

Bronchopneumonia.

Pulmonary collapse left upper and lower lobes.

Pericarditis slight

Subdiaphragmatic abscess small left

Salpingo-oophoritis, subacute, left

Cystitis

Cholelithiasis.

Cholesterosis

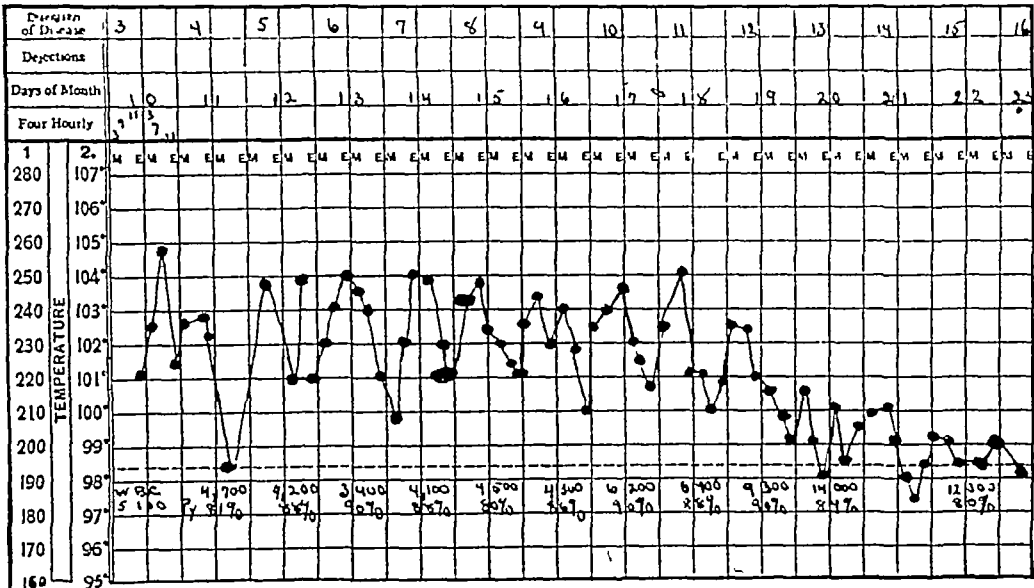
Head not examined

The body is that of a slightly obese woman of forty-two years, measuring 167 cm in length and weighing approximately 160 pounds. There are puncture wounds in both antecubital fossae. The abdomen is protuberant and tympanitic. There is a plentiful amount of subcutaneous fat and the muscles are well developed.

Peritoneal Cavity On opening the peritoneal cavity the large bowel is found to be redundant and marked-

floating particles of yellowish exudate. The pleural surfaces are irregularly covered with loosely adherent yellowish fibrinopurulent exudate and small collections of thick yellowish pus are held in the interpleural spaces. Left pleural cavity. See left lung. The pleural surfaces of both diaphragms show a marked dilatation of the vessels.

Thyroid Not removed.



CASE L. M.

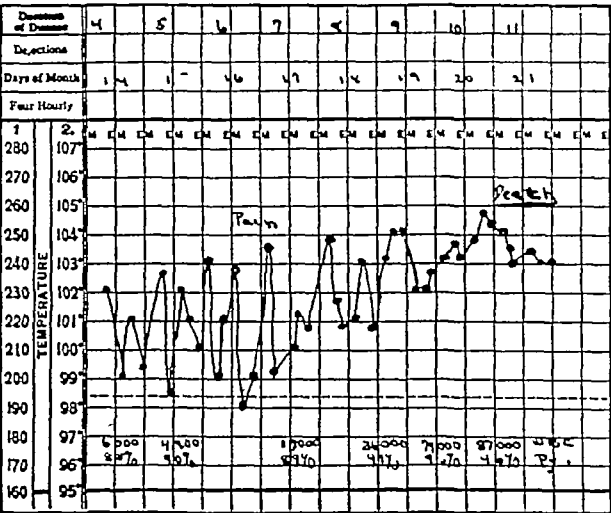
ly distended with gas. There is no fluid and the peritoneal surfaces are glistening.

Trachea and Bronchi Slightly injected and are filled with frothy whitish fluid.

Bronchial Glands Soft and moderately enlarged.

Lungs Right Lung The right lung is crepitant throughout. The surfaces are covered with fibrinopurulent exudate. On section the upper and middle lobes are reddish pink with small, ill defined, slightly raised, indurated areas of the same color. Considerable fluid exudes on pressure. The lower lobe on section is dark red and no induration can be made out. Considerable bloody fluid exudes on pressure.

Left Lung On removal of the chest plate the left lung appears to be partially collapsed. There are approximately 800 cc of turbid yellowish fluid on which a considerable amount of free yellowish exudate floats. The anterior border of the upper lobe is completely collapsed and held between two partially walled off empyema cavities. The larger involving the superior lateral aspect measures approximately 15 x 7 x 6 cm and is full of thick yellowish pus. The smaller is poorly walled off and involves the superior mediastinal pleural surfaces. On freeing the lung from loosely adherent points, a considerable amount of pus escapes from the interpleural space laterally. On section, the posterior and lower portions of the upper lobe are found to be grayish pink and contain several small slightly raised areas, the largest approximately 1 cm in diameter. The lung in the collapsed upper anterior portion of the upper lobe is a dirty gray color. Section of the lower lobe finds it to be for the most part collapsed with no areas of induration.



CASE D. P.

Appendix, Esophagus Negative.

Stomach Moderately distended and contains a dirty grayish brown lumpy fluid.

Intestines Negative.

Mesenteric and Retroperitoneal Glands Negative.

Marginal of Liver Well above the costal margin.

Diaphragm Fourth space on both sides.

Pleural Cavities The right pleural cavity contains approximately 500 cc of cloudy yellowish fluid with

Pericardium Contains approximately 200 cc of straw colored fluid with a small amount of stringy yellowish exudate. The parietal pericardium opposite the empyema cavity above described is considerably thickened and there is very slight roughening and injection on the cardinal surfaces.

Heart Weighs 300 Gm. The left ventricle contains a considerable amount of clotted and hemolyzed blood. The right ventricular wall measures 4 mm. the left 13. The mitral valve measures 11 cm., aortic 7 tricuspid 13.5 pulmonary 8.5. They are all negative. There is no evidence of endocarditis.

Coronaries Negative.

Aorta Measures Ascending 7.5 cm., arch 5.5 descending 5. There is very slight atheromatous change.

Pulmonary Artery Venae Cavae Negative

Liver Weighs 2100 Gm. The surface is smooth reddish brown and on section is not remarkable.

Gallbladder Contracted. There is considerable subserosal fat. It contains three rounded papillary greenish stones, the largest measuring 1 cm. in diameter. The mucosa is studded with flecks of yellowish material.

Bile Ducts Negative

Pancreas Ducts Negative

Spleen Weighs 200 Gm. On its superior pole there is a small collection of yellowish fibrinopurulent exudate which corresponds to a small area on the diaphragm measuring approximately 1 cm. in diameter which also shows adherent exudate.

Adrenals Not remarkable

Kidneys Weigh 350 Gm. The capsules strip with ease, leaving a smooth reddish brown surface. On section the cortex measures 7 mm. The markings are distinct. The pelvis are negative.

Ureters Bladder Negative

Uterus Tubes and Ovaries Small. The right tube and ovary are negative. The left tube appears to be slightly swollen. Its fimbriated end is closed. The left ovary is soft and a cyst approximately 2.5 cm. in diameter which contains thin pussy material is apparently attached to it. The ovary and tube are bound down to the peritoneal surfaces of the pelvis and there is some fibrinopurulent exudate in this area.

Gross Diagnoses

Diffuse purulent pleuritis bilateral with multiple empyema cavities on the left.

Bronchopneumonia right upper and middle lobes left upper lobe

Pulmonary collapse left upper and lower lobes

Pericarditis slight

Subdiaphragmatic abscess, small left.

Salpingo-oophoritis, acute left.

Cystitis.

Cholelithiasis

Cholesterosis

Note There is a peculiar sweet penetrating odor about the body which is most marked in the vomitus but is particularly strong when the pleural cavities are opened.

Bacteriological Examination Hearts blood and pleura Hemolytic streptococcus

Microscopic Examination

Heart Negative

Lung One section shows a cellular exudate on the pleura with congestion of the underlying lung. There

is edema of the lung but no evidence of pneumonitis. Another section shows pneumonitis of the underlying lung tissue with marked cellular exudate. This section shows marked atelectasis.

Liver There is hyalinization of the arterioles and an increase in polymorphonuclears.

Adrenal Negative

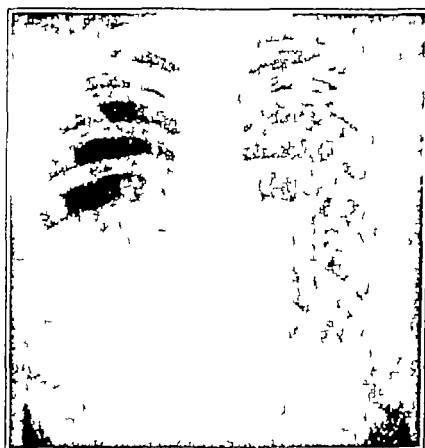
Kidney There is an occasional hyalinized glomerulus congestion and cloudy swelling of the tubular epithelium

Tube and Ovary Show a subacute inflammatory process with numerous eosinophiles

Diaphragm Shows a cellular exudate on both sides and a small amount of lung tissue, the alveoli being filled with polymorphonuclears.

Bone Marrow Appears to be hyperplastic.

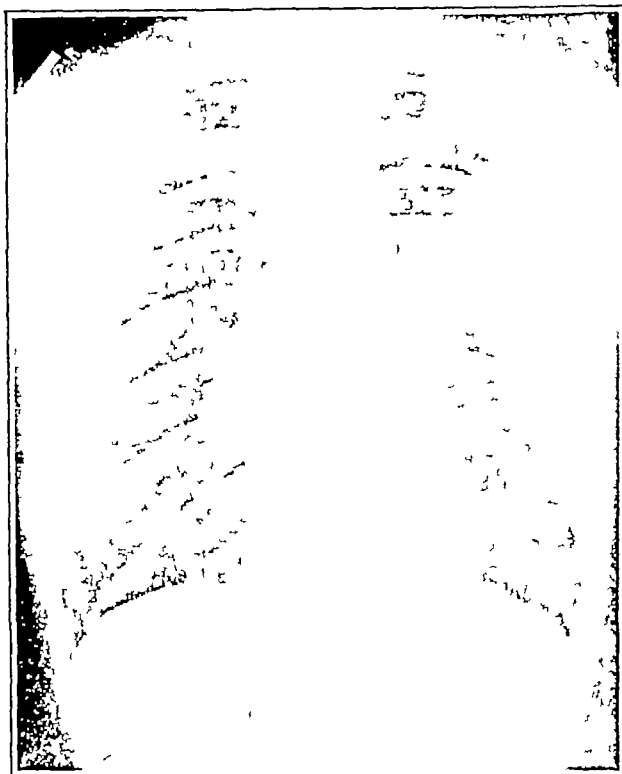
CASE M. H. The accompanying x ray is presented as the usual radiographic findings in a case with pulmonary involvement. There is nothing specific



CASE M. H.

in the type of x ray findings. The area of dullness suggests a lobar distribution. The process cleared in fifteen days without the patient raising any sputum.

CASE E. R. These x rays are those of a case with pulmonary involvement. The x ray findings are of interest and were first diagnosed as being due to tuberculosis. The clinical picture was in no way different from any other case in this group. The first x ray was taken on admission showing a lesion in the left infraclavicular area. The second x ray was taken two days later showing a spread to the middle portion of the other lung and the third plate was taken at the time of discharge, after a stay in the hospital of twenty days. This patient was seen six months after her discharge from the hospital. She was well and her chest was entirely clear both by physical examination and by x ray.



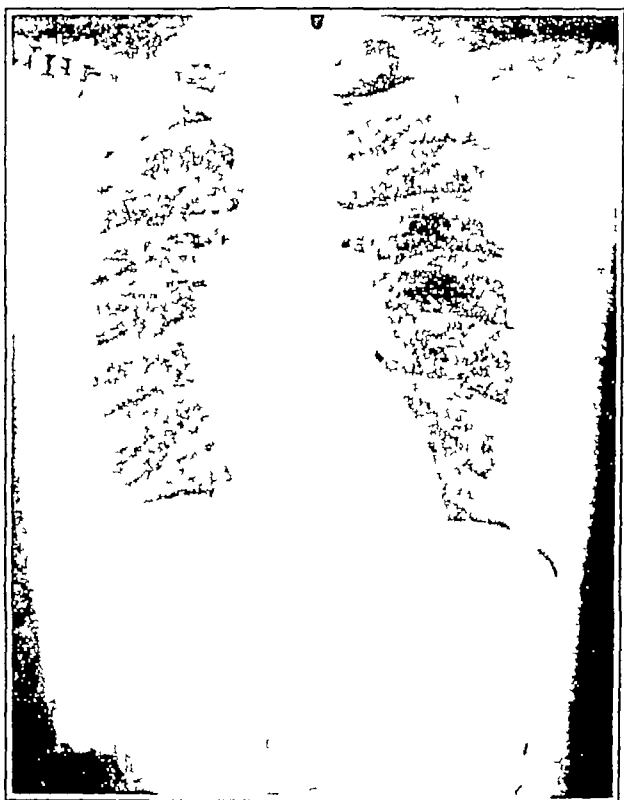
CASE E. R. (1)



CASE E. R. (3)



CASE E. R. (2)



CASE M. K. (1)

CASE M K The accompanying x-rays are those of a fatal case. The first plate was taken on admission the second plate twenty-four hours later and



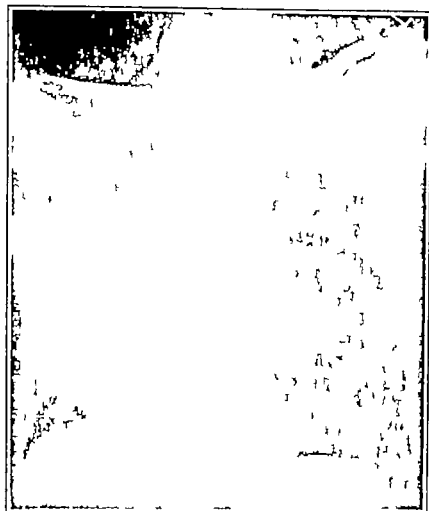
CASE M K (-)

but a few hours before death. They demonstrate how rapidly the process can spread in a short time. The patient had been followed at home for four days and shortly after admission complained of severe pleural pain in the left chest with signs of a rapidly progressive lesion. A chest tap a few hours before death yielded thin pus from which a pure culture of hemolytic streptococci was obtained. Permission for a postmortem examination could not be secured.

CASE J M These x-rays are those of a case with pulmonary involvement. The first plate taken on admission shows an extensive process on the right with a shift of the mediastinum to this side. The second plate was taken six weeks later at the time of discharge. They demonstrate that this type of infection can be a destructive process leaving after it considerable damage. Repeated chest taps failed to find fluid and at discharge the patient was symptom free. He was seen at home by a house social worker three months after discharge and the patient stated that he was in good health other than for chronic rheumatism which he had had for many years. However it is still possible that he may have trouble from the area of atelectasis and scarring which has followed this infection.

SUMMARY

Seventy-two cases of "influenza" are presented, fifty-three or 73.6 per cent being typical "influenza", seventeen or 23.6 per cent in "influenza" with pulmonary involvement two or 2.8 per cent "influenza" with pulmonary involvement complicated by empyema and a fatal outcome. Of the nineteen cases with pulmonary involvement two or 10.5 per cent developed fatal hemolytic streptococcal empyema.



CASE J M (1)



CASE J M (2)

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A PARTIALLY PURIFIED LIVER EXTRACT
THERAPEUTICALLY EFFECTIVE IN PERNICIOUS ANEMIA*

BY Y SUBBAROW, PH D,† BERNARD M JACOBSON, M D,† AND CYRUS H FISKE, M D †

IN the course of experiments on the isolation of the hematopoietically active liver material it was found, in April, 1933, that filtrates of charcoal adsorption on therapeutically active liver extracts were inert in pernicious anemia. Attempts to extract the active material from the charcoal with a variety of eluents were begun in June, 1933. None of the eluents studied, among them isopropyl, butyl, and amyl alcohols, yielded products from different batches of crude liver extract that were consistently therapeutically active. Since September, 1934, elution by means of ethyl alcohol has always resulted in active extracts. Mention of this procedure has already been made in a previous communication¹. The preparation and biological activity of this material are described in detail in this paper.

to the boiling point, stirred mechanically for five minutes, and filtered hot. The elution is repeated once. Both elutes are combined and concentrated under diminished pressure at 40°C to a volume of 150 cc (3 cc per 100 Gm. of liver).

Different batches of the commercial liver extract contain 140 to 180 mg of total nitrogen, per 100 Gm of liver, and exhibit a biological activity of approximately 328,000 guinea pig units, per 100 Gm of liver². The light-brown colored ethyl alcohol elute, on the other hand, contains from 12 to 15 mg of total nitrogen per 100 Gm of the fresh liver from which it is derived, and a biological activity of approximately 164,000 guinea pig units. The evidence for the therapeutic efficacy of this elute in pernicious anemia is presented below.

Patient Date	J T 9/27/34	C H 1/16/35	F W 1/3/35	A T 10/1/35	J D 2/20/35	C H 2/1/35
Red blood cells in millions per c mm at beginning of experimental period	3.51	1.18	2.47	1.07	2.10	1.36
Red blood cells in millions per c mm at termination of experimental period	4.07	1.69	2.82	2.42	2.68	2.28
Reticulocyte peak, per cent	5.6	10.6	7.8	31.8	11.2	26.6
Length of experimental period, days	10	9	9	10	8	11
Total amount of fresh liver, from which administered extract, derived, grams	67	72	88	100	103	200
Total amount of nitrogen administered, milligrams	8.3	9.4	13.4	12	14	24

The starting point in the preparation is a commercial liver extract‡, in a concentration of 3 cc derived from 100 Gm of fresh liver. One hundred and fifty cc of this extract are dissolved in one liter of water. The solution is brought to pH 8 with NaOH and is then acidified to pH 6 with HCl. Fifty Gm of norit are added and the mixture is stirred mechanically for one hour, and filtered. The charcoal, washed repeatedly with water until the washings are colorless, is then suspended in one liter of 65 per cent ethyl alcohol, the mixture is brought

The elute was sterilized by boiling and was administered to the patients by intramuscular injection.

The preparation of the elute described above, and referred to in a previous publication¹, bears similarities to the procedure recently reported by Kyer³.

SUMMARY

Charcoal adsorption is utilized in the preparation of a partially purified liver extract that is therapeutically effective in pernicious anemia.

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*From the Biochemical Laboratory, Harvard Medical School and the Medical Clinic, Massachusetts General Hospital, Boston.

†This investigation has been supported by grants from the DeLamar Mobile Research Fund and the Proctor Fund of the Harvard Medical School and by Therapeutic Research Grants Nos. 206 and 244 of the Council on Pharmacy and Chemistry of the American Medical Association.

‡Lederle Solution Liver Extract Parenteral Refined and Concentrated, N.N.R. This material was generously furnished by the Lederle Laboratories Inc. through the courtesy of Dr. Guy W. Clark.

†Subbarow Y—Austin Teaching Fellow, Harvard University; Jacobson, Bernard M—Research Fellow in Medicine, Massachusetts General Hospital; Fiske, Cyrus H.—Professor of Biological Chemistry, Harvard University Medical School. For records and addresses of authors see This Week's Issue, page 217.

THE MECHANISM AND EFFECTS OF
ABDOMINAL COMPRESSION IN THE TREATMENT OF
PULMONARY TUBERCULOSIS*

BY BURGESS GORDON, M.D.†

IT is recognized that collapse therapy as induced by artificial pneumothorax phrenic paralysis and thoracoplasty, is an important measure in the treatment of pulmonary tuberculosis¹. The immediate effects are decreased cough, expectoration and toxic manifestations with striking retrogression of the lesions in certain cases. Its value is promptly recognized in patients in whom artificial pneumothorax has been discontinued prematurely. In these the return of symptoms occurs almost coincidental with the expansion of the lung.

Similar phenomena have been observed in pulmonary tuberculosis associated with abdominal tumors. A striking example is the abeyance of tuberculosis during the latter months of pregnancy and the subsequent reactivation of the lesion following delivery². A similar parallel occurs in tuberculous women with tumors of the abdomen, with an increase in the size of the mass, the tuberculous process becomes quiescent, but following removal of the growth, even under ideal surgical conditions, there is a reactivation of the infection.

The relationship between the structural development of the body and the activity of pulmonary tuberculosis has been considered since the earliest times. As for example the long type of chest and the scaphoid abdomen have been associated with the unfavorable cases, whereas the rounded or athletic type of chest, full or well-developed abdomen have suggested greater resistance to the disease. It has also been observed that pulmonary tuberculosis becomes aggravated in young women following a marked loss of weight and the discarding of corsets.

Evidently abdominal tumors and the well developed abdomen exert an influence on pulmonary tuberculosis not unlike that of phrenic paralysis. However, in evaluating the effects contributing factors should be considered. As for example an individual of marked natural resistance would progress more satisfactorily than one belonging to a primitive race or one suffering from a metabolic disorder such as diabetes or hyperthyroidism. Likewise, no improvement would be expected in patients who have failed to observe a standard dietetic rest

regimen. With these factors recognized, the following hypothesis is proposed in order to discuss the relationship between abdominal conditions and the reactivation and spread of pulmonary tuberculosis. (1) That the disease is influenced favorably by the gradual increase of intraabdominal pressure which elevates and restricts the movements of the diaphragm and accordingly limits the vertical excursions of the lungs not unlike that in diaphragmatic paralysis, (2) that, with removal of the supporting influence of an abdominal tumor, there is an increase of respiratory activity, less rest for the lung, as would occur with the sudden regeneration of the phrenic nerve and the return of the diaphragm to normal function.

An attempt has been made in a series of 211 patients (collected cases) with fibroid pulmonary tuberculosis to imitate the mechanism of diaphragmatic elevation as it occurs in abdominal tumors. The procedure has been called "abdominal compression." It is accomplished by means of a special abdominal support, consisting of one or two cross-springs and a pad assembly which fit over the lower half of the abdomen, and is held in position by means of a back piece, straps and buckles*. The degree of compression regulates the level and movements of the diaphragm. The supports have been worn from two to thirty months day and night, except in intestinal tuberculosis and malnutrition when it has been necessary to remove them for short periods also in certain other instances in order to determine the possibility of retrogression occurring independently of treatment, eighty-two patients have been ambulatory practically throughout the period of observation, thirty-three have worked, the remaining number have had sanatorium care or the equivalent.

Symptomatic relief from dyspnea and difficult expectoration was the rule. Attacks of paroxysmal tachycardia were controlled in three patients, tympanitis and constipation improved in twelve, ninety gained in strength and generally "felt better." The relief of dyspnea and improvement in the lungs were quite constant in patients with an essentially fibroid type of disease and a well-developed abdomen. The unsatisfactory results, such as elevation of temperature with increased cough and dyspnea,

*From the Department for Diseases of the Chest, Jefferson Hospital, Philadelphia, and the White Haven Sanatorium, White Haven, Pennsylvania.

Read before the Harvard Medical Society, Boston, Mass., November 6, 1925.

†Gordon, Burgess—Director of the Department for Diseases of the Chest, Jefferson Hospital, Philadelphia. For record and address of author see "This Week's Issue" page 17.

*The so-called two-spring model was used in patients confined to bed and in those with the flat type of abdomen; the single spring model was used in the pendulous type of abdomen. The supports are manufactured by the Geo. F. Pilling and Son Co., 3rd and Arch Streets, Philadelphia, Pa.

occurred in cases with acute extensions or soft caseating lesions

The physical examinations in the improved cases usually showed a decrease in the number of coarse râles, especially in the bases of the

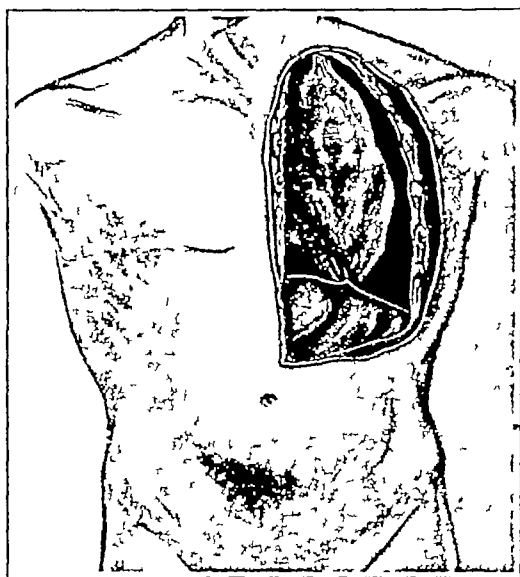


FIGURE 1 A partially collapsed lung suspended by apical and diaphragmatic adhesions illustrating the ovoidal shape of the cavity during deep inspiration

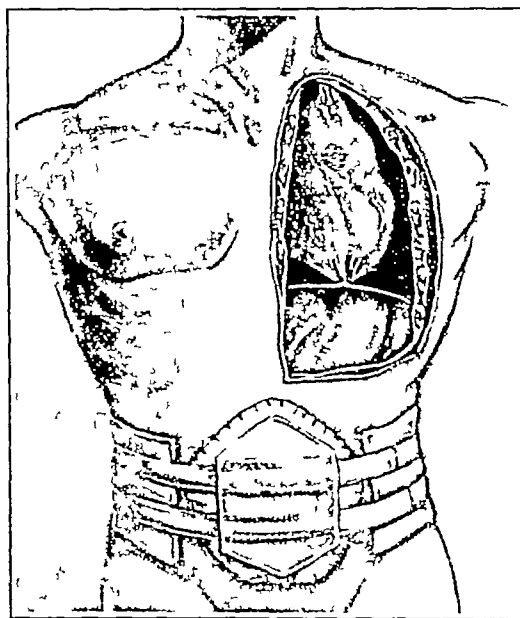


FIGURE 2 Illustrating the effects of abdominal compression with elevated diaphragm and rounded cavity (for comparison see figure 1)

lungs, it was interesting that musical râles sometimes appeared and persisted but apparently were of no significance

The x-rays showed an average elevation of the diaphragm of 12 cm. Structural improvement occurred in forty-three patients (seventeen ambulatory, twenty-six at rest in bed), as evidenced by a decrease in the size of cavities or

their disappearance, and retrogression of the associated lesions. The largest cavity before treatment was 45 cm in diameter. Eleven were located in the upper one-third of the lung, five in the middle third, five in the lower third. They closed as follows: one in seven weeks, five in two months, three in three months and seven in five months. The supports were removed in four patients in whom cavities had diminished, an increase of cough and dyspnea followed almost immediately and in about three weeks the cavities returned to their former size. The supports were reapplied and the cavities again diminished in about two months. It was interesting that two apical cavities, which developed during artificial pneumothorax, closed after the

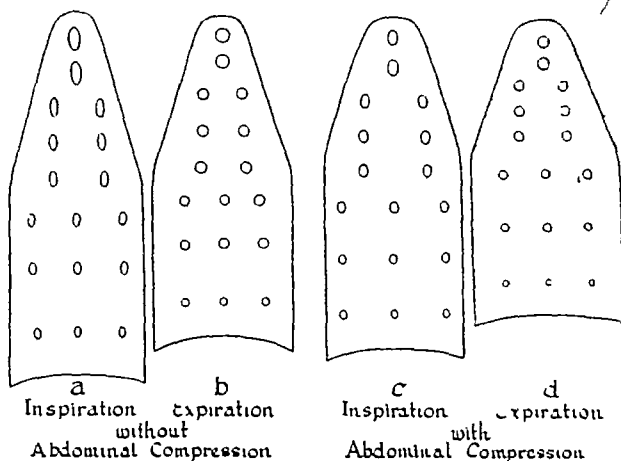


FIGURE 3 Suggesting the possible variations in the size of the apical alveoli during respirations they tend to become ovoidal during deep inspiration with limitation of the diaphragmatic excursions by means of abdominal compression they tend to become less ovoidal

lung reexpanded and following abdominal compression. Twenty-six patients with cavitation and marked fibrosis were able to exercise without x-ray evidence of progression and they seemed to carry their lesions safely. This capacity to exercise safely was more remarkable than any changes that occurred in the lungs, for the reason that the patients had been regarded as suitable only for "cure" such as sitting in a chair.

The vital capacity studies in thirty-one patients showed at first a reduction of 10 to 20 per cent, which indicated a decrease in the available air space of the lung, due to a limitation in their vertical movements, with an increase of thoracic excursions, in twelve patients, there was a gradual return to within 5 per cent of the previous figure, in nineteen there was no appreciable change, but it was interesting that eight showed definite symptomatic improvement.

The respiratory rate was studied in thirty patients. In the majority there was an increase of two to five respirations per minute immediately following the application of the support, after wearing it for a few hours, the rate usually returned to the previous figure and breath-

ing became quiet. On slow walking, the rate was more frequently lower with the supports applied than without, on rapid walking the rate increased. The effects on dyspnea were often striking, some patients who were even short of breath while walking on level ground were able to walk up stairs easily.

In discussing the mechanism of abdominal compression as it concerns the tuberculous process, three factors may be considered: (1) the typical pathological development of pulmonary tuberculosis, (2) the possible changes in the lesions, due to deep, uncontrolled vertical excursions of the lungs, (3) pulmonary ventilation as it applies to the growth of tubercle bacilli.

The characteristic development of pulmonary tuberculosis, according to the x rays and post mortem examinations, begins at the apex of the lung. The lesion is essentially fibrotic. Below the apex the process is typically fibrocaseous with a scattering of new tubercles to the lower lobe, the number of tubercles gradually becoming smaller at the base. The great amount of fibrosis at the apex is an indication of the chronic nature of the lesion and is in marked contrast with the tubercles in various stages of caseation or healing (fibrosis) at the lower levels of the lung. The clinical findings also indicate progressive involvement and correspond with the changes at postmortem. An important feature is the gradual downward extension of the rales, coincidentally with the formation of new tubercles with clinical improvement there is a gradual disappearance of rales and x ray shadows beginning at the lower lobe, an indication of clearing of the lung fields.

The pathological development of pulmonary tuberculosis is so typical that one might wonder about the influences in its curious progression. One of these is the mechanical factor of respiration. This is characterized by more or less shallow rhythmical and equalized excursions of the lungs in different planes. An important feature is that the vertical movements are limited in strong, vigorous individuals and are governed largely by the diaphragm. Their value over deep inspirations has been pointed out repeatedly by women who voluntarily wear abdominal supports or corsets because they feel that the retained abdomen reduces fatigue and facilitates breathing. Except in singers who require slow prolonged expirations, the so-called "abdominal" or "diaphragmatic" type of breathing is not encouraged. Deep breathing is usually condemned in athletes because it is tiring and inefficient.

The effects of the deep, uncontrolled respirations upon the gross structures of the diseased lung are pointed out by Willauer.⁴ He has observed in thoracoscopic studies that a remarkable expansion of emphysematous blebs of the lung occurs during forceful expirations as in

conglung. Apparently a similar phenomenon occurs in bronchial strictures of the "ball valve" type, associated with cavity formation, in which there is a tendency for air to be "trapped" in the adjacent parts of the lung, causing expansion, especially of thin walled cavities. The immediate changes in the size of cavities are sometimes shown in fluoroscopic studies of pneumothorax cases in which the lung is held out by apical and diaphragmatic adhesions with forceful inspirations they become ovoidal in shape, then rounded as expiration occurs. Visualize the endless repetition of these phenomena of sudden expansions and contractions of blebs, cavities and bronchi in chronic pulmonary disease and the dangers to the lung will be appreciated. It is difficult to understand how a diseased part can withstand such changes indefinitely especially in regions unprotected by bone and muscle as in the apices and mediastinum.

The interesting studies of Walsh⁵ throw some light on the microscopic changes of the lungs that may be directly related to the mechanical factor of respiration. He has observed that the alveoli are of the same size throughout the lungs in the still born infant and in the infant two days old, that they are largest at the apex in the baby four months old, and in the adult they are definitely larger at the apex than at the base. He suggests that the enlargement may be due to greater respiratory activity of the apex. These differences in the size of the alveoli may be shown graphically in an experiment with a triangular sheet of rubber "punched" with holes (figure 3). It may be assumed that the vertex of the triangle represents the upper lobe of the lung, the "holes" the alveoli. The vertex is held more or less firmly to imitate the apex of the lung as it is maintained in position in the thorax by negative intrapleural pressure, as the sheet is stretched, to correspond with the expansion of the lung during inspiration the "holes" at the vertex become elliptical in shape by contrast with the more or less constant rounded "holes", or "alveoli" at the base. This parallel suggests that the weight of the lung and the suction of the diaphragm play some part in developing larger alveoli at the apex. It may be significant that the permanent enlargement and the intermittent variations occurring with each inspiration, influence the development and progression of tuberculosis.

In considering the possibility that pulmonary ventilation favors the growth of tubercle bacilli, it is interesting to note the behavior of bacteria at different levels of the lung. It is recognized that pneumonia has a predilection for the lower lobe tuberculosis for the upper lobe, that the pneumococcus is aerobic, but optionally anaerobic and that the tubercle bacillus is distinctly aerobic. Pneumonia is frequently associated with arteriosclerosis and heart disease which

have a tendency to produce edema and passive hyperemia of the lower lobe, conditions which interfere with the aeration and circulatory activity of the part, further, that tuberculosis is so uncommonly associated with arteriosclerosis and heart disease as to allow the possibility of an antagonism between them

The relationship of anthro-silicosis to tuberculosis, on the basis of pulmonary ventilation, may also be significant. It is known that silicate causes marked pulmonary fibrosis and predisposes to tuberculosis and yet patients affected with this dust rarely die of the disease. It seems not unlikely that reduced aeration due to the destruction of myriads of alveoli interferes with the growth of tubercle bacilli.

SUMMARY

The study of signs and symptoms and various mechanical factors of respiration, suggests that the lesions of chronic pulmonary tuberculosis are aggravated by deep vertical excursions of the lungs, difficult expectoration and

the traumatizing action of cough. It appears that elevation of the diaphragm as induced by abdominal compression, controls the respirations and equalizes the movements of the lungs in different planes, thereby favoring rest for the diseased parts. The mechanism resembles bilateral phrenicectomy, with the advantage, however, that the propelling force of the diaphragm is preserved, which is of distinct value in expectoration. It is possible that reduced pulmonary ventilation tends to retard the growth of tubercle bacilli as in pneumoconiosis.

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PEPTIC ULCER*

A Study of the Disease Before and After the Demonstrated Ulcer

BY MAURICE A. SCHNITKER, M.D., † AND WM. A. EVANS, JR., M.D. †

PEPTIC Ulcer is commonly considered a disease in which the ulcer in the stomach or duodenum is the essential lesion, without which the disease does not exist. However, there is another conception of the disease in which the actual ulceration is regarded as but one and perhaps not the most important or significant manifestation. Indeed, the disease may be present without any ulceration whatever for shorter or longer periods of time or it may conceivably run its entire course without the appearance of any ulceration. The purpose of our study has been to review the records of patients who had been followed for a considerable period of time during which an ulcer had been observed to develop and to compare the findings before and after the demonstration of the ulcer. According to our views the symptoms were such that we believe the disease was present from the onset of dyspeptic complaints and the appearance of the ulcer was but an incident in its course. As cavitation is but one lesion in the course of pulmonary tuberculosis, similarly we consider ulceration to be but a part of the picture in this disease. A search through the out-patient records of the Peter Bent Brigham Hospital revealed 1653 patients during the past ten years

in whom peptic ulcer was suspected clinically. Roentgen studies to establish the diagnosis were carried out in 1376. In 411 the examination was negative, and the majority of these patients were either not seen again or did not have subsequent roentgenological examinations. The diagnosis of peptic ulcer was confirmed at the first roentgenological examination in 934, the ulcer being found in the stomach in 106 and in the duodenum in 828. Thirty-one patients were found in whom one or more roentgenological examinations revealed no ulcer or ulcer deformity of the stomach or duodenum and in whom at a later date an ulcer was demonstrable. The records of these patients constitute the material for this study.

The basis for the diagnosis of an ulcer in a few cases was the actual demonstration of the ulcer itself at operation or as a crater by x-ray. More often, however, the diagnosis was based on the presence of a characteristic deformity which develops in the duodenum. This persistent deformity is generally regarded as direct evidence that an ulcer has been present. We have used the terms ulcer, crater, and deformity interchangeably in the discussion of the paper to indicate the occurrence of an ulcer. We have regarded the period up to and including the last examination showing no ulcer as the period "before" the ulcer. The period "after" the ulcer we have regarded as being that from the time of the first evidence of an ulcer as described.

*From the Medical Clinic of the Peter Bent Brigham Hospital, Boston, Mass.

†Schnitker Maurice A.—Assistant Resident Physician, Peter Bent Brigham Hospital. Evans William A. Jr.—Assistant Resident Physician, Peter Bent Brigham Hospital. For records and addresses of authors see "This Week's Issue" page 217.

above. Obviously there must exist between the negative and positive evidence a period of time during which the lesion develops. The manifestations occurring in this period cannot be classified as either before or after the ulcer and have not been considered in this study.

To include brief summaries of all thirty-one cases would add unnecessary length to the paper. In order to give the reader an idea of the type of case analyzed in making this study we are including only several examples. In the following case reports data that have not seemed pertinent have been purposely omitted.

CASE 1 S S., a white male aged thirty-three in whom an ulcer was first demonstrated at the age of thirty-one. He had been having typical ulcer symptoms for ten years, i.e., epigastric distress coming on to two hours after meals relieved by food and soda, and occurring in remissions and relapses. X-ray studies had been carried out in 1923, 1924, 1926 and 1928 and gave no evidence of ulcer. Findings somewhat suggestive but not typical of an ulcer were demonstrated in 1930. In 1933 a typical crater of the duodenum was demonstrated and confirmed on three subsequent occasions. Reexamination of all the previous films at the present time indicates thickening of the gastric rugae. In 1924, 1926 and 1928 with an increase in thickening at the time the crater was demonstrated. The symptoms had remained the same for approximately ten years but became somewhat worse following the demonstration of the crater. There was thought to be a well marked nervous factor both before and after the demonstration of the crater. Gastric analysis in 1923 before the ulcer showed a range of the free acid from 52 to 108 degrees and of the total acid from 65 to 123 degrees. In 1933 after the demonstration of the crater the values for the free acid were 14 to 82 and for the total acid 11 to 114 degrees. The response to modified Sippy treatment was good before as well as after the demonstration of the crater.

CASE 2 C H., a white female aged fifty-six who was moderately nervous. A duodenal ulcer was first demonstrated at the age of forty-eight. The symptoms had been of four years duration and were somewhat atypical for an ulcer. The first gastrointestinal x-ray studies in March 1924 showed some spasm in the stomach and inconclusive findings in the duodenum. A second x-ray study one month later showed a hypertonic stomach and findings in the duodenum less suggestive of an ulcer than before. A third x-ray study in 1925 was entirely negative. A roentgenogram in 1926 was also interpreted as essentially negative. A fifth examination in June 1926 showed an hourglass deformity of the stomach and a constant irregularity of the duodenal cap typical of a duodenal ulcer. There was no change in symptoms before or after visualization of the duodenal lesion. A gastric analysis in 1924 before the ulcer (one specimen) showed a free acid value of 30 and a total acid value of 64 degrees. In 1926 with the demonstration of the ulcer the values were 5 to 50 and 30 to 65 respectively. The response to treatment with diet and powders was poor before the ulcer was demonstrated. An operation after the ulcer was found failed to give relief.

Certain objections to the significance or actual existence of such a group immediately arise. The small size of the group would appear to be due in part to the fact that patients did not

present themselves until their disease had been present for a considerable period of time and was then well advanced, and in part to the fact that some patients with negative roentgenological examinations were not followed further and were dismissed as having a disorder of no importance. The possibility that these patients simply represent ones in whom an ulcer was overlooked at the first x-ray examination can not be easily denied and this may be true particularly in a few cases in which the initial examination was done before the present accuracy of diagnosis had been attained. A further objection is the possibility that during the apparent ulcer free phase of the disease, a crater may have been present at some point in the stomach or duodenum where it could be demonstrated only with great difficulty if at all and that the appearance of a demonstrable ulcer was no more than the appearance of a second ulcer in a location more favorable for demonstration. It is well known that small ulcerations on the posterior wall of the stomach are particularly difficult to demonstrate even with the newer methods of relief study of the mucosa and their presence cannot be readily denied without gastroscopic confirmation. However, where a number of our patients were submitted to repeated examinations which were negative and then, with the same technique carried out in the same department, a crater or deformity was demonstrated at a later date, we feel that the ulceration actually developed in the interim. A final possibility is that these patients had previously had peptic ulcers which at the time of the negative examination had healed without a deformity and which later recurred. This possibility obtains particularly in the case of gastric lesions. Thus Nicholas and Mouchieff¹ have pointed out that in the recurrence of a gastric ulcer, symptoms may reappear before a crater becomes demonstrable roentgenologically. Notwithstanding these alternative explanations which quite possibly represent the facts in a few cases, we have assumed the group as a whole to consist of patients who were observed at a period in their disease before any ulcer had appeared. In a few cases the films are available for reexamination and confirmation of the presence or absence of an ulcer so far as this is possible.

The thirty-one cases fall into four groups. The first of sixteen patients consists of those in whom the first Roentgen studies were entirely negative so far as the stomach or the duodenum was concerned and in whom a duodenal ulcer was demonstrated subsequently. The second group contains two patients in whom a gastric ulcer appeared. In the third group are two patients in whom the evidence is in part surgical. In one two exploratory laparotomies by experienced surgeons gave no evidence of a peptic

ulcer although the stomach and duodenum were carefully examined on both occasions, a duodenal ulcer finally being demonstrated roentgenologically four years after the last laparotomy. In the other, four roentgen examinations over a period of five years failed to reveal a crater or the deformity of one, while the presence of a duodenal ulcer was later established by laparotomy. The final group of eleven patients consists of those in whom the first barium studies were regarded as doubtful because of a transient deformity or irritability of the duodenal cap. In these patients, no crater or constant deformity could be made out in the initial examinations although a typical duodenal ulcer was demonstrable at a later date. In retrospect, evidence in these cases would indicate that the lesion present at the time of the early examinations was a duodenitis.

In studying the records of these patients an attempt was made to compare the symptomatology of the disease before and after the appearance of the ulcer. Particular attention was paid to the nervous make-up of the patient, to the character and severity of his symptoms, any evidence of bleeding or perforation, and the response to treatment. When possible, comparison was made of the acidity of the gastric juice in the two periods. In addition, a note was made of manifestations which may be associated with the ulcer syndrome, i.e., inflammatory lesions in the gastrointestinal tract (gastritis, duodenitis, colitis) and disturbances of motility (cardiospasm, pylorospasm, diarrhea and constipation). In some patients, the symptoms appeared to arise in large part, if not entirely, from one or another of these associated lesions at the time when no ulcer was demonstrable.

DISCUSSION

It is not unusual for a case to come to necropsy with a peptic ulcer or the scar of one, the patient never having had symptoms suggestive of that disease.³ Similarly, in the course of another study we have recently observed three patients with Roentgen evidence of a penetrating ulcer who had not had symptoms of their disease for months. It is unusual to observe patients with a crater without symptoms for the obvious reason that in the absence of symptoms Roentgen studies are not made. That an individual may have symptoms typical of ulcer distress without a demonstrable crater is generally recognized. Alvarez⁴ has given the name "pseudo-ulcer" to such cases. In some of these individuals after a period of such symptoms an ulcer develops. These facts seem to indicate that there is no necessary correlation between the presence of a crater and the peptic ulcer symptomatology. The few writers on this phase of the disease have not stated what the time

interval of symptoms may be before the ulcer develops, although Noirpoth⁵ reported three cases with symptoms for four, seventeen, and nine years respectively before the ulcer was demonstrated. Somewhat similar to the studies we have carried out, the first x-ray examinations in all three of his cases showed thickened rugae and no ulcer, and from five to sixteen months later, a second examination revealed a duodenal ulcer in two patients and a gastric ulcer in the other. In our series of thirty-one cases we found the period of symptoms before the ulcer was demonstrated to be from one to twenty-five years. The average for the group was 9.1 years but in the majority it was twelve to fifteen years. The time interval between consecutive x-ray examinations varied a great deal, the probable explanation being either that the physician minimized the symptoms or that the patient was reluctant to have another barium study if the first was reported negative. In ten of the thirty-one cases there was more than one negative Roentgen examination before the demonstration of the ulcer, one case had had five negative reports over a period of seven years before the ulcer was seen.

This group of thirty-one cases was analyzed to determine whether these individuals differed in any respect from the average patients with an ulcer. There were more males than females, a sex incidence not unusual for ulcer disease. In twenty-nine the ulcer was located in the duodenum and in two it was in the stomach. Most of the individuals were in the later decades of life when the ulcer became manifest. The range of age was eighteen to sixty-nine, nine of the patients being over fifty years of age and nineteen over forty. These patients appeared to be of about the same age at the time the ulcer developed as is the case with average groups of patients with ulcer.

In the records of twenty-five patients when a statement had been made, there was distinct nervousness in twenty. The frequency and degree of nervousness in this group seemed to be the same as in a group of average ulcer cases. This seemed of interest inasmuch as one might be tempted to explain the existence of such a group on the basis that these individuals were perhaps more nervous and meticulous and hence would seek medical advice sooner than do most persons.

The cases were studied further to compare the findings before and after the demonstration of the ulcer. One of the most striking features was the absence of appreciable changes in symptomatology with the presence of the crater or deformity. In a few cases there were other disorders of the gastrointestinal tract, but even then, there were additional symptoms in most cases quite typical of ulcer distress. In four cases the symptoms were somewhat atypical but

they were of the same character after the ulcer developed. In one there was an irritable colon and in another gallbladder disease which may have contributed to the bizarre complaints. In most of the individuals the symptoms were of the same character and severity throughout the course of the disease. In three there was an increase in intensity at the time the ulcer was found. In two cases the symptoms were actually more mild at the time an ulcer was demonstrated and so far as we could tell this was not the result of previous symptomatic treatment. There appeared to be a high incidence of night pain, its presence occurring in seventeen of the thirty-one individuals. In eleven of the seventeen this type of pain was present before the ulcer was demonstrable. If the universal teaching is accepted that night pain is more characteristic and more commonly found in duodenal than in gastric ulcer, the high incidence of night pain would appear to be due to the fact that twenty-nine of our cases were of duodenal ulcer.

Compared to larger groups of average ulcer cases there did not appear to be any appreciable difference in the frequency of nausea, vomiting, bleeding, or perforation. It is well known that an x-ray examination of the stomach or duodenum often does not reveal an ulcer at the time of bleeding and it may not be found for some time after the bleeding has ceased. Crohn, Weiskopf and Aschner⁶ consider such cases of so-called "essential" hematemesis which later have an ulcer to be in the "regressive" phase of the disease. However, it is well known among gastroscopists (Korbsch⁷) that bleeding may occur from small areas of inflammation in the mucosa where no ulcer is present. Six of our cases had evidence of slight bleeding at a time when no ulcer was demonstrable by Roentgen examination. After the ulcer was present there was additional bleeding in two of these and in three others. The occurrence of bleeding in a total of nine cases (twenty-nine per cent) is not an unusual figure and agrees very well with the studies of Emery and Monroe⁸ of two much larger series of cases where the incidence of bleeding was found to be 26.7 and 34.8 per cent respectively.

Another point of interest was a comparison in the level of gastric acidity before and after the appearance of the ulcer. In nine of the cases an analysis with the Ewald meal had been done before the ulcer appeared and in four of these the free acidity was high, i.e., in at least one specimen it was over 50°. In one case the free acidity was as high as 108°. In one case there was no free acid present in the gastric contents after the Ewald meal, the response to histamine was not tried. The gastric analysis in these nine cases after the ulcer was present

showed no appreciable difference from the previous tests in seven, in one case the values were slightly higher and in the other both the free and total acid levels were definitely lower. In the remaining twenty-two cases, four had tests only before and nine only after the appearance of the ulcer. In nine of these thirteen the acidity was high and in four it was normal. In the total group of twenty-two patients in whom a gastric analysis was carried out, there were eight with a normal acidity, i.e., $H^+ A$ 5-50°.

In reviewing the available films of these cases, we attempted to determine the presence of thickened gastric rugae. In 1829 Cruveilhier⁹ reported chronic peptic ulcer as an entity distinct from cancer of the stomach and chronic gastritis. He gave a clear anatomic and clinical description of the disease suggesting as a primary lesion preceding inflammation. More recently that association has been stressed particularly by Konjetzny¹⁰. With the newer methods of gastroscopy, thickened rugae have been found to be a characteristic feature of the gastritis of ulcer disease. This thickening of the rugae can be estimated from a film of the barium filled stomach. However, from our studies we feel one cannot make a diagnosis of ulcer disease from the presence of thickened rugae alone. We found that the average trend in about half of the cases was a slight but definite increase in the thickness of the rugae up to the time of the demonstration of the ulcer. Thus definite progression occurred in twelve of the twenty-five cases in which the films were available, in three others such an increase was questionable. In four the rugae were slightly thickened at the first examination and they appeared unchanged at the time the ulcer was seen. In four other cases the rugae appeared normal throughout all the x-ray studies. It was rather striking that in two cases the rugae were definitely less tortuous and thickened at the time of the ulcer than on previous films.

Since most of the patients were given a bland diet, alkaline powders and milk on some schedule for the alleviation of symptoms even when the x-ray was negative for ulcer we were able to draw some conclusions as to the response to symptomatic treatment both before and after the ulcer was demonstrated. In many instances, of course a more strict regime was outlined and followed after an ulcer was found. Grading the response to treatment as poor, fair, and good we found that before the ulcer, five did poorly, six did fairly, and eleven responded well. In nine cases there was no note from which to judge the response to treatment. After the ulcer appeared and often a more strict regime was instituted one did poorly, thirteen did fairly and fourteen had a good response to treatment.

In three cases this information was not available. Of the twenty-two cases then, in which we have data before and after the ulcer, there was a better response to symptomatic treatment in four, in two it was worse, and in sixteen the same with the demonstration of the ulcer. Similarly, as there was little change in symptomatology and no appreciable difference in gastric acidity, so there was also little variation in the response to treatment before and after an ulcer was found to be present.

CONCLUSIONS

A study has been made of thirty-one patients with peptic ulcer who were seen in the period of the disease when no ulcer was demonstrable. A comparison was made of the findings before and after the demonstration of the ulcer.

There was no striking change in the character or severity of the symptoms with the demonstration of the ulcer. Likewise there was no constant variation in the gastric acidity, in the incidence of bleeding, or in the response to symptomatic treatment in the two periods of the disease.

Roentgen evidence of inflammatory lesions (gastritis and duodenitis) was present in the majority of the cases before the demonstration of the ulcer and later there was generally an increase in the severity of these lesions. In some cases however, no evidence of inflamma-

tion was obtained either before or after the ulcer was seen. We do not believe that a diagnosis of peptic ulcer can be made on the basis of tortuous and thickened rugae alone.

These findings give support to the view that an ulcer of the stomach or duodenum is simply the local manifestation of a more general disorder. They also confirm an impression that a crater, as demonstrated roentgenologically, is but an incident in the course of the peptic ulcer disease.

We wish to acknowledge the kind help given to us by Dr W W Vaughan from the Department of Roentgenology in reviewing the films in this study.

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VERMONT STATE MEDICAL SOCIETY

DERMOID TEETH IN THE EXTERNAL AUDITORY CANAL, WITH COMMENTS ON TERATOMAS AND DERMOIDS IN GENERAL*

BY GEORGE G MARSHALL, M D †

BECAUSE of the rarity of dermoid teeth being found in the external auditory canal, and because of the mystery and interesting theories of the production of dermoids and teratomas, associated as they are with the disorderly cell life in their production, as well as that of malignant tumors, I have chosen this as my subject with a report of three cases, the first of which recently came under my observation. One other case is reported by Becco of Argentina⁵, and one of simple dermoid in the auditory canal is reported by Adam and Gilmour of Glasgow⁴.

CASE 1 Report of my case. R C, aged fifteen, first seen September 6, 1934. Referred by Dr Briggs of Brandon, Vt., because of increasing deafness of the right ear. There had been no pain or aural

discharge, but the patient had noticed an obstruction in the external auditory meatus. On an office examination there appeared to be an exostosis, covered by a cutaneous membrane, filling the aural canal so completely that only a thin instrument could be introduced beside the bony growth. On October 8 he entered the Rutland City Hospital for removal of the growth. Under ether a more thorough examination being made, to determine the supposed attachment, it was noticed that the tumor was movable. A small hook was then passed along the side of the canal, until it engaged back of the tumor, when the tumor was extracted by gentle manipulation, and to our surprise on examination it proved to be a molar tooth. Then on looking into the canal, to determine its condition and especially that of the drum, another similar tumor was seen deeper in the canal. This one also was movable and had a thin epithelial covering. The hook was then worked back of this growth and extracted as in the first case. This tumor also proved to be an imperfect molar. After cleaning the canal of what appeared to be sebaceous material, the drum was found to be normal. The canal showed some pressure necrosis, but there were no sinuses. After a week the parts had regained a healthy appearance, with restoration of normal hearing. Radio-

*President's Address delivered before the Vermont State Medical Society at the Annual Meeting Rutland Vermont October 17 1935.

†Marshall George G.—For record and address of author see This Week's Issue page 217.

graphs of the jaw by his dentist, Dr William Pond showed the right lower third molar missing and the left lower third molar lay horizontal and un-erupted. (Slides of the dermoid teeth shown Figure 1)

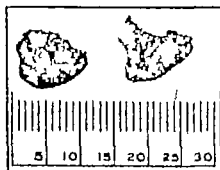


FIGURE 1
Photo of extracted teeth from Case 1

CASE 2 Reported by Raul Becco Chief of the Service of the Otolaryngological Department of the Italian Hospital of Argentina. The following is taken from Becco's report. A boy born in Florence, Italy who, at the age of fifteen first noticed an obstruction in the left ear for which he consulted an aural surgeon was informed that he had an exostosis in the aural canal, and operation for its removal was advised. Since there was no discomfort other than a slight loss of hearing operation was declined. Four years later in 1913 he emigrated to Buenos Aires where he had increasing trouble hearing became more defective and he had periods of purulent fetid discharge with frequent pain in the ear and severe intermittent headache. For these symptoms he visited several service hospitals and at each operation was advised. In 1923 he first consulted Dr Becco who found what he thought was an exostosis nearly filling the auditory canal complicated by a purulent discharge. The patient now entered the Italian Service Hospital and on March 5 Dr Becco operated. Incision was made postaurally and it was planned to chisel away part of the bony canal, but the tumor was found to be movable and was easily extracted with forceps. On examination it proved to be an imperfect molar. There were no sinuses in the canal. He made a good recovery but with defective hearing owing to the injured drum from long pressure and secondary infection. Dr Becco in his report says that he has searched the medical literature extensively and has not found a similar case recorded although there were many references to dermoid cysts in the outer ear and mastoid.

CASE 3. Reported by Adam and Gilmour. They preface their report by saying "The rarity of this sort of tumor is sufficiently shown by the fact that it is not mentioned in aural textbooks but it has pathological implications that render the case worthy of record."

They report as follows: A woman aged sixty five first seen in 1928. She had known of a growth in her right ear for eighteen years. At this time there was no pain or discharge but the hearing was very defective. In October 1929 she was having pain in the ear, giddiness and purulent otorrhea. She was now taken to the Stobhill hospital, and after the usual postauricular incision the meatal wall was split and a dermoid tumor delivered. The pedicle, which was attached behind the angle of the jaw was easily severed. The postaural wound healed by first intention and the suppurations from the middle ear ceased. The tympanic cavity was not visible, owing to the changes brought about by pressure of the tumor. The dermoid was covered with epidermis and was so firm as to be at first mistaken for an osteoma.

In Adams opinion this was a dermoid growth from the first branchial cleft.

Misplaced teeth have often been found in the antrum, more rarely in the orbit, and dermoids containing teeth, together with recognized tissues from any of the three germ layers are found in many parts of the body.

The first case here reported is I believe the first instance of dermoid teeth being found in the aural canal recorded in American literature. The second is the only recorded case that I have been able to find in foreign literature. The third case, reported from Edinburgh, is similar, but no teeth were found in the dermoid. It is possible that some cases diagnosed as exostosis may have been dermoids.

CONSIDERATION OF TERATOMAS AND DERMIDS IN GENERAL

Definition. A teratoma is a tumor composed of tissues and complex organs derived from more than one germ layer and may be located in parts foreign to the tissues of which it is composed. A dermoid is an imperfect teratoma composed chiefly of the ectodermal germ layer. The tissues in either case are disorderly arranged and without physiological purpose composed of either mature or embryonic cells, the latter showing a strong tendency to malignancy.

History. In the Middle Ages a dermoid was thought to be a malformed fetus, and to be the judgment of God for immoral practices, but in 1789 Baillie reported an ovarian dermoid in a virgin girl, aged eleven and from then more rational explanations were attempted.

Etiology. While there is no proved cause for the production of teratomas and dermoids there are a few theories that seem acceptable. First. The defective closure of certain embryonic clefts with inclusion of cells from the ectodermal layer, this takes place in the fifth or sixth week of embryonic life. The branchial clefts of the neck are one of the most common sites, and faulty closure of the first branchial cleft offers the best explanation of the dermoid teeth in the cases here reported.

Inclusion error of the neural groove with infolding of the ectodermal layer may give rise to spinal dermoids. Fraser of Edinburgh reports such a case.

The following paragraph will help to clarify the second theory, that of misplaced blastomeres. A blastomere is one of the cells resulting from the first few divisions of the fertilized ovum. Those resulting from the earliest division are called totipotent, since they can produce any tissue of the body. They differ from

Dermoids have been reported as having been found in the following regions, orbit, cornea, conjunctiva, brain, fronto-sinus, parietal bone, anterior wall of the rectum, pelvic connection, tarsus, pancreas, nose, terminal phalanx of the thumb, sacrococcygeal region, mammary umbilicus, vaginal canal, round ligament, wall of the Fallopian tube, ovary, sacrum, perineum, neck, ears, at rim of, plural cavity and floor of the mouth.

blastomeres of further divisions, which are called multipotent, and evolve many tissues, though not all, and finally cells from further divisions are called unipotent, because they are capable of building but one kind of tissue⁸ According to this theory one of the blastomeres becomes misplaced during the embryonic period and usually remains dormant until some time in adolescent or adult life if not permanently. The complexity of the teratoma is determined by the type of blastomere displaced. Ewing says "The possibility must also be considered that the formative capacity of anatomically pure germ layers may not always be restrained within the rigid limits formerly set."⁹

Fluid theory. Aberrant or wandering germ cells in the developing embryo are found widely scattered, the length of the embryonal entoderm, and these aberrant cells are thought to be one of the most frequent causes of teratomas, especially those occurring in the sex organs. The delayed development of these undifferentiated cells should not be considered strange since we have normal examples of delayed cell changes, like the successive eruption of teeth, the activity of hair follicles at puberty, and other equally familiar cases.

There has been much research in an effort to determine why certain groups of cells start on an uncontrolled proliferation in the production of benign and malignant tumors. There is an inherent tendency in all cells to multiply, and the tailed cell or spermatozoa, discovered in 1677 by Hamm, but whose function was not proved until 1844 by Wagner and Koelliker is not the only means of cell fertilization or division.² For example, Loeb induced starfish eggs to segment by adding soda water to sea water, called shock fertilization, and later Batallion induced complete embryogenesis in frogs' eggs by pricking them with a glass stylet dipped in the frogs' blood.

One of the most interesting theories of cell multiplication is known as Parthenogenesis, a normal process of automatic cell proliferation in the lower forms of vegetable and animal life. An example is that of the sea urchin's egg. More speculative is the theory of tissue cell fertilization by conjugation with leukocytes (Kefts). Trauma is probably one of the most frequent causes for activation of these misplaced cells. Ewing says, "There is abundant evidence that not only chronic irritation, but that single or multiple direct injuries may excite malignant growths in predisposing unstable cells."¹⁰ Recent experimental work by Crile⁷ reported in the *American Journal of Surgery*, in May, 1931¹⁰, confirms that trauma may excite pathological growth in normal cells. He says "Cancer cells are normal cells so structurally altered by mechanical, chemical or radiant energy that they

are partly or wholly bereft of their normal function, and their power to multiply is correspondingly increased." He adds, "A cancer cell is an injured normal cell."

These are a few of the many interesting theories advanced to explain the abnormal growths known as teratomas and dermoids, as well as that of malignant cell activity.

Diagnosis of teratomas and dermoids is often difficult, the history and physical appearance, together with radiographs will in some cases be sufficient, but often the true nature cannot be determined until operation and microscopic section.

Prognosis. Dermoids and teratomas continue to increase in size by cell proliferation, and the accumulating debris from the epithelial layer, so that by simple pressure they may encroach on vital organs, causing great distress and may even prove fatal. Dr. S. W. Harrington of the Mayo Clinic reports cases of mediastinal teratomas that by pressure invaded the lung causing dyspnea, and the expectoration of hair from the ruptured teratoma. In one of his cases the mediastinal teratoma penetrated the diaphragm involving the liver.⁷

Both teratomas and dermoids are prone to infection. Finally, a teratoma, especially of the embryonic type, may become malignant, forming metastasis. Gibson and Arnold⁹ report a case of metastasis into the neck from a malignant teratoma of the testicle, the metastatic tumor being found before that of the original malignant teratoma.

Treatment. Cases like the three here reported obviously should be operated early for the preservation of hearing, the prevention of pressure necrosis and late infection. The early, thorough operative removal of teratomas and dermoids should be advocated in all cases, since there are these three dangers which have already been mentioned under the head of prognosis, namely, pressure necrosis, secondly, infection and thirdly, malignancy.

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MISCELLANY

VERMONT DEPARTMENT OF PUBLIC HEALTH

DECEMBER 1935

The following communicable diseases were reported to the office of the Department of Public Health during the month of December: chicken pox 501 diphtheria 4 measles 534 German measles 2 mumps 173 poliomyelitis 4 typhoid fever 2 scarlet fever 57 undulant fever 2 whooping cough 191 and tuberculosis 10

The Laboratory of Hygiene made 1503 examinations, the details of which are as follows:

Examinations for diphtheria bacilli	92
" " Widal reaction of typhoid fever	30
" " undulant fever	43
" " gonococci in pus	131
" " tubercle bacilli	141
" " syphilis	56
" of water chemical and bacteriological	2
" water bacteriological	235
" milk market	117
" milk submitted for chemical only	1
" milk, submitted for microscopical only	8
" foods	3

Examinations of drugs	0
" for courts autopsies	3
" courts miscellaneous	9
" miscellaneous	63
Autopsies to complete death returns	3

The Director of the Division of Venereal Diseases reports twenty-nine cases of gonorrhea and forty-one cases of syphilis made to this Division in December. Eight hundred and four Wassermann outfits and three hundred and forty-four slides for gonorrhea were distributed from this Division.

The After-Care Nurses of the Infantile Paralysis After-Care Division made eighty home visits calling on eighty-two patients. Five patients were admitted to the Audubon Hospital and six patients were discharged. Three patients were admitted to the Children's Hospital and one patient was discharged. Thirteen pieces of apparatus were fitted, two pieces of apparatus were repaired and six orthopedic corrections were made to shoes. The Vocational Worker of this Division reports sales made amounting to \$49.50.

Five towns of the state were visited by the State Advisory Nurse of the Public Health Nursing Division. Part of the nurse's time was devoted to the WPA project, and the making of plans for a second project. Nine hundred and thirty-three notifications of birth registration and three hundred and forty-one pamphlets were mailed out in December.

MEDICAL PROGRESS

PROGRESS IN UROLOGY, 1934

BY FLETCHER H. COLBY, M.D.*

CANCER of the bladder has always been a difficult problem. Through the work of the Carcinoma Registry of The American Urological Association sufficient important data have been collected during the last seven years to warrant a review of the 902 reported tumors. The committee on carcinoma registry has studied this large series of cases and has made available many valuable facts in its report.¹

These neoplasms were considerably more common in men than women. The incidence was 76.25 for the male and 23.75 for the female.

Over half of the cases registered occurred between the ages of fifty and sixty-nine with the age peak between sixty and sixty-four. In only five patients were tumors present before the age of thirty and but ten after eighty years of age. It has been said that tumors in the extremes of life, the very young and aged, are of higher malignancy than others but the material of the registry does not tend to bear this out.

A study of the occupations of the patients included in the report revealed no significant feature except for the occurrences of sixteen epithelial tumors of the bladder among aniline dye workers. The high incidence of bladder cancer among individuals exposed to the aniline compounds has been a recognized fact for many years. Except for these cases no facts presented themselves which could be interpreted as causative factors in the etiology of carcinoma of the bladder.

Certain facts relating to some of these tumors suggest that they originate in the basal layers of the epithelium, about the terminal blood vessels, and they may reach a considerable size before the superficial layers of the epithelium are destroyed. These findings also suggest that some bladder tumors may originate as a result of certain carcinogenic agents circulating in the blood, thereby affecting the entire bladder mucosa. These facts apply more particularly to the aniline tumors, but the committee found that the distribution of both single and multiple tumors, as noted in the registry, appeared to follow closely the vascular supply of the deeper

*Colby Fletcher H.—Assistant Visiting Urologist, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 217.

layers of the epithelium. The high incidence of multiple tumors (29.2 per cent) was also considered suggestive in this respect.

A study of the situation of these tumors showed that the majority (76.6 per cent) arose from the lateral walls, trigone and bladder neck. This fact is of great importance since only the remaining 23.4 per cent of the growths involved portions of the bladder which would permit wide surgical excision without damaging the urethra or one of the ureters. This high percentage of invasion of the less mobile and less accessible portions of the bladder constitutes one of the chief difficulties in adequate treatment of bladder cancer.

Correlation of the location of the tumor and the degree of malignancy brought out a significant fact. Tumors involving the vault were usually highly malignant (75 per cent grades III and IV). The incidence of metastasis for this location was also greatly increased. Tumors which arose from the lateral wall, trigone or bladder neck were less likely to be so highly malignant (53.4 per cent were grades I and II), and in this type of growth the percentage of five-year cures was considerably higher, as contrasted with vault tumors. With the exception of the vault tumors, this series showed that the location of the primary growth had little apparent relation to the prognosis.

Multiple tumors were found likely to be of lower malignancy than single tumors. In many instances of recurring tumors it is believed that the new tumors represent true new growths originating in multiple foci in the bladder mucosa rather than that they are recurrences. Some of these multiple tumors were proved to be clinically malignant although histologically apparently benign.

Metastasis probably occurs in bladder tumors more frequently than is generally supposed. Approximately 10 per cent of the cases in this series showed metastases to the bones, lungs, regional lymph nodes and other locations. The incidence is undoubtedly higher than this since many of the cases included in the series were not examined for metastases. Other writers speak of this.^{2, 3}

The registry adopted this simple classification of the epithelial tumors:

- I Papillary carcinoma
- II Infiltrating carcinoma
- III Unusual types of epithelial tumors
 - a. Adenocarcinoma.
 - b. Colloid carcinoma.
 - c. Adenoma malignum (intestinal origin)

The tumors were graded on the basis of Broder's classification, and it should be noted that the histologically benign papilloma is included in the grade I papillary carcinoma group.

That there is still a considerable delay between the onset of the initial symptoms and

sufficiently adequate examination to make a diagnosis of bladder tumor, is quite evident in this series. In nearly one half of the patients (48.3 per cent) the diagnosis was delayed for more than one year. Only 10.8 per cent were completely examined and the diagnosis established, within one month of the initial symptom. Even so striking a symptom as hematuria was disregarded for over one year in 46.45 per cent. In other words, the importance of hematuria has not yet been appreciated by the layman or the doctor.

The standard methods of treating the cases in this series were resection, fulguration and radiation. The committee found it impossible to compare the results obtained from the various kinds of treatment. Of 349 cases observed five years or more, 33.24 per cent were alive at the end of five years.

Stone formation in the urinary tract is a subject of surpassing interest. The disease was prevalent in the human race centuries previous to the most ancient medical records and the earliest urinary calculus was discovered in Egypt among the bones of a boy of about sixteen. The grave is said to have belonged to the middle or late-middle prehistoric age some generations at least before the advent of Meres, the first Dynastic king (about 4800 B.C.).⁴ Analysis and study of this stone demonstrated that it was similar to those of the present day which occur in certain parts of India. Is the etiology of stone shrouded in mystery now as much as in the day of this earliest known sufferer, or has progress been made in solving this very important problem?

Stone was very common in Europe during the Middle Ages and until the beginning of the 19th century. Children were particularly afflicted with the disease. Still, in some parts of the world, particularly Southern China and certain portions of India, urinary calculus has a very high incidence. As better food conditions prevailed in Europe this tendency to stone formation declined. Vitamin deficiency, then, played an unquestioned part in stone formation. It is difficult, however, to account for all instances of the disease on this basis, convincing as are certain of the facts brought out by the artificial production of calculi in laboratory animals which have been kept on low vitamin diets.

Again, urinary stasis and infection have a bearing on stone production. The incidence of calculi is considerably higher when the normal flow of urine is obstructed, such as in the various congenital abnormalities of the urinary organs, hydronephrosis, horseshoe kidney and developmental obstructions of the urethra. Vesical calculi are frequently present in the bladder obstructed by the enlarged prostate, and stones are often found in bladder diverticula. In these conditions obstruction appears to be an obvious factor in stone formation.

Infection is difficult to evaluate as a cause of lithiasis. It is undoubtedly true that many stones develop in a sterile urine. Often it is impossible to be sure whether infection was present before a stone formed, or resulted from stasis as a result of the presence of a calculus. Certain types of infections do definitely increase the likelihood of stone. Organisms that split urea such as *Bacillus proteus* have been known for a long time to favor stone formation.

Disturbances of body metabolism cause stones to form in the urinary tract. This has been clearly shown in cystin stones from faulty metabolism of sulphur and in the calcium and phosphatic stones so frequently present in patients suffering from a deranged calcium metabolism associated with parathyroid disease. On the other hand, evidence of disturbed metabolism is entirely lacking in the ordinary individual with urinary tract stone.

Stone formation is now the subject of careful study by the internist, chemist and urologist and, although the problem is far from solved, progress is being made each year as new facts and theories accumulate.

The subject of *renal infarcts* is one which has received comparatively little attention in the literature although it is our impression that it is not a rare condition. Two such cases have been recently observed on the wards at the Massachusetts General Hospital. Frequently an accurate diagnosis is not reached until the kidney is exposed at operation or autopsy, as was true in a recently reported case by Saelhof¹ of infarction of the left kidney with thrombosis of the renal vessels. In this instance the symptoms of acute, severe pain in the renal region were pronounced, a moderate leucocytosis was present, the urine was normal save for a trace of albumin, and intravenous pyelography revealed considerable impairment of the function of the affected kidney. The true condition was recognized at operation when the kidney was removed. This patient recovered but died in three and a half months from thrombosis of the coronary artery and multiple thrombi of the pulmonary vessel and pulmonary infarcts.

The above case is cited as being typical in so many respects of renal infarction. That one vascular accident may rapidly follow another in those patients was evident in a recently studied case at the Massachusetts General Hospital. The patient was a young woman with chronic valvular heart disease who entered the hospital complaining of sudden severe pain in the region of the kidney. Signs and symptoms which were similar to those of the previously mentioned patient were present and this patient died suddenly about three weeks later from probable thrombosis of the vessels supplying the brain stem.

A very good review of this little mentioned subject of renal infarcts was presented by Bar

ney and Mintz² who studied the autopsy reports of 143 cases of the condition at the Massachusetts General Hospital. That such cases are usually seen on the Medical Service was evident from the fact that 117 or 83 per cent of these patients were admitted to the medical wards. Almost all of them were suffering from acute or chronic heart disease, many had advanced arteriosclerosis.

Study of this large series of cases brought out certain facts. All ages were represented from a boy of six to a man of seventy seven the majority occurring between the ages of thirty and fifty. More than half (68 per cent) of these patients had shown no rise in temperature. Examination of the urine in about one third of these cases failed to reveal any abnormality and in but four had there been gross hematuria. Urinary symptoms for the most part were entirely absent. Nausea and vomiting were symptoms in a small number (8 per cent), and none complained of persistent or excessive diarrhea although such symptoms were reported as prominent in renal infarction by other observers. It is surprising that over half of these patients (64.7 per cent) gave no history of pain or tenderness at any time, although multiple and large infarcts were found present. The authors conclude that while total infarction of the kidney may be associated with pain and tenderness, patients with extensive infarcts may be entirely free from such symptoms.

The important relationship which cardiac pathology bears to renal infarction was evident from the fact that only six (4.4 per cent) of the 136 cases so studied gave evidence of normal hearts. Most of the patients exhibited lesions of the valves or myocardium of long standing. Endocarditis, therefore acute or chronic, usually associated with cardiac hypertrophy and dilatation, was considered the most important factor in the production of renal infarcts. The portions of the vascular system (excluding the heart) most often involved were the renal arteries, common and external iliac arteries and veins, femoral vessels, abdominal aorta and in inferior vena cava in order of frequency. Other vessels were occasionally occluded, such as the mesenteric or splenic artery, the hepatic artery and the large vessels supplying the extremities.

Infection (presumably blood stream) was demonstrated in about half of these cases and was considered of more frequent occurrence than this since many of them dated back to the years of less reliable bacteriological methods. Streptococci usually viridans, were cultured in 72.7 per cent and staphylococci in 18.1 per cent.

The prognosis of renal infarction is considered necessarily serious because of the great probability of continued vascular accidents. The lack of complete study of most of these patients by intravenous and retrograde pyelography adds but little information which is helpful in establishing the diagnosis. A more general rec

ognition of the condition combined with recent methods of study should considerably improve our ability to make the diagnosis of renal infarction

"If one has an opportunity to observe many cases of chronic Bright's Disease, he will occasionally be surprised to discover that the patient, dying in uraemia as a result of what was supposed to be chronic nephritis of one of the usual types, has in reality, at autopsy, a *bilateral pyelonephritis* with shrunken kidneys and an irregularly dilated pelvis. Or, if one has an opportunity to watch many children through adolescence to middle life, he may remember the rare instance of a child with persistent pyelitis who died when a young adult, in uraemia."

This simple and well worded paragraph contains the essentials of a condition which is probably often unrecognized and concerning which sufficiently little has been written to emphasize the difference between chronic nephritis and certain long-standing lesions of the kidneys which are infectious in origin, possibly associated with obstruction. This paper by Longcope and Winkenwerder is one which can be read by the internist and urologist with profit. Only a summary of the essential features is given in this review of their description.

Several writers in the past have drawn attention to chronic pyelonephritis with contracted kidney and have considered that certain of the cases of chronic nephritis were due to an ascending infection of the ureters and renal pelvis. Characteristic features were the presence in the urine of only a moderate amount of albumin with many leucocytes and no casts. In most the blood pressure was elevated, but in some it was normal. Cardiac hypertrophy was sometimes present with a retinitis typical of chronic nephritis. The specific gravity of the urine was low. The majority of the patients were young women. In most cases the disease has ended in death from uremia with small contracted kidneys. The peculiar feature of the disease, as given, was a history of recurring infection of the urinary tract with lumbar pain, in the advanced stages elevated blood pressure, hypertrophy of the heart, elevation of the blood nonprotein nitrogen, and death in uremia, large amounts of urine of low specific gravity which contained small amounts of albumin and leucocytes but *few or no casts* or red blood cells. Occasional attacks of fever, with tenderness on palpation of the kidney region and pyelograms that showed narrowing or irregularities of the kidney pelvis with widening of the calyces.

As said the majority of the patients have been young women. Early symptoms, before uremia, are often slight and vague, such as poor health for many years with repeated febrile illnesses, or the continual presence of albumin or pus in the urine. Most of these individuals are not seen, however, until symptoms of renal fail-

ure appear. Headache, nausea and vomiting, anemia, loss of weight, lassitude and dyspnea were the most important symptoms that led them to consult a physician.

Such symptoms drew attention to the urinary findings which were urine in large amounts with a fixed specific gravity at a low level, small amounts of albumin, no casts and many leucocytes, in other words a urine not typical of pure chronic nephritis. Cultures of the urine frequently revealed the presence of the colon bacillus. Cystoscopic examination usually showed a normal bladder with distinctive pyelograms of irregularly deformed kidney pelves, sometimes slightly dilated, with distorted blunted calyces.

Early recognition of this condition, as distinct from the usual chronic nephritis, before the disease has resulted in irreparable destruction of kidney tissue, should be possible through careful examination and scrutiny of available facts. Efforts to assure adequate renal drainage by ureteral dilatation may be of benefit on the theory that there are present narrowings of the ureteral lumen and there is some evidence of this being of some value from the author's experience. Such cases are, perhaps, not rare but are probably seldom dissociated from chronic nephritis.

From a review of 250 cases of *cord bladder* studied at the Mayo Clinic several facts of interest were brought out. The disease affected males much more frequently than females, the ratio being almost 8 to 1. Nearly half of these patients (47.2 per cent) presented themselves for treatment because of urinary tract symptoms, incontinence, chiefly retention and frequency. Such symptoms had often been present for many years so the condition is not necessarily incompatible with a long life. The chief cause of cord bladder in this series of cases was syphilis of the central nervous system (42.4 per cent), and myelodysplasia (developmental defect) of the spinal cord was the next most frequent cause (20.8 per cent). Spina bifida occulta and associated congenital deformities, enuresis in childhood, early onset of symptoms of cord bladder, and loss of other functions of the sacral cord are the characteristic features of myelodysplasia of the spinal cord.

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CASE RECORDS

of the

MASSACHUSETTS GENERAL
HOSPITALANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., Editor

CASE 22051

PRESENTATION OF CASE

A fifty-six year old Italian laborer entered complaining of pain in the midepigastrium on breathing.

For the past two years the patient had been working at night blasting in subways deep under ground, where there was much dust and dampness. About eight months before admission he caught cold and developed a dry cough. Following this he experienced a pain high up in the midepigastrium which was aggravated by deep breathing. It was not affected by food and had no relation to meals. He began to feel below par and had to stop working. He was able to be up and around most of the time but occasionally spent a few days in bed. He had always perspired a great deal. Recently, however, perspiration had become so marked that he wet the sheets of his bed. His cough had remained nonproductive and not very persistent. There were no hemoptyses. Recently his pain decreased in severity but his night sweats became more frequent. He had lost about five or ten pounds during the past eight months. There was no vomiting or blood in the stools. He had some vague joint pains on the right side at the beginning of his illness.

He was first married thirty years ago. His wife died during childbirth. His second wife was living and well. There were three children living and well.

He arrived in this country from Italy thirty-nine years ago. There was no history of typhoid or rheumatic fever. He did not smoke. He drank wine occasionally.

On physical examination the patient was well developed and well nourished and in no apparent distress. He had an occasional dry cough. There were dental caries and pyorrhea. The heart was slightly enlarged. A_2 was loud. There were no murmurs. The blood pressure was 150/88. Examination of the chest showed diminished breath sounds over the right base with a questionable slight increase in fremitus. The abdominal wall was very thick. One examiner believed that he felt the tip of the spleen.

The temperature was 99°, the pulse 95. The respirations were 20.

Examination of the urine was negative. The blood showed a red cell count of 3,800,000 with a hemoglobin of 80 per cent. The white cell count was 3,800, 69 per cent polymorphonuclears. The smear was not remarkable. The stools were negative. A Hinton test was negative. The nonprotein nitrogen was 30 milligrams per 100 cubic centimeters. A phenol-sulphonphthalein test showed 57 per cent excretion in thirty minutes.

An x-ray film of the chest taken in the Out-Patient Department three weeks before admission was reported as follows: "Diaphragm lifted in excursion on the right. Just above the right diaphragm is a large sharply defined tumor mass. It is homogeneous in density, obliterating the outline of the ribs. In the lateral view it is seen to lie in the anterior part of the chest. The costophrenic angle on this side is shallow. There is slightly thickened axillary pleura. The upper right and entire left lung fields are clear. The heart is in the midline and the measurements are slightly above normal especially in the region of the ventricle."

Further x-ray findings upon admission showed no evidence of organic disease in the esophagus, stomach or duodenum. There was no evidence of a diaphragmatic hernia.

An echinococcus complement fixation and skin tests were negative.

One week after admission a bronchoscopic examination was performed under local anesthesia. The Mosher laryngoscope was passed in order to introduce the 7-40 and 5-45 millimeter scopes in turn for a careful inspection of the bronchial tree in which no pathology was found throughout. The mucosa of the trachea and bronchi was normal throughout and there were no outcroppings, constrictions, secretion, or evidences of displacement of the tracheobronchial tree. Lipiodol was injected into the base of the right lung, with the patient sitting up. The films show that the lipiodol entered the middle lobe bronchus and its divisions and the alveolar structure of the lung as there was no obstruction to the flow of the lipiodol from compression by the mass present. No constrictions or dilations were present in the lower right lobe bronchi posteriorly.

About two weeks after admission he was transferred to the surgical service for exploration of his chest. In preparation he was given an initial pneumothorax, 300 cubic centimeters of air being introduced until the final pressure was minus one to minus three. Four seven and eleven days later he was given 300 cubic centimeters, 500 cubic centimeters, and 600 cubic centimeters of air respectively. Following the last injection x-ray films demonstrated that the mass above the right diaphragm was not with in the lung and that it moved with the dia

phragm The diaphragm was limited in excursion Four weeks after admission the right phrenic nerve was crushed under local anesthesia and three days later an exploratory operation was performed

DIFFERENTIAL DIAGNOSIS

DR JOHN W CASS The history is that of a fatal illness of eight months' duration in a fifty-six year old Italian laborer The predominating symptom is midepigastrie pain aggravated by deep breathing and not related to gastrointestinal function Thus, the impression is that the focus for this pain is in the chest

The patient was finally forced to stop his work, the reason for which we are not given but we conclude that it is because of increasing pain After leaving his work he began to have profuse night sweats and perspired easily on exertion There is no mention of chills or fever so that the sweats were probably due to increasing weakness

He had an unproductive cough which was not persistent, and there was no hemoptysis We are led to feel that the pathology causing this cough was not in the parenchyma of the lung necessarily

The pain decreased slightly and the sweating increased, with still no mention of fever Again we interpret this as evidence of a progressive debilitating disease, probably not an infectious process

There was a loss of five or ten pounds of weight in eight months which would be very little weight loss for a gastrointestinal malignancy causing the amount of debility that was present, particularly in view of the statement that there was no vomiting, or blood in the stools With the evidence so far I believe we can rule out gastrointestinal disease at this point

I can attach no significance to the vague joint pains on the right side that were present at the onset of his illness

At physical examination it is stated that he was well developed and nourished and in no apparent distress There was an occasional dry cough but this was evidently not a striking complaint No pathology was noted in the nasopharynx or on examination of the heart In the chest there were dullness and diminished breath sounds at the right base, with a question of an increase in fremitus We now have a positive finding in the chest which leads us to the suspicion that we are dealing primarily with chest pathology It is important that signs of at least complete bronchial obstruction were not found, and also, it is interesting that one observer is stated to have felt the spleen There is no mention of the liver So that we are left with the suspicion of a slightly enlarged spleen and a liver that was normal or decreased in size The

physical examination as given is very sketchy but demonstrates pathology in the base of the right chest

The laboratory findings state that the urine was negative The red blood cell count was 3,000,000 with a hemoglobin of 80 per cent The white cell count was 3,800, with 69 per cent polymorphonuclears and a normal smear This blood report is rather confusing We are looking for a secondary anemia and we have a normal hemoglobin with a low white blood count and a normal smear I should say that the blood picture is not that of pernicious anemia, because of the smear, and that the hemoglobin finding is probably incorrect, and that we really have a secondary anemia The low white blood count is of particular interest and, although one white count is inconclusive, this finding in the absence of a better explanation suggests liver damage, notably a cirrhosis Syphilis I believe can be ruled out by the negative Hinton test The stools are negative, likewise the nonprotein nitrogen and the phenolsulphonaphthalein test At this point I believe we can definitely rule out gastrointestinal and kidney disease and narrow the field down to the liver and the right chest

There is no mention of a liver function test which, if done, would be of great help in deciding the question of cirrhosis The complement fixation and skin tests for echinococcus infection were negative and I believe these sufficient to rule out this obscure infection

X-ray examination of the chest locates a large, sharply defined tumor mass just above the right diaphragm, lying in the anterior part of the chest This mass obstructs the outline of the ribs and causes limited excursion of the right diaphragm I am interested in the statement that the mass is above the diaphragm This finding is difficult to make in a tumor of this location and if the diagnosis which I am leading up to is correct this x-ray finding is incorrect The remainder of the lung field is clear, with no evidence of fluid or displacement of the mediastinum or evidence of collapse of any of the lung parenchyma This latter finding would be unusual for a tumor within the lung proper

On bronchoscopy it is stated that no pathology was found throughout the bronchial tree and that lipiodol entered the right middle lobe and also the posterior portion of the right lower lobe without demonstrating any pathology No mention is made of the anterior portion of the lower right lobe However, in view of the evidence at hand I feel that if there was any obstruction to the lipiodol in this location it was due to outside pressure Furthermore, the mass is in such a location that it would obscure proper interpretation of lipiodol in the anterior portion of the right lower lobe

The patient was finally given a right pneumothorax and the definite statement is made that the tumor was not within the lung field. The patient was then explored and I am informed that he died shortly afterwards, the cause of death not being a postoperative complication.

Thus, we have a progressive fatal disease of eight months' duration which is not an infection and which is localized in the base of the right chest and is from the evidence at hand and from the history and symptoms not within the parenchyma of the lung. We are left then with a tumor first of the liver, undoubtedly malignant as it killed the patient in eight months and by its size clinical history and absence of demonstrable focus suggests a primary tumor of the liver. The hint of cirrhosis is a bit more evidence for a primary liver neoplasm, secondly, a tumor of the diaphragm chest wall or pleura. A leiomyosarcoma of the diaphragm is possible but I would expect, if this tumor was a malignant tumor of the pleura or chest wall that we would have fluid in the chest, considerably more pain than this patient had and evidence of extension into the parenchyma of the lung. My diagnosis is primary cancer of the liver.

PREOPERATIVE DIAGNOSIS

Tumor of the diaphragm

DR. JOHN W. CASS'S DIAGNOSIS

Primary cancer of the liver

PATHOLOGIC DIAGNOSIS

Primary cancer of the liver, hepatoma.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The patient was explored by Dr. Churchill through the thorax under positive intratracheal anesthesia. It became immediately apparent that the tumor lay entirely beneath the diaphragm. The diaphragm was then incised and a large tumor was exposed which evidently arose from the dome of the liver. The liver itself around the tumor was rough and nodular, evidently cirrhotic. The tumor was extremely soft and vascular and ruptured spontaneously when the protective layer of the diaphragm was freed from it. A small piece was taken for biopsy. The hemorrhage was controlled with some difficulty by suturing the diaphragm back to the tumor once more. Dr. Churchill's postoperative diagnosis was primary carcinoma of the liver arising in a cirrhotic liver.

The biopsy specimen showed cells similar to liver cells in appearance, but rapidly growing atypical and evidently neoplastic. Here and

there they surrounded small canaliculi in which were masses of inspissated bile—in other words a typical hepatoma.

I think Dr. Cass's inferential reasoning in reaching his diagnosis deserves a great deal of credit. Primary cancer of the liver in this climate occurs only in individuals with an underlying long standing cirrhosis. In order to make the diagnosis, therefore, one should establish the diagnosis of cirrhosis as well as of malignancy. In this case the most definite evidence was the leukopenia—though in my opinion that indicates splenic congestion rather than hepatic insufficiency. In retrospect two other points can be brought into line. The spleen was apparently felt—a very rare finding in metastatic disease of the liver—and the blood picture was on the whole that of a macrocytic anemia—a characteristic finding in cirrhosis as we have learned in the last few years.

I think it is only fair to point out, and in doing so I do not wish to detract from Dr. Cass's brilliant diagnosis, that this case is an old one and in intervening years we have seen two other cases of primary carcinoma of the liver which elevated the diaphragm in an exactly similar fashion. At the time when Dr. Churchill operated on this patient none of us had seen a case exactly like this. Six days after operation the patient began to pass bloody stools and on several occasions vomited small amounts of bright red blood. This was interpreted as bleeding from esophageal varices secondary to the cirrhosis. He failed rapidly in spite of a transfusion and died eight days after the operation.

CASE 22052

PRESENTATION OF CASE

A fifty year old white single American woman was admitted complaining of blisters on her skin.

About three weeks before entry the patient first noticed itchy reddish blotches on her thighs. These resembled mosquito bites. Other than the associated pruritus the patient felt quite well. Shortly afterwards, however these lesions spread up over the buttocks and lumbar region and down the thighs. About one week after the onset several blotches appeared on her wrist and later became raised and blister like in appearance. The blebs ruptured spontaneously and discharged slightly milky fluid. The areas were denuded and did not heal although the raw surfaces were dried somewhat by the application of salve. During the succeeding ten days the remainder of the body, the ankles, calves and more prominently, the entire back became involved with bullous lesions. On the abdomen there was only an irregular

blotchy, reddish, maculopapular eruption. The lips, mouth, and conjunctival sacs became affected later. The mouth seemed to be filled with canker sores, and many blisters appeared within her nostrils. For two or three days prior to entry her eyes became bloodshot, sore, and exhibited marked epiphora.

An appendectomy for acute appendicitis was done twenty-five years before entry. Her menopause occurred four years prior to admission.

One year ago there appeared in the left supraclavicular region a mass about the size of an egg which disappeared after x-ray treatment. About four months prior to the onset of her current illness she noticed that her abdomen was swelling progressively and that she became somewhat short of breath. An operation for ovarian cyst was advised and shortly afterward a laparotomy was performed. The surgeon found a large amount of chylous fluid in the peritoneal cavity. A small cyst of the left ovary was found but nothing was removed. The patient convalesced rapidly. Thereafter, however, she began to lose some weight, but the abdomen again became swollen and compensated for the weight loss. Six weeks before entry about ten quarts of milky fluid was removed by abdominal paracentesis. Some slight swelling of the ankles appeared about this time.

Physical examination showed a thin emaciated woman who appeared to be quite ill. The skin over the neck, arms, back, legs, and chest exhibited a vesicular, erythematous, desquamative eruption. The skin over the back showed peeling of the dermis and several bullae and vesicles. Many areas were eroded wet, and oozed serosanguineous material. The mucous membranes of the nose and mouth were covered with many shallow ulcers. There was slight ectropion with diffuse injection and several small vesicles were observed within the conjunctival sac. A few firm, small, discrete nodes were felt in the cervical, axillary and epitrochlear regions. The heart was slightly enlarged and a systolic murmur was heard best at the apex. The abdomen was full and rounded. Both shifting dullness and a fluid wave were elicited. The liver and spleen were not felt. There was pitting edema of both lower extremities.

The temperature was 101°, the pulse 78. The respirations were 20.

Examination of the urine showed a specific gravity of 1.020 and a slight trace of albumin. The sediment was negative. The blood showed a red cell count of 4,500,000, with a hemoglobin of 80 per cent. The white cell count was 9,200, 77 per cent polymorphonuclears, 12 lymphocytes, 4 monocytes, 4 eosinophils, and 3 myelocytes.

On the second day the patient developed considerable dyspnea. Examination elicited the presence of many râles in the right chest. On

the following day the dyspnea was more pronounced. The respirations rose to 44. The temperature was 102° and the pulse 120. There was flatness over the entire right chest with lessened tactile fremitus, distant tubular breathing and egophony. The heart appeared to be displaced to the left, upon which side Giococo's sign was elicited. About twenty ounces of yellowish milky fluid was removed by thoracentesis. Three days later ten ounces of similar fluid was again removed. There was little relief of symptoms. She died on the sixth hospital day.

DIFFERENTIAL DIAGNOSIS

DR PERRY C BAIRD. The bullous eruption in this case probably represents either pemphigus or erythema multiforme. The evidence, in my opinion, points fairly conclusively to pemphigus.

Both pemphigus and erythema multiforme are diseases which may be superimposed more or less secondarily upon a background of systemic disease of many different types. Such a background is usually infectious in nature but may be carcinoma among other things and, on general principles, there is no reason why it could not be Hodgkin's disease as in this case.

There is no history of drug ingestion but this should have been inquired into closely in consideration of either diagnosis. Arsenic and iodides as well as many other drugs will produce a bullous type of dermatitis medicamentosa closely simulating pemphigus and erythema multiforme.

There are several diagnoses which should be mentioned but which are easily excluded—these include bullous leprosy, bullous syphiloderm, bullous impetigo, bullous dermatitis herpetiformis.

The onset with itchy reddish blotches resembling mosquito bites suggests an urticarial type of lesion and is in favor of erythema multiforme.

The description of irregular, blotchy, reddish maculopapular lesions on the abdomen also suggests erythema multiforme. All of these lesions, however, are consistent with what may occasionally be found in association with Hodgkin's disease, which I presume is present in this case.

A history of injury or animal bite would have been helpful in diagnosing pemphigus but is not at all essential. The absence of this history does not exclude pemphigus.

The history and physical examination in all other respects are strongly in favor of pemphigus.

The generalized distribution with special mention of buttocks, thighs, wrists, ankles, calves and back is a common distribution in pemphigus.

Spontaneous rupture of bullae leaving de-

nuded areas failing to heal and a serosanguineous exudate are characteristic of pemphigus.

Involvement of the lips, mouth nostrils and conjunctival sacs is very common in pemphigus. In a series of cases reported by Pernet and Bullock, all showed involvement of the mouth, nostrils and conjunctival sacs. Erythema multiforme involves these areas rarely or occasionally, much less frequently than pemphigus.

Adenopathy of the cervical axillary and epitrochlear regions should raise, among other things, the question of syphilis. The bullous syphiloderm, however, is seen only in infants with hereditary lues and is confined usually to the palms and soles. The albuminuria and fever present in the case are common findings in pemphigus.

The fatal issue is strongly in favor of pemphigus but may occur rarely in erythema multiforme.

A Pels-Macht test would have been interesting though I do not think that the differential is to be regarded as difficult enough to warrant it.

The diagnosis of either pemphigus or erythema multiforme does not help us in surmising what may have caused the accumulation of a chylous fluid in the peritoneal and right pleural cavities. The history of an egg sized mass in the left supraclavicular region disappearing on x-ray treatment suggests lymphoblastoma and I presume that Hodgkin's disease involving the mediastinal glands could lead to obstruction of the thoracic duct with consequent collection of a chylous fluid in the peritoneal cavities.

One case of chylothorax due to lymphosarcoma reported by Irons showed disappearance of fluid following deep x-ray therapy. The results of such therapy would have been helpful in this case.

Skin lesions with severe itching pigmentation, ulcers and small granulomata, vitrearia, and erythematous nodules have been described in Hodgkin's disease and suggest a possible linkage in this case between the skin lesions and probable underlying systemic disease. I am unaware, however, that lymphoblastoma of the skin could give rise to a bullous reaction.

My diagnoses are pemphigus and Hodgkin's disease.

DR. MYER M. TOLMAN Every now and then we see a case of pemphigus usually with an onset similar to that which this patient showed, with symptoms of an underlying Hodgkin's or lymphoblastoma. We made that diagnosis in this case. It appears that these manifestations are pemphigoid lesions and not true pemphigus as such. We know that Hodgkin's disease and lymphoblastomas in general can in the end stages cause an eruption not unlike either erythema multiforme or pemphigus of the toxic type. A Pels-Macht test was done but it went

astray. I do not think it would make much difference either way because a toxic eruption such as this case presented would give the same amount of toxicity by the test that pemphigus would. It was our impression that this woman had Hodgkin's disease and died of it, and that the pemphigoid lesions were a manifestation of the disease rather than a true pemphigus in a case of Hodgkin's disease.

CLINICAL DIAGNOSES

Hodgkin's disease
Pemphigus

DR. PERRY C. BAIRD'S DIAGNOSES

Hodgkin's disease
Pemphigus

ANATOMIC DIAGNOSES

Pemphigus.
Lymphoblastoma, sarcomatous type, retroperitoneal, mesenteric and axillary.
Peritonitis acute and chronic, generalized.
Pleuritis, acute fibrinous, right.
Hemohydrothorax left.
Pyothorax, right.
Pulmonary congestion bilateral.
Pulmonary atelectasis, right.
Pleuritis chronic fibrous left apical.
Paralytic ileus.
Ovarian cyst left.
Fatty vacuolization of liver.
Leiomyoma, broad ligament, right.
Hydronephrosis, left.
Hydroureter, left.
Thyroid cyst, right lower lobe.
Operative scar. Exploratory laparotomy.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY We take up dermatological cases here all too rarely for two reasons. One is that it always seems to me very unfair to ask the dermatologist to try to make a diagnosis from a purely verbal description of the lesion. I find it so utterly impossible myself to describe these lesions in a way that makes one sound at all different from another that it seems to me nearly impossible to put in words differences that would be quite obvious to the eye and palpation. The other reason for not taking up these cases more often than we do is that the pathology department knows nothing about them and few of them have pathognomonic histologic pictures so that we are not able to check the diagnosis and generally take the dermatologist's word for them.

This patient had a lesion that so far as I know is perfectly consistent with pemphigus. I certainly cannot say it was not, and I think Dr. Baird's view that the pemphigus was essentially a terminal manifestation seems entirely reasonable. She did have extensive lymph

phomatous involvement, chiefly limited to the mesenteric and retroperitoneal lymph nodes. It is true there were small glands peripherally but the significantly large ones found at autopsy were all within the peritoneal cavity. The liver and spleen were not involved. The bone marrow was not infiltrated.

Microscopically the nodes show complete obliteration of the architecture and diffuse infiltration by fairly mature lymphocytes, a picture usually termed lymphosarcoma. The final immediate terminal episode was the development of a generalized peritonitis for which a local source was not found, apparently a terminal infection of the ascitic fluid.

DR. BAIRD Did you find the level at which the thoracic duct was obstructed?

DR. MALLORY An effort was made but we could not trace it out.

DR. BAIRD Possibly a very small node in the mediastinum had obstructed it.

DR. MALLORY It is perfectly possible. That is particularly likely here because throughout the nodes there was a great deal of fibrosis, rather peculiar hyaline fibrosis that I have seen two or three times before in lymph nodes undergoing spontaneous contraction in lymphosarcoma.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION PRICES: \$6.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$8.50 per year
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Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office & Fenway.

The Journal does not hold itself responsible for statements
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Communications should be addressed to The New England
Journal of Medicine & Fenway Boston Mass.

BACTERIA FREE VACCINE VIRUS

The production of vaccine virus which contains no bacteria has been the dream, for many years, of those concerned with its manufacture. The pulp obtained from the calf always contains some bacteria. Attempts to free the virus of these bacteria and, at the same time maintain the potency of the virus have been unsuccessful. Several procedures have been devised in which the bacteria can be diminished. In fact, the interstate shipment of vaccine virus containing more than fifty bacteria per dose or containing pathogenic bacteria, as determined by animal tests, is prohibited by the U S Public Health Service.

Noguchi¹ was the first to obtain a bacteria free virus which he propagated in the testicles of bulls or rabbits. This gave typical reactions in human beings, but the virus lost its potency rapidly and the method was not practical for propagation on a large scale. The same held true for a neurovaccine, prepared by Levaditi², from the brains of rabbits.

More recent experimentation has shown that the bacteria free testicular virus can be propa-

gated in the living tissue of the chick embryo, either *in vivo* according to the method of Good pasture³ or *in vitro* by the method of Rivers⁴. In the former, the virus-containing material is placed on the chorio-allantoic membrane of an intact embryo, fourteen days old. In the latter, the testicular virus is transferred to tissue cultures composed of minced chick embryo tissue and Tyrode's solution. Multiplication of the virus occurs in each instance and the possibility of adapting one or the other method to the manufacture of virus for large scale Jennerian prophylaxis is apparent.

Results following dermal vaccination with the chick virus grown *in vivo* have been reported by Goodpasture and Buddingh⁵. In a fairly small experimental group the chick vaccine behaved the same as calf vaccine and the immunity conferred, as measured by revaccination and by titrating the antiviral content of the sera before and after vaccination, was identical. In over 1000 field vaccinations with a virus obtained from the 100th generation of the *in vivo* culture, there were 93.6 per cent positive reactions among the primary vaccinations. The potency is reported to be easily maintained and to be uniform. A pustular lesion occurs in the typical positive primary reaction, but the impression was gained that the clinical course was milder. There were no complications or sequelae.

Rivers⁶ has recently reported a very small series of primary vaccinations and revaccinations in which the bacteria free virus prepared *in vitro* has been injected intradermally. The advantages of this procedure are several. The injection is quickly and easily performed and the amount of material injected can be accurately controlled. No open lesion results so that no dressing is required, and the possible danger of secondary infection is avoided. His revaccinations both by intradermal injections following primary vaccinations with calf pulp and by dermal vaccinations with calf pulp following primary intradermal injections, were judged to indicate that the culture virus is an effective immunizing agent, but, they were performed so soon after the primary vaccination that they are not particularly significant. Some difficulty has been experienced in preserving the potency.

It is to be hoped that eventually a bacteria free virus will be available for routine prophylaxis. The work mentioned above is most encouraging, but, none of the vaccinated people have been actually exposed to smallpox and the series is too small to judge the influence of these culture viruses on the incidence of postvaccinal encephalitis. As with other new methods of therapy, which offer improvements over existing successful methods, one should wait until their effectiveness is proved beyond reasonable doubt. This is particularly true of pro-

cedures, such as Jennerian prophylaxis, which are so important from the point of view of public health. One must admit that the mass protection safely conferred by dermal vaccination with the calf pulp manufactured and distributed by the Massachusetts Department of Public Health is as near perfect as is biologically possible!

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INDEPENDENCE AND FREEDOM

It is in the American tradition to seek independence and liberty and the mere cry that by any movement in society freedom is threatened, is sure to attract attention and arouse sympathy. Thus, a part of the stock argument of the nonapproved medical schools is that they are the upholders of the American tradition and that they are persecuted for their independent views.

This claim deserves scrutiny. Of what are they independent and for what do they seek freedom? Freedom is not an end in itself. Freedom for action is what is really sought. What is it they desire to do? What are they actually doing?

The independence they seek is independence of all supervision. Control can be exercised formally by some legally constituted authority, or informally by public opinion. Formal control can be avoided under certain conditions. Informal control is inescapable if public opinion is enlightened.

This is realized by these schools and thus every effort is made to cover up and hide what they are doing. Exactly what they are doing outsiders do not know, but a fair general estimate can be made on the basis of what has been found in some schools in the past and the probable reactions of human nature under certain conditions. Since they strive so valiantly to prevent investigation, undoubtedly they have something which it is to their advantage to cover up and to their disadvantage to disclose. One's curiosity is stimulated.

It was reported some months ago that the survey of medical schools in the United States and Canada might include all schools, as osteopathic and nonapproved medical schools were to be invited to participate. It is now reported that certain of the nonapproved schools have refused to pay any attention to the letters of invitation not even acknowledging their receipt.

The history of the investigation of medical education in Massachusetts, proposed during the 1935 session of the General Court is interesting. Opposition was expressed by representatives of the nonapproved schools on the ground that the Commission would be packed against them, that in the nature of the case, the Commission would be prejudiced. It was a gratuitous insult to the duly constituted governmental authorities. The composition of what they would consider an "unprejudiced" commission would be an interesting subject for study. Doubtless they would agree with the old lady who, watching the soldiers march by, observed that they were all out of step except her son John.

Independence and freedom without qualification cannot exist. They must be restricted, in the interest of other individuals, usually in groups manifesting social control. Educational institutions such as medical schools are quasi-public institutions.

The independence and freedom in medical education claimed by nonapproved schools would entitle them to give a medical education satisfactory to themselves. It would not entitle them, as they claim, to forbid the satisfaction of the state and to force upon the state uneducated physicians. In the protection of the public against unqualified practitioners, the state may properly, and as things are now, should insist that all physicians receive a reasonably good medical education before being admitted to examination for license to practice.

In so far as the graduates of medical schools are to be candidates for licensure to practice medicine, to this extent the independence and freedom of all medical schools to do as they please should be restricted, for the protection of the public, if it pleases these schools to degrade medical education.

THE CONQUEST OF PESTILENCE

THE septic appearance of death rate graphs of almost the entire nineteenth century was due to pestilence. By comparison the influenza epidemic of 1918, raising the deaths in New York City from approximately 14.5 per thousand to about 18 per thousand of population looks like a minor flareup of temperature during the defervescence of an acute and stormy infectious illness. The story of the conquest of pestilence is told by Dr. Charles F. Bolduan, director of Health Education in the New York City Department of Health, in *The Milbank Memorial Fund Quarterly* for July, 1935.

In 1798, yellow fever showed 1,500 deaths in a population of approximately 60,000, and in that same epidemic sixteen of the forty practicing physicians fell victims to the disease. Yellow fever reappeared repeatedly, there being 200

cases recorded as late as 1870 Smallpox was present almost constantly, causing 1,666 deaths in 1872 over 500 in 1881, and 132 as late as 1891 The other contagious diseases also played their parts measles being responsible for 443 deaths in 1836-37 and 1,032 in 1891 Scarlet fever accounted for 579 fatalities in 1836-37 and diphtheria for 4,509 in 1887

The real panics, however, were caused by the various epidemics of cholera, following those in Europe, and during them the prevailing death rate was approximately doubled jumping during one epidemic from 25 to 50 per thousand of population In 1832, with a population of slightly over 200,000 the city experienced 3,113 deaths from cholera in 1849, with a population of 515,000, 5,071 deaths, and in 1854 2,009 deaths, smallpox causing 611 in the same year By comparison the influenza in 1918 causing 12,562 deaths in a population of over five and a half million pales into comparative insignificance The average death rate of something over 25 per thousand until 1890, sometimes doubled, has fallen steadily during the last forty odd years to 10.2 per thousand in 1915

As Dr Bolduan states, such a calamity as a doubling of the death rate in the present state of medical knowledge and application is so remote as to be almost unthinkable Other causes of death, however, have been assuming even greater importance Tuberculosis and syphilis both preventable diseases, still rank among the major causes of death Our efforts must be directed toward diseases of the cardio-arterio-renal system cancer and diabetes appendicitis and automobile accidents and something must be done to reduce maternal mortality and the deaths of infants during the first month of life

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

LADD, WILLIAM E. A.B., M.D. Harvard University Medical School 1906 F.A.C.S. Clinical Professor of Surgery, Harvard University Medical School Chief of Surgical Service Children's Hospital Boston His subject is "Congenital Absence of the Pericardium with Report of a Case" Page 183 Address 66 Commonwealth Avenue, Boston

CARR, JOHN W. JR. Ph.B., M.D. Yale University School of Medicine 1929 Assistant in Medicine Massachusetts General Hospital Assistant Medical Adviser, Department of Hygiene, Harvard University Medical School Staff, New England Deaconess Hospital, Channing Home, and Robert Breck Brigham Hospital His subject is "The Question of 'Influenza

and Atypical Pneumonia." Page 187 Address 205 Beacon Street, Boston

SUBBAROW Y. M.B. Ph.D. Harvard University, 1930 Austin Teaching Fellow, Harvard University Address Biochemical Laboratory, Harvard University Medical School, Boston Associated with him are

JACOBSON, BERNARD M. M.D. Harvard University Medical School 1929 Instructor in Medicine, Harvard University Medical School Research Fellow in Medicine, Massachusetts General Hospital Address Massachusetts General Hospital, Boston And

FISKE, CYRUS H. M.D. Harvard University Medical School 1914 Professor of Biological Chemistry, Harvard University Medical School Address Biochemical Laboratory Harvard University Medical School Boston Their subject is "A Partially Purified Liver Extract Therapeutically Effective in Pernicious Anemia." Page 194

GORDON, BURGESS A.B. M.D. Jefferson Medical College of Philadelphia 1919 Director of the Department for Diseases of the Chest, Jefferson Hospital Associate Professor of Medicine, Jefferson Medical College His subject is "The Mechanism and Effects of Abdominal Compression in the Treatment of Pulmonary Tuberculosis" Page 195 Address 1832 Spruce Street Philadelphia, Pa.

SCHNITZER MAURICE A. B.S. M.D. University of Michigan Medical School 1931 Assistant Resident Physician, Peter Bent Brigham Hospital Address Peter Bent Brigham Hospital, Boston. Associated with him is

EVANS, WILLIAM A. JR. A.B. M.D. Johns Hopkins University School of Medicine, Baltimore, 1930 Assistant Resident Physician, Peter Bent Brigham Hospital Address Peter Bent Brigham Hospital Boston Their subject is "Peptic Ulcer" Page 198

MARSHALL, GEORGE G. M.D. University of Vermont College of Medicine 1893 F.A.C.S. His subject is "Dermoid Teeth in the External Auditory Canal, with Comments on Teratomas and Dermoids in General." Page 202 Address Rutland, Vt

COLBY, FLETCHER H. B.S. M.D. Harvard University Medical School 1918 F.A.C.S. Assistant Visiting Urologist Massachusetts General Hospital Assistant in Surgery Harvard University Medical School Assistant Urologist Palmer Memorial and Huntington Memorial Hospitals. Urologist Consultant, Lakeville State Sanatorium Junior Associate in Urology Peter Bent Brigham Hospital His subject is "Progress in Urology, 1934." Page 205 Address 205 Beacon Street, Boston

The Massachusetts Medical Society**LOCAL COMMITTEE OF ARRANGEMENTS
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**MASSACHUSETTS LEGISLATIVE
NOTES**

The Committee on State and National Legislation of the Massachusetts Medical Society has voted to

SUPPORT

Senate 321 Resolve—Directing the Department of Public Health to investigate the feasibility, necessity and cost of a new hospital for the treatment of infantile paralysis and arthritis

The title is self explanatory, the results to be reported to the General Court with their recommendations, by June 1, 1936

Petition of Charles T Daly

Given to Public Health Hearing Thursday, February 6, 10 30 A M, Room 450, State House, Boston

House 34 An Act relative to the qualifications of applicants for registration as qualified physicians

Introduced by the Board of Registration in Medicine

This bill prescribes certain higher standards than are now required for applicants as practitioners. New requirements are two years of college and both college and medical school must be approved

FAVOR

House 59 An Act defining stillbirths

This Act amends the present laws with an exact definition of stillbirths

Introduced by the Secretary of the Commonwealth.

Given to Public Health Hearing Thursday, February 6, 10 30 A M, Room 450, State House, Boston

TO OPPOSE THE FOLLOWING BILLS

Senate 20 An Act providing for the construction and maintenance of a hospital for the care and treatment of victims of infantile paralysis

This authorizes the state to build and maintain a hospital specializing in the treatment of infantile paralysis in the metropolitan district

Introduced by Senator Madden

Given to Public Health Hearing Thursday, February 6, 10 30 A M, Room 450, State House, Boston

Senate 24 Bill abolishing the several boards of trustees of certain state institutions and transferring their functions to the Governor and Council

This gives to the Governor and Council all the powers formerly given to the boards of all institutions in the Department of Mental Diseases and Public Welfare

Introduced by Senator Joseph A Langone, Jr

Senate 51 Bill establishing and maintaining at North Reading State Sanatorium a division for the care and treatment of persons suffering from cancer

This simply authorizes the establishment at North Reading of a cancer hospital, as is now being conducted at Pondville

Petition of Senator Charles T Daly

Given to Public Health Hearing Thursday, February 6, 10 30 A M, Room 450, State House, Boston

Senate 322. An Act to provide for the construction and maintenance of a health center for the care and treatment of persons suffering from infantile paralysis

This bill authorizes the establishment of a health center for infantile paralysis, preferably on Buzzards Bay. The center shall be equipped for treatment, recreation, etc, and shall help out those needing financial aid

Petition of Senator Frank Hurley

Referred to Public Health Hearing Thursday February 6, 10 30 A M, Room 450, State House, Boston

Senate 323 An Act relative to the practice of optometry

This Act amends the present law and defines who may practice optometry in this state. It makes physicians and surgeons subject to the rules of the Board of Optometry. It also states the methods by which, and the reasons for which, a person can have his license revoked

Introduced by Massachusetts Society of Optometrists

Senate 388 An Act providing for representation on the Board of Registration in Medicine of the several medical schools of the Commonwealth authorized to grant the degree of doctor of medicine

This provides that of the seven members of the Board of Registration there shall be one representing Harvard Medical School, one Boston University School of Medicine, one Tufts College Medical

School one Middlesex College of Medicine and Surgery one College of Physicians and Surgeons of Boston, one Massachusetts College of Osteopathy and the seventh not designated.

Introduced by Paul J. Campbell.

Given to State Administration. Hearing Monday March 2 10 00 A.M., Room 423 State House Boston

House 574 An Act to require hospitals receiving public support to accord equal rights of admission to patients of all duly registered physicians

It states moreover that all the hospital facilities shall be open to every registered physician.

Introduced by Charles F. Wakeling

Given to Public Health. Hearing Thursday February 6 10 30 A.M. Room 450 State House Boston

House 662. Bill providing for the regulation of the practice of physicians and surgeons in certain cases

This provides that no physician may remove a patient's limb or organ without the consent of said patient (if sane) or of patient's nearest relative. Any organ removed to be saved to show whether said operation was necessary

Petition of Annie D. Brown.

Referred to Public Health. Hearing Thursday February 6 10 30 A.M. Room 450 State House Boston

House 949 An Act to defend our inalienable Constitutional rights to the freedom and security of our person against compulsory vaccination or in operation.

This provides that nobody need be vaccinated without his consent or in the case of minors without the written consent of their guardians. Vaccination shall not be made a requisite for admission to public schools

Petition by Citizens Committee Opposing Compulsory Vaccination.

Referred to Public Health.

House 1444 An Act relative to the establishment of a board of examination and registration to regulate the practice of chiropractic.

Introduced by James E. Ward

Referred to Public Health.

House 1458. A petition for legislation to create a board of examination and registration to regulate the practice of magnetic healers

Introduced by Arsene Pare.

Referred to State Administration. Hearing Monday March 3 10 00 A.M., Room 423 State House Boston

NO DECISION (REFERRED TO COUNCIL)

House 35 An Act for the annual registration of physicians and the publication of a list of registered physicians

This bill provides that for an annual fee of two dollars, the physicians shall be registered annually and said list shall be published. This bill is designed to eliminate unlicensed practitioners

Introduced by Board of Registration in Medicine
Given to Public Health. Hearing Thursday February 6 10 30 A.M. Room 450 State House Boston

MISCELLANY

SPECIFIC TREATMENT FOR LOBAR PNEUMONIA

Lobar pneumonia is the seventh leading cause of death in Massachusetts. Type I or Type II pneumococci are the cause of the disease in over one-half of the cases.

The case fatality rate of Type I pneumococcus pneumonia untreated with serum is approximately 75 per cent and of Type II 41 per cent. The expected death rate in these two types can be much reduced by early specific treatment. Of 504 Type I cases in the Massachusetts Pneumonia Study which were treated with serum within the first four days of the illness only 56 or 11.1 per cent died. Of 136 Type II cases similarly treated 37 or 27.2 per cent died. This experience in Massachusetts has demonstrated that specific treatment can be successfully used by physicians in general practice.

Success in specific treatment depends for the most part upon the early use of serum. Thus the type of pneumococcus infection should be determined at the earliest possible moment. The importance of the time element is emphasized by the experience in Massachusetts. Of 377 Type I cases treated during the first three days 32 died (8.5 per cent) and of 127 treated on the fourth day 24 died (18.9 per cent).

DETERMINATION OF TYPE OF PNEUMOCOCCUS INFECTION

The type of infection is more readily determined by examination of the sputum than by other means. The specimen should come from the lung with as little admixture of saliva as possible. It is desirable to obtain at least a teaspoonful of sputum, which is collected in a clean wide-mouthed bottle or cardboard sputum box, and to send it at once, preferably by messenger to the nearest laboratory equipped for typing. Special containers are available through local Boards of Health. *No antiseptic* should be added to the sputum. Tuberculous sputum outfits should not be used as they contain carbolic acid.

The Newfeld method of typing is rapid, simple and reliable and has supplanted other methods. It is applicable to pneumococci from any source and usually permits identification of type within a few minutes.

Typing will be done without charge at the State Bacteriological Laboratory, Room 527 State House, Boston. In case of emergency typing of sputum from patients for whom serum therapy is applicable will be done during the night week-ends, or on holidays. Such specimens should be left with the State House Guard. All sputums showing Type I or Type II pneumococci are reported by telephone or telegraph prepaid.

In addition to the State House Laboratory typing facilities are also available elsewhere. The charges

for the typing depend on the laboratory Typing in Boston is done at the following hospitals Boston City, Faulkner, Evans Department of the Massachusetts Memorial, and the New England Deaconess

Elsewhere in the State facilities have been established for pneumococcus typing in 57 laboratories, 1 e

Attleboro, Sturdy Memorial Hospital
Ayer, Ayer Community Memorial Hospital
Beverly, Beverly Hospital
Brockton, Brockton Hospital
Cambridge, Cambridge Hospital
Cambridge, Cambridge City Hospital
Chelsea, Chelsea Memorial Hospital
Clinton, Clinton Hospital
Everett, Whidden Memorial Hospital
Fall River, Fall River General Hospital
Fall River, St Ann's Hospital
Fall River, Truesdale Hospital /
Fall River, Union Hospital
Fitchburg, Burbank Hospital
Framingham, Framingham Union Hospital
Gardner, Henry Heywood Memorial Hospital
Gloucester, Addison Gilbert Hospital
Great Barrington, Fairview Hospital
Greenfield, Franklin County Hospital
Haverhill, Gale Hospital
Holyoke, Holyoke Hospital
Holyoke, Providence Hospital
Hyannis Cape Cod Hospital
Lawrence, Lawrence General Hospital
Leominster, Leominster Hospital
Lowell, Lowell General Hospital
Lowell, St John's Hospital
Lowell, St Joseph's Hospital
Lynn, Lynn Hospital
Malden Malden Hospital
Marlboro Marlboro Hospital
Milford, Milford Hospital
Natick Leonard Morse Hospital
New Bedford St Luke's Hospital
Newburyport Anna Jaques Hospital
Newton, Newton Hospital
North Adams, North Adams Hospital
Northampton, Cooley Dickinson Hospital
Norwood, Norwood Hospital
Palmer, Wing Memorial Hospital
Peabody, J B Thomas Hospital
Pittsfield, House of Mercy Hospital
Pittsfield St. Luke's Hospital
Plymouth, Jordan Hospital
Pocasset, Barnstable County Sanatorium
Quincy, Quincy City Hospital
Salem, Salem Hospital
Southbridge, Harrington Memorial Hospital
Springfield, Springfield Hospital
Springfield, Mercy Hospital
Springfield, Wesson Hospital
Taunton, Morton Hospital
Westfield, Noble Hospital
Worcester, St. Vincent's Hospital
Worcester, Worcester City Hospital

Worcester, Worcester Hahnemann Hospital
Worcester, Worcester Memorial Hospital

SPECIFIC SERUM FOR TREATMENT

Specific serum for the treatment of Type I or II pneumococcus pneumonia is available to physicians through the State Laboratory, Room 527, State House, Boston, or through the laboratories of any of the hospitals listed above, provided that

- (1) Sputum or other material from the patient is first typed and found to contain Type I or II pneumococci
- (2) The physician certifies that the patient has not been ill longer than four days (96 hours)
- (3) As soon as the patient is discharged, the physician agrees to make a report to the Massachusetts Department of Public Health on a form enclosed with the serum

Under these conditions 60,000 units of concentrated serum (Felton's antibody solution) will be issued for each Type I pneumonia and 100,000 units for each Type II case

Bacteremia occurs in about one-quarter of the cases with Type I and one third of those with Type II pneumococcus pneumonia and is a very serious condition This information in relation to bacteremia is of great importance in treatment It is desirable to make a blood culture in each case before the first dose of serum is given If the first blood culture is positive, or, if negative, and the progress of the case is unsatisfactory, it is desirable to continue to take blood cultures at intervals of about twenty-four hours Blood cultures may be sent for examination to the State Bacteriological Laboratory

Experience has shown that some cases require more serum than others An additional 60,000 units of serum may be obtained from any of the above mentioned laboratories if any of the following conditions are present

- (1) The patient has a bacteremia as shown by finding Type I or II pneumococci in cultures of his blood
- (2) The patient is pregnant or has been delivered within seven days of the onset of pneumonia
- (3) If the temperature does not drop below 101° F by mouth within 18 hours of beginning serum treatment, or, if having dropped, it again rises above this level within 48 hours

Further information concerning the administration of serum will be found in the circular accompanying the serum The directions given in the circular should be followed in detail

NURSING SERVICE FOR PNEUMONIA

Clinical experience has shown that patients receiving prompt medical and nursing care have the best chances of recovery In almost every part of

the State nursing service on a visit basis is available through the visiting nursing associations for patients not needing or who cannot afford a special nurse. In Boston the Community Health Association will give nursing care on a visit basis on the order of a physician. This Association will be glad to cooperate with physicians by sending a specimen of sputum for typing

PNEUMONIA COMMITTEE, BOSTON HEALTH LEAGUE

DR. FREDERICK T. LORD *Chairman*,

DR. FRANK CRUCKSHANK

DR. WILSON G. SMILLIE,

DR. DWIGHT O'HARA

DR. RODERICK HEFFROY

MISS FLORENCE M. PATTERSON

MISS MARGARET H. TRACY *Secretary*

CHANGES IN THE STAFF OF THE MILTON HOSPITAL

Dr. Carleton A. Rowe of East Milton has been appointed chief of the staff of the Milton Hospital to succeed Dr. M. Vassar Pierce who has held this position since the hospital started. Dr. Pierce will be chief medical consultant. Dr. Rowe is a graduate of Tufts College Medical School. Dr. Arthur H. Davison will serve as secretary of the staff and Dr. Walter C. Kite will succeed Dr. Pierce as a member of the executive committee of the staff.

APPOINTMENT OF DR. W. B. KEELER AS HEALTH COMMISSIONER OF BOSTON

His Honor Mayor Mansfield has appointed Dr. William Basil Keeler to the position of Health Commissioner of Boston to fill the vacancy caused by the death of Dr. Mahoney.

Dr. Keeler graduated from Tufts College Medical School in 1903 after a preliminary education acquired in the English High School of Boston, and has served under Dr. Mahoney as assistant to Dr. Charles F. Willinsky, Deputy Commissioner of Health, with the assignment as medical inspector for the South Boston Health Unit, one of the groups created under the White Fund.

The position carries with it great opportunities for service and Dr. Keeler may be sure of the cordial cooperation of the medical profession.

APPOINTMENTS UNDER THE SOCIAL SECURITIES ACT

Six Massachusetts physicians will act on the general advisory committee on maternal and child welfare service. Kenneth D. Blackfan, M.D., professor of pediatrics, Harvard University Medical School; Robert B. Osgood, M.D., emeritus professor of orthopedic surgery, Harvard University Medical School; Douglas A. Thom, M.D., director division of mental hygiene, State Department of Mental Diseases; Boston; Robert L. DeNormandie, M.D., instructor in obstetrics, Harvard University Medical School; Bronson Crothers, M.D., Harvard University Medical School; and T. Duckett Jones, M.D., research

director, House of Good Samaritan and instructor in medicine, Harvard.

APPOINTMENT OF DR. LOUIS C. KRESS

Dr. Louis C. Kress, director of the New York State Division of Cancer Control, has been appointed chairman of the state cancer committee of the American Society for the Control of Cancer, succeeding Dr. Burton T. Simpson.—*Science*

RESIGNATION OF DR. WILLIAM HALLOCK PARK

Dr. William Hallock Park retired on his seventy-second birthday anniversary on December 30 from active work as director of the Bureau of Laboratories of the New York Department of Health. He will take a six months vacation after which he will retire permanently as director and become director emeritus. He has held the post for forty-one years. The new William H. Park Research Laboratories named in his honor will have been completed so that they can be dedicated while Dr. Park is still nominally in the city's service. He expects to continue to work at the laboratories in an advisory capacity. Dr. Ralph Muckenfuss, acting associate director, will be in charge during his absence. Next summer Dr. Park will retire from the Hermann M. Biggs professorship of preventive medicine at the New York University College of Medicine.—*Science*

CORRESPONDENCE

AN EXPLANATION

Editor *New England Journal of Medicine*

Will you kindly publish in the next issue of *The Journal* this letter in order to clarify certain misunderstandings in regard to the column devoted to Obstetrics and Gynecology.

Each week there appears in *The Journal* an article on Obstetrics or Gynecology and while those are under the direction of the Section of Gynecology and Obstetrics of the Massachusetts Medical Society the articles are written by various men and not, as seems to be the general impression written by the Officers of the Section. Some of the articles published have brought forth comments but in order that no misunderstanding may exist we wish it understood that both the title and subject matter of any paper published represent the individual view point and responsibility of the writer of that article.

In the issue of *The Journal* for January 16, 1936 there appears an article on "Interruption of Pregnancy" which is a highly controversial subject and the views therein expressed have caused considerable comment.

As Chairman of the Section I wish to state without qualification, that the Section does not advocate or endorse the use of abortion as a therapeutic measure. The statements made in the article referred to are the opinions of the writer of the article from his experience and according to his judgment.

May I also say, in order that my personal opinion may be on record, that I do not now and never have believed in the termination of pregnancy before the age of viability

CHARLES J. KICKHAM, M.D., *Chairman*,
Section of Gynecology and Obstetrics,
Massachusetts Medical Society

PHYSICIANS' GROUP IN THE COMMUNITY FUND CAMPAIGN

January 24, 1936

Editor, *New England Journal of Medicine*,

Due to certain inaccuracies appearing in the January 16 number of *The New England Journal of Medicine* regarding the personnel of the Physicians' Group in the Community Fund Campaign I give below a correct list of the organization of this group

Vice Chairmen Dr James A. Halsted, Dr George C. Shattuck

Lieutenants Dr Theodore Badger, Dr Myles Baker, Dr Laurence Ellis, Dr Henry Faxon, Dr Trygve Gundersen, Dr Charles C. Lund, Dr Francis Rackemann, Dr William M. Shedden, Dr Richard Stetson, Dr Augustus Thorndike, Jr., and as solicitors some seventy other doctors

JOHN P. MONKS, M.D., *Group Chairman*

TYPING SERVICE AT THE FAULKNER HOSPITAL

January 21, 1936

Editor, *New England Journal of Medicine*,

In your issue of January 16 on page 131 under correspondence, there is a letter by the Commissioner of Public Health of the Commonwealth in regard to the abuse of diagnostic service. In the first paragraph he calls attention to the fact that the Department of Public Health through its diagnostic laboratory offers an opportunity for typing of sputum at any hour of the day and adds that in this respect it is offering a service that is not available even in the hospitals of the State. I do not know about other hospitals in the State, but I would like to call attention to the fact that The Faulkner Hospital, which is a community hospital for the patients of physicians who are on the Executive or Associate Staff, offers service for typing sputum from pneumonia patients throughout the twenty-four hours of the day

C. FROTHINGHAM, M.D.

1153 Centre Street,
Jamaica Plain, Mass.

UNITED STATES DEPARTMENT OF AGRICULTURE

Extension Service

January 17, 1936

Medical Society of the State of Massachusetts,

We are now arranging our annual conference for Extension Service workers in the twelve Eastern

States which will be held in Boston, at the Hotel Statler, February 19, 20 and 21, 1936. The extension specialists in Clothing will be one of the groups attending this conference.

You are doubtless familiar with the broad scope of the Home Economics Extension Program carried on with rural women. The clothing work which is one phase of the homemaking program aims to help farm families dress suitably, becomingly and economically. Through this Service, farm women and girls learn to make and remodel garments as well as study selection of materials and ready-made clothes. In connection with this project, our extension workers are constantly asked for information and advice on the following matters:

- 1 Selection and fitting of shoes
- 2 Types of foundation garments
- 3 Scientific care of complexion and hair

At the February Conference, it is our desire to bring our specialists some help along these lines and we wish to ask for your suggestions as to available speakers who would present these matters from a scientific angle. We will appreciate it if you will refer us to physicians or other qualified speakers who could appear on our program.

Some members of your association may have written articles on these topics. If so, we would be glad to have the references.

FLORENCE L. HALL,

Extension Home Economist

Washington, D. C.

THE CAMPAIGN AGAINST PNEUMONIA

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

January 24, 1936

Editor, *New England Journal of Medicine*,

Thank you for your interesting letters of the twenty-first. You ask if we can send you material on the work done in Massachusetts on pneumonia. Let me say that we are in the process now of drawing up the final report of that work. This should be available within a couple of weeks. I doubt very much whether any considerable part of the report will ever be published, but there are some things which I think it would be very wise to get into the literature, but we would have to decide that later when we have all our facts and figures together.

It is very gratifying to have you interested in this pneumonia work. You ask if in our opinion the figures you sent in one of your letters were approximately correct. This is difficult to answer in an off-hand manner because an examination of those figures shows clearly that the estimation of the number of lives that may be saved by the early use of serum depends largely on what death rate a person is willing to accept as the usual death rate in serum-treated cases. I have recomputed these figures, as you will see below, and my totals are somewhat different from the ones given in your letter. I do not know on what your figures are based, but my com-

putation is based on a careful review of the literature to determine the usual death rate of Type I and II cases not given serum and the death rate of cases of those two types treated during the past five years in this State with serum. The death rate in Type I cases without serum is 25 per cent, and in our series with serum in the first four days of illness is 11 per cent. Thus the use of serum allowed a reduction in the usual death rate of about 56 per cent. In Type II cases without serum the death rate is 41 per cent and in our series with serum is 27 per cent allowing a reduction of 34 per cent in the death rate.

You state your figures are based on the U S Public Health Reports for 1934. I do not have those at hand, but I have some that I did some time ago. These are tabulations of the death statistics from the U S Registration Area for the ten years of 1920-1929 inclusive. There were 1,000,869 deaths from pneumonia of all forms in the area in that period. Of these, 583,759 were caused by lobar and undefined pneumonia, and 423,110 by bronchopneumonia and capillary bronchitis. For ordinary purposes of computation the first group is considered simply as lobar pneumonia and the second group simply as bronchopneumonia. Estimating the usual death rate of lobar pneumonia at 25 per cent, there were four cases for each death. This would give an annual 237,504 cases of lobar pneumonia. We have done the same thing for bronchopneumonia and estimated that there are 163,244 cases yearly. This latter figure may be too high, however, because nobody really knows what the usual death rate in bronchopneumonia is likely to be. In any event, to proceed, we have found in a collected series of typed lobar pneumonia cases in the literature that in over 3,000 cases pneumococci caused about 95 per cent of the cases. If we apply this 95 per cent figure to the total number of lobar pneumonia cases estimated to occur in this country each year we find that there were 225,638 cases of pneumococcus lobar pneumonia yearly. In bronchopneumonia, however, only about half the cases are due to pneumococci, thus there would be 84,622 broncho cases each year.

The totals of these figures then would show that there are in the United States each year approximately 310,250 cases of pneumococcus pneumonia.

In a series of nearly 10,000 typed cases of lobar pneumonia we have collected from the literature Type I was responsible for 38.4 per cent, and Type II for 29.3 per cent of the cases. If these percentages are applied to the total pneumococcus lobar pneumonia cases estimated to occur here each year we find that there are 127,932 cases of Type I or II pneumococcus lobar pneumonia annually. In bronchopneumonia our figures for type incidence rest on much less secure ground and are based on around 400 cases which have been typed. This series showed that Type I caused 2 per cent and Type II, 3 per cent of the cases. Applying these percentages to the pneumococcus bronchopneumonia cases,

we find that these together total about 4,231 cases annually.

The totals for the Type I and II pneumococcus pneumonia cases both lobar and broncho show that there are annually about 132,162 cases occurring in this country.

To condense all this and make it comparable to the figures you sent me let me say that each year in the United States there are 310,250 cases of pneumococcus pneumonia, of which 132,162 are Types I or II.

Type	No. Cases	Probable Deaths Without Serum	Probable Deaths With Serum	Lives Savable
I	77,052	19,363	8,476	10,787
II	55,110	22,595	14,880	7,715
Totals	132,162	41,958	23,356	18,502

I think these figures are as accurate as can be computed at the present time. It should be appreciated, however, that they represent estimates and nothing more. I hope this information will be of some value to you.

ROBERTSON HETTON M.D.

RECENT DEATHS

ROBERTSON—JAMES DOUGLAS ROBERTSON, M.D., of 1 Auburn Court, Brookline, Massachusetts, died at his home January 25 1936. He was born in Perth Scotland in 1863 and graduated from the College of Physicians and Surgeons, Boston, in 1894.

He was active in the Masonic order and several fraternal societies.

PACKARD—HORACE PACKARD, M.D. a retired surgeon of Stoughton and 470 Commonwealth Avenue, Boston died January 24 1936, in Stoughton, Massachusetts. Dr Packard was born at Bridgewater Massachusetts in 1855 and graduated from the Boston University School of Medicine in 1880. He subsequently studied in Berlin, Prague, Paris, London and Vienna.

He was consulting surgeon at the Massachusetts Homeopathic, the Newton and Brockton Hospitals. He was for many years professor of surgery at the Boston University School of Medicine.

Dr Packard joined the Massachusetts Medical Society in 1907 and retired in 1925. He was a member of the American Institute of Homeopathy, the American Medical Association, the Massachusetts Homeopathic Medical Society and the Massachusetts Surgical and Gynecological Society. He was also a member of the Boston City Club, the Twentieth Century Club and the University Club.

CLARK—**WILLIAM L CLARK, M D**, of Philadelphia, well known throughout the country as a pioneer in the use of electricity in surgery, died January 12, 1936

He visited Boston on several occasions to address various medical groups and made many friends in this locality. Prior to June 1935, he was for three years President of the Academy of Physical Medicine. He was an Honorary Fellow of the New England Physical Therapy Society, a Fellow of the American Medical Association, American College of Radiology, American Radium Society, and was actively identified with several other medical and surgical groups.

His widow, Mrs Mary Clark, four sons and two daughters survive him. A sister, Mrs Sydney Cornell, resides in Newton.

NOTICES

ANNOUNCEMENT REGARDING APPOINTMENT OF SENIOR MEDICAL INTERNES BY THE UNITED STATES PUBLIC HEALTH SERVICE

The United States Public Health Service will consider applications to fill a number of vacancies which exist at the present time and also vacancies which will occur about July first next, for second-year medical internes. Any young physicians, not over thirty years of age, who have graduated from a Class 'A' medical college and who have completed, or will shortly complete, one year's internship in an approved hospital are eligible to apply.

The Public Health Service desires to secure applications only from candidates who are interested in the Service as a career and who desire to request permission to appear before a board of commissioned officers for examination for appointment as Assistant Surgeons in the regular commissioned corps, on or about the time they will complete a year's service as internes in the Public Health Service.

Those interested in making application should address an inquiry to the Surgeon General, U S Public Health Service, Washington, D C, stating the date they will be available for duty and more complete information and the necessary blanks upon which to make application will be furnished.

POSTGRADUATE INSTITUTE IN PHILADELPHIA*

A Postgraduate Institute, offering an intensive and interesting study of the newer work in the field of cardiovascular and renal diseases, will be conducted by the Philadelphia County Medical Society during the week of April 20 to 24, inclusive.

The program, to be held in the Bellevue-Stratford Hotel, Philadelphia, has been designed to meet the needs of all members of the profession, but particularly those in general practice. Physicians from all parts of the eastern and east central United States are invited to attend.

Lecturers, about thirty in number, have been selected from among the foremost teachers in this

great center of medical education. The medical faculties of the University of Pennsylvania, Jefferson, Temple, and the Woman's Medical College of Pennsylvania are represented on the program. While approaching the subject from specialized viewpoints—those of the physiologist, cardiologist, pediatrician, surgeon, roentgenologist, bacteriologist, internist—the presentations will be of a strictly practical nature, and should be of real value to the general physician, who finds cardiorenal conditions occupying a large proportion of his time.

The Philadelphia County Medical Society, in conducting the Postgraduate Institute, is meeting the demands of many physicians, who have felt that the organized profession should provide them with this type of opportunity for keeping abreast of medical progress and thus maintain the highest standards of medical service. The only charge is a \$5.00 registration fee to cover the Institute's expenses. It is hoped to make the event an annual one, giving special attention each year to a different subject.

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P M on Thursday, February 6, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr E Stanley Emery, Jr, will give a medical clinic. To it are cordially invited practitioners and medical students.

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr Christian.

A CORRECTION

The Baker Memorial Clinic of the New England Deaconess Hospital was referred to in a footnote appearing on page 45 of our issue of January 9. It has been brought to our attention that the footnote should have read "From the Lahey Clinic, the George F Baker Clinic of the New England Deaconess Hospital and the New England Baptist Hospital."

FUNCTIONAL ASPECTS OF BASES OF BEHAVIOR

This is a course which gives wide information and important insight into phases of education both outside and inside the school's educational program. It makes such practical application of certain principles of mental hygiene that it offers direct and specific suggestion to those who would put these principles into practice. For information as to the names of lecturers apply to Boston University School of Education, 29 Exeter Street, Boston.

BOSTON DISPENSARY

25 Bennet Street, Boston

MEDICAL CONFERENCE PROGRAM

9-10 A.M., February, 1936

Saturday, February 1—Presentation of Ward Case.
Dr P A F Hoefler

Tuesday, February 4—Shoulder Conditions. Dr John D Adams

*See Advertising Section, page ix.

- Wednesday February 5—"Indications for Various Methods for the Relief of Prostatic Obstruction." Dr Harold A. Chamberlin.
- Thursday February 6—Endocrine Clinic. Dr Charles Lawrence.
- Friday February 7—Objective Studies in Angina Pectoris. Dr Joseph Riseman.
- Saturday February 8—Presentation of Ward Case. Dr Jacob Schloss.
- Tuesday February 11—Recognition of the Early Psychoses Their Differentiation from Neuroses Dr A. Warren Stearns.
- Wednesday February 12—"Mistakes Made in the Diagnosis and Treatment of Syphilis."—Dr Francis Thurmon.
- Thursday February 13—Social Service Case Presentation. Miss Edith Canterbury
- Friday February 14—"Pituitarytropic Studies." Dr Saul Hertz.
- Saturday February 15—Presentation of Ward Case. Dr H. C. Gordiner
- Tuesday February 18—X Ray Demonstration. Dr Alice Ettinger
- Wednesday February 19—Auscultation of the Abdomen Dr Nell Stevens.
- Thursday February 20—Heart Clinic. Dr Samuel H. Proger
- Friday February 21—"Some Aspects of Clinical Endocrinology" (With Motion Pictures.) Dr Lewis M. Hurxthal.
- Saturday February 22—Holiday
- Tuesday February 25—Case Presentation. Dr Francis McDonald.
- Wednesday February 26—"The Present Role of the General Surgeon in a Modern Hospital." Dr Hilbert F. Day
- Thursday February 27—Diabetic Clinic. Dr Jacob Schloss.
- Friday February 28—Physiological Adventures Abroad. Dr G. Philip Grabfield.
- Saturday February 29—Presentation of Ward Case. Dr H. Magendanz.

NOTICES OF MEETINGS

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance) Tuesday evening February 11 at 8 15 P.M.

PROGRAM

Presentation of Cases.

The Effect of Hypophysectomy and Adrenalectomy upon Experimental Diabetes in the Cat. By Dr C. N. H. Long University of Pennsylvania, Philadelphia, Pennsylvania.

Medical students and physicians are cordially invited to attend

MARSHALL N. FULTON, M.D. *Secretary*

GREATER BOSTON MEDICAL SOCIETY

The next meeting of the Greater Boston Medical Society will be held on Tuesday February 4, at 8 00 P.M. in the Auditorium of the Beth Israel Hospital, Boston.

PROGRAM

Speaker Richard Lewisohn, M.D. Visiting Surgeon, Mt. Sinai Hospital, New York City
Subject Recent Advances in the Surgical Treatment of Chronic Duodenal Ulcer
Discussion by Frank H. Lahey, M.D., Arthur W. Allen, M.D., and Charles G. Mixer, M.D.
H. LIMENTHAL, M.D., *President*
D. B. STEARNS, M.D. *Secretary*

GREATER BOSTON BIKUR CHOLIM HOSPITAL

The Greater Boston Bikur Cholim Hospital medical meeting will be held Wednesday evening February 5 at 8 30 o'clock at the Nurses Home 45 Townsend Street, Roxbury. Speaker Dr. Abraham Myerson. Subject Neuroses. The profession is invited.

HENRY BAKER, M.D., *Secretary*

FAULKNER HOSPITAL CLINICAL MEETING

The next clinical meeting will be held at The Faulkner Hospital on Thursday February 6 1938 at 5 00 P.M. In addition to the usual clinical pathological conference Dr. Harry C. Solomon will talk on "The Application of Fever Therapy in Several Disease Conditions"

All physicians are invited

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at the Beth Israel Hospital Boston, Mass., Monday February 8 1938 at 8 15 P.M.

PROGRAM

1. A Case of Coronary Occlusion with Interesting Features. Dr. Harry B. Levine.
2. Evaluation of Medicinal Treatment of Angina Pectoris. Dr. Joseph E. F. Riseman.
Studies on the Effect of Nitroglycerin on Angina Pectoris. Dr. Morton G. Brown.
3. Incidence of Coronary Heart Disease and Hypertensive Heart Disease in Different Population Groups. Dr. Louis Silver.
4. The Cardiac Output in Patients with Congestive Failure after Total Thyroidectomy. Dr. Mark D. Altschule.
5. A Clinical and Pathologic Study of Aortic Stenosis. Dr. Louis Wolff and Dr. Monroe Schlesinger.
6. A Summary of Clinical Experience in the Treatment of Chronic Heart Disease by Total Thyroidectomy. Dr. Herman L. Blumgart.

All members of the New England Heart Association and interested physicians are invited to attend.

JAMES M. FAULKNER, M.D., *Secretary*

tirely adequate. The liver was large and firm and some areas seemed to be definitely increased in hardness. Both hepatic and common ducts were tiny fibrous tubes which were impossible to probe. The process seemed to be uniform throughout the entire course of the ducts without stone and without stricture. In the absence of the gallbladder a cholecystenterostomy was out of the question and without any patent hepatic ducts, it seemed likewise impossible to do a hepaticoduodenostomy. A cigarette drain was inserted and the abdominal wall closed. The patient died four days after operation.

A postmortem examination revealed an extensive peritonitis with some intraperitoneal hemorrhage, chronic cholangitis, chronic obstructive jaundice, and chronic infection of the common and hepatic ducts. There was also some fat necrosis from an acute pancreatitis.

These two cases are typical of the pathology to which I wish to call your attention, but not all the patients with this disease have come to such a sad and sudden ending. The inflammatory process, at least in some instances, subsides and the ducts resume their functions.

For instance, Whipple reported a woman of fifty who had been jaundiced for two months. At operation, the gallbladder was found to be collapsed. The common duct and the hepatic duct were felt as a small thickened cord throughout their entire length. Because no dilated duct could be found above, no attempt was made to drain either the gallbladder or the duct system. A biopsy of the liver showed biliary cirrhosis. Nine days after operation, the patient began to show some bile in her stools and continued to recovery. As far as was known she has remained well.

In regard to the ideal treatment of this condition, if the gallbladder is present, probably the best procedure is a cholecystostomy or a cholecystenterostomy to facilitate drainage of the biliary system with the hope that the inflammation will subside and the constriction will be relieved.

If the gallbladder has been removed, then a hepaticoduodenostomy should be done over a rubber tube provided that one can find a patent hepatic duct or either of its branches. A number of cases have been cured by this procedure. In one of Judd's patients the tube remained in situ for five years and was removed through the duodenum at a secondary operation because of a return of symptoms due to an encrusting obstruction of the tube with bile salts.

Prognosis should always be guarded because of the well-known tendency to stricture formation with any form of a reconstructed duct and the definite possibility of a continuing infection with increasing biliary cirrhosis and destruction of hepatic tissue. However, one should not rush toward re-operation at the first sign of returning difficulty, for some of these patients have cleared up after a considerable period of trouble including pain, chills, and intervals of jaundice. On the other hand second-

ary operations are not entirely hopeless because a few have been relieved after several attempts and have remained well over a period of years.

My immediate personal interest in the subject was aroused on account of a case with which I struggled for the greater part of last year and I would like to report her story at this time.

A young married woman of thirty-three was admitted to the Baker Memorial on May 8, 1934 for study. Her story was that she had been perfectly well until one year before admission when she had a slight attack of upper abdominal discomfort which lasted for several minutes. During the past year, she had had six or seven similar attacks. Two weeks ago the upper abdominal pain and discomfort became more or less constant. It was not very severe and did not radiate to the back. Eight days ago her family physician put her on a milk diet with only slight relief. The most important item as a result of our studies was the x-ray examination which showed a gallbladder filled with stones. A cholecystectomy was done on May 18, 1934 under spinal anesthesia. There was a good exposure and the gallbladder was easily removed by dissecting from the cystic duct upward. She made a satisfactory postoperative convalescence and was discharged fifteen days later. The small sinus was still draining a little bile.

This sinus closed and five weeks after her discharge from the hospital she began to be jaundiced, there was no pain but she did have loss of appetite and loss of weight and strength. She was readmitted with a diagnosis of obstructive jaundice and question of stone in the common duct.

An exploration was done on July 6, 1934. At this time the liver was very small, dark colored, and had a rather rough surface. The common duct was exposed after freeing up the adhesions underneath the lower edge of the liver. The common duct was found to be a small, hard, cordlike structure throughout its entire length. An opening was made in the anterior wall of the duodenum and an attempt was made to probe the common duct from below. This was unsuccessful as the probe could not be introduced into the common duct. The duct was then cut. Apparently there was no lumen or at least only a very tiny one, not large enough to admit a fine probe. This duct was followed up to the liver and still no lumen could be demonstrated. The patient was beginning to show the strain of operation, a cigarette wick was placed underneath the edge of the liver and the wound closed.

The patient was in poor condition and vomited a good deal after the operation. She was given large amounts of intravenous glucose daily and nothing by mouth for several days. On the fourth and fifth days there was a considerable amount of bile discharged from the abdominal wound. On the ninth day there was a considerable amount of bile discharged. This drainage rapidly diminished, however, and in spite of repeated dilatations of the sinus with bougies, the bile flow diminished and the sinus closed. She was discharged forty-eight days after the operation. At this time she was mildly jaundiced and there was no bile entering her intestinal tract.

She was again readmitted to the hospital one month after her last discharge. She had been doing fairly well but was still jaundiced and was bothered very much by itching. She had however, gained a pound and three-quarters since leaving the hospital. For the last ten days it had been pos-

sible to feel a mass in the epigastrium which we believed to be liver and interpreted this fact to mean that her liver function had returned somewhat and that she now had a large liver congested with bile. It was felt necessary to make another attempt to see if we could find some dilated bile duct and possibly establish an external sinus which might later be implanted into the duodenum.

Exploration was done on September 24 1934. The liver was now much larger than at the time of the last operation. After considerable difficulty in freeing up adhesions a fairly good sized bile duct was found deep in a cleft of the liver where the hepatic duct is supposed to emerge. This was opened. It contained bile under pressure and a catheter was sutured into this duct which continued to drain bile profusely. The abdomen was closed.

Four days after operation she was given a transfusion because there had been some oozing of blood from the incision and we felt that it would be a good general therapeutic procedure. About seven days after operation she began to have persistent vomiting. She could eat only very little at a time and any intake of food or fluid caused a marked sense of fullness and pressure in her stomach. It was necessary to put her on constant stomach drainage by means of a small stomach tube passed through the nostril but the patient was evidently losing weight and strength gradually in spite of all efforts.

Jejunostomy was discussed several times and finally as a last resort a jejunostomy was done under local anesthesia four weeks after her last operation. She came through this procedure very nicely and we were able to introduce food and fluid into the jejunum at once with definite improvement in her condition. The bile which drained from her other sinus was also introduced into the jejunostomy. Her jaundice had now entirely disappeared. Fifteen days after the jejunostomy she was able to take forty ounces of fluid by mouth during the twenty-four hours but was still being fed through the jejunostomy and the bile was also being replaced. Four days later she could take seventy ounces of fluid per day with some soft solid food. Six days later she was having fluids in unlimited amounts and soft solid food.

The catheter which was draining bile was connected by means of a glass tube to the catheter in the jejunostomy so that the bile was automatically transferred in this way to the intestinal tract. Eight days later the character of the drainage from the gallbladder wound changed abruptly. Instead of being clear bile it was thin turbid, milky fluid which seemed somewhat purulent. The next day the catheter in the biliary sinus was changed and considerable gas escaped through the wound and the day after there began to be some redness and irritation of the skin around the sinus. The drainage was bile stained but acid in reaction. Evidently the biliary sinus had ruptured through into the duodenum and we were now having some duodenal leakage through the sinus.

A lipiodol injection into the biliary sinus showed that it connected with the duodenum. The jejunostomy tube had been removed and at this time the tube was also removed from the bile sinus with the idea that the external opening would be allowed to close and hoping that the sinus now established from the hepatic duct to the duodenum would remain open and this is what did happen. Two weeks later the patient was up and walking about. Stools were normal in color. She had gained weight had no external drainage of bile and four days later was discharged from the hospital.

The patient was again readmitted four months

later in April 1935 because of some upper abdominal pain and jaundice. The stools for the last few days had been pale in color. She was kept under observation for two days. Her stools regained normal color and her jaundice subsided. She was sent home.

She has had several of these attacks occasionally with chills and fever and very likely my troubles are not entirely ended so far as she is concerned. Possibly it would have been a better procedure to have done a hepaticoduodenostomy instead of bringing the catheter outside for drainage at the time I found the dilated hepatic duct. She was fortunate in that she developed a spontaneous hepatico-enterostomy and as the situation now stands I shall delay re-operation as long as possible.

DISCUSSION

DR. DONALD S. ADAMS. In discussing Dr. Sowles' paper I wish to consider the following:

First, the matter of incidence. In going over the literature, isolated cases are encountered but with the exception of Judd's cases an actual series is hard to find. I have not encountered a case nor was I able to find an example in our Memorial Hospital records. Judd has suggested that they rarely reach the surgeon's hands. He is either correct, or as I have concluded the disease in its true form is a comparative rarity.

Secondly, etiology. No one seems to give an answer to this that meets all the requirements. Ransom and Malcolm state that the striking thing in its etiology is the absence of previous abdominal operations and the absence of stones in the gallbladder and ducts. And they further state that it is inferred that even before stones have had a chance to form in the gallbladder damage has been produced in the walls of the extrahepatic ducts. It is difficult to attribute a uniform fibrosis of the ducts to trauma. I noted that three cases reported gave a past history of typhoid fever. Text books of pathology in describing fibrous inflammation of the bile ducts speak of possible causative factors as pyhills typhus fever cholera and malaria. If we consider that some form of gall bladder pathology either existed or was present at the finding of obliterative cholangitis, the cholecystic disease may well be a causative factor. It is to be remembered that, although the blood supply to the gallbladder is separate its venous and lymph channels communicate directly with the liver and ducts. As Ransom and Malcolm point out, infection ordinarily affects the gallbladder first, with the ducts presenting marked ability to resist infection. But in the rare cases of benign stricture the gall bladder and ducts share alike.

Thirdly, gross and microscopic pathology. All reports agree that the common duct, when found was hard small and cord-like in feel. Miller in his report described it as suggesting a thick walled vein enclosing a number of organized thrombi. Adhesions more or less dense enclose the area making approach difficult. The lumen is usually nearly obliterated, although a small amount of discolored fluid or mucus may be found. Sections show marked fibrosis of the duct walls, a varied loss of mucosa and round cell infiltrations. An unidentified diplococcus was noted throughout the fibrosed walls in one reported case. In Ransom and Malcolm's autopsied cases besides the chronic inflammatory changes well-marked evidence of activity in the process still appeared. The early cases showed an enlarged reddened liver the later ones contracted and even greenish in color with well advanced general cirrhosis and generalized intra hepatic duct involvement.

And finally, in closing, I would like to ask Dr Sowles whether he palpated the common duct at the first operation. It is surprising that such a degree of change could occur in a reasonably normal duct in such a short time as less than two months.

DR CARL MERRILL ROBINSON I have read and re-read Dr Sowles' paper on Obliterative Cholangitis and I wish to congratulate him, not only on a splendid presentation of the subject, but his superb surgical technique in the case reported.

The case I am reporting, of a type comparable to that reported by Whipple, recovered, in spite of my surgical effort and is a victory for the internist. It teaches a lesson.

J J N, aged sixtythree years, was admitted to the Maine General Hospital, January 19, 1929, as a private medical case, under the care of Drs B and B. No significant previous history. For the past sixteen days the patient has had vague abdominal discomfort with increasing jaundice and intense itching. Moderate amount of gas. He has been on a restricted diet, taking eight glyco-tauro tablets a day and local applications for itching. *General examination* negative except for intense jaundice and excoriations from scratching. *Abdomen*, no distention or masses. *G B* not felt. *Liver edge* about one and one-half inches below costal border. *Rectal examination*, negative. *Urine*, negative except for large amount of bile. *Hgb*, 77 per cent. *Reds*, 4,120,000. *White*, 8,450. *Coag*, 8 min. *Urea Nitrogen*, 13 mg. *B S*, 90 mg. *Stool*, grayish, no mucus or parasites. *Rare R B C*, no *W B C*. *Occult Blood*, present. *Urobilin*, negative by Schmidt test. *Fatty Acids*, traces only. *Icterus Index* 200. *Van den Bergh* direct and indirect. *Gastric Contents*, no free HCl. *Total Acidity*, seven per cent. *Duodenal Contents*, no bile present. *G I Series*, negative.

Twelve days after admission his physical condition showed no improvement under medical care and his mental condition was less satisfactory. Itching could not be controlled. I saw the patient at this time and felt that exploration was justifiable. Patient and relatives willing to assume the desperate risk. On February 1, 1929, he was explored under novocaine block of the abdominal wall. Gallbladder, buried in adhesions, freed. Not grossly distended but evidently diseased. No gross pathology felt in head of pancreas. Common duct exposed with some difficulty, smaller than normal but identified by aspiration and some bile obtained. Common duct opened and small catheter inserted after failure to pass probe into duodenum. Catheter also placed in fundus of gallbladder. The bile obtained was thin containing much mucus. The liver showed no gross changes. If the patient's cholemia could be relieved by drainage of the common duct, secondary operation could be attempted. His immediate post-operative condition was satisfactory. The first few days there was a small amount of thin drainage but his jaundice did not improve and there was very little change in his general condition for twelve days. Then, active hemorrhage occurred from the operative wound. He was given a transfusion of 500 cc whole blood. Slight oozing continued. Four days later the blood was firmly clotted but bile drainage completely stopped sixteen days postoperative. Movements were clay colored and general health was poor. Duodenal tube inserted into duodenum followed by mag sulph, brought no bile. During the next two weeks, condition improved somewhat on high carbohydrate diet. His wound entirely healed but jaundice persisted and no bile was present in the stools. Up and about. On March 15, seventy-one days after onset, he was taken, by his

family, to Boston to the care of Dr Chester Jones, from whose recent letter I summarize or quote.

"Physical examination showed an intense jaundice, marked loss of weight, a liver two fingers below the costal margin, questionable ascites, slight pitting edema of the feet and edema of the ankles. Stools were clay colored and there was a little bile in the urine. Laboratory Report, serum bilirubin 4.1 to 100 cc (Diphasic) which increased to 6.9 nine days later. Finally dropped to 0.6, 24 days following on the one hundred and fourth day. On admission, stools showed 1+ bile but on several examinations during the next week, showed no bile. There continued to be no bile in the stool, at times, for over a month. As far as treatment was concerned, he was on as high a carbohydrate diet as he would take from the time I saw him. He was given insulin. His diet consisted of C475 P75 F50. During the first week the patient gained five pounds, was mentally improved but there was no improvement in the jaundice, itching or peripheral edema. Two weeks later his jaundice was distinctly less and stools showed bile. He left the hospital at the end of April, four months after the onset, having been treated by a very high carbohydrate diet, insulin, rest and various symptomatic measures for control of the itching, of which chloral was the most effective."

I have seen this patient personally within a month. He is now seventy years old, in excellent health and has no recurrence of symptoms. The course of this case, subsequent to operation, proved that it was not a surgical problem but the gallbladder buried in adhesions, the presence of bile in the ducts, and my inability to pass a small probe from the common duct into the duodenum, seemed at that time to justify my attempt to drain the biliary tract.

DR T S MOISE, Bangor, Me. I would like to present a case of obliterative cholangitis of the cystic duct that presented some rather interesting findings. The patient was a woman in the early forties, who had a history of a gallbladder disease for several years. I first saw her in September, 1930. She had had an acute attack of cholecystitis a few months prior to that time. At operation, I found that the gallbladder was adherent to the surrounding structures. There was a small pericholecystic abscess. The tissues of the cystic duct were quite friable and the duct was severed by the pressure of a clamp placed upon it.

Examination of a specimen showed obliteration of the cystic duct from the gallbladder down. The remainder of the gallbladder showed nothing unusual. There was no suggestion of a neoplasm. Sections from several blocks taken from the region of the obliterated cystic duct showed a definite histologic picture of malignancy with a marked epithelial proliferation extending from the mucosa to the serosa. Unfortunately, the gallbladder was lost and no further blocks were taken. If there was a carcinoma present, it was probably a small one extending down the cystic duct and the chances were great that a portion of the neoplasm remained in the stump of the cystic duct.

I have a series of slides going through the wall of the gallbladder, in order to show that there is a definite infiltrating lesion with groups of epithelial cells extending from mucosa to serosa histologically indistinguishable from a carcinoma.

I concluded that the patient probably would have a recurrence and fail rapidly. At the present time, five years later, she is in the best of health and I think we are forced to conclude that this was not a neoplasm at all, but an unusually striking degree of epithelial proliferation as is sometimes seen in



The photomicrographs show groups of epithelial cells extending from the submucosa (mucous membrane) in upper right hand corner. Although histologically indistinguishable from carcinoma the findings represent a simple inflammatory hyperplasia in association with an obliterative cholangitis of cystic duct.

inflammatory lesions You may remember that a striking degree of epithelial hyperplasia with apparent invasion was seen in some of the fatal cases of influenza in the epidemic of 1917 and 1918 I am under the impression that such changes are more likely to occur in those cases in which the destructive lesion was quite severe and there was a destruction of the mucosa as well as the underlying tissue to an appreciable depth Obliteration of the biliary ducts is more often the result of repeated lesser injuries rather than to such a severe lesion I think that epithelial hyperplasia presenting a histologic picture of malignancy is unusual in disease of the biliary tract and would like to ask Dr Sowles if he has seen any marked degree of epithelial hyperplasia in the cases he studied

DR SOWLES Just a word in regard to Dr Adams' question There was a very striking change in both the condition of the liver and the common duct between the first and second operations At the first operation there was nothing remarkable about the liver The common duct could be easily seen and felt, was of normal size, and apparently not thickened

At the second operation, the liver was small, very much smaller, with a rough surface, dark greenish

in color, and the common duct as described, a small fibrous cord

In regard to the other question, I haven't any thing to add to the pathology, more than what Dr Robinson has brought out

It may be of academic interest to ask whether we can make a diagnosis before operation I am not sure The pain, as a rule, is not so severe as gallstone colic, and does not have a tendency to radiate to the back The jaundice is apt to be more or less intermittent The presence of fever and chills, of course, means a cholangitis, but does not necessarily rule out a stone There is usually some bile, found by chemical tests, in the stools

With regard to postoperative treatment, there are one or two points We should keep the chemistry of the blood plasma, as near normal as possible I am thinking particularly of maintaining blood chlorides

Dr Robinson also referred to the high carbohydrate diet, which means in the postoperative case, liberal use of intravenous saline and glucose, and the additional fact which was brought out in the discussion, that we can artificially increase the amount of insulin in the blood in order to help the patient burn up the excessive glucose in his diet.

NEW ENGLAND BRANCH AMERICAN UROLOGICAL ASSOCIATION

URETEROVESICAL CARCINOMA CYSTECTOMY—URETEROSIGMOIDOSTOMY*

Case Report

BY WILLIAM C. QUINBY, M.D.†

A MACHINIST of sixty-one years came to the Peter Bent Brigham Hospital complaining of hematuria This was first seen five weeks earlier, appearing spontaneously and without pain The bleeding had been continuous, though lately of somewhat diminished severity There had been no change in force or calibre of the urinary stream and no increase in frequency Except for a loss of about 5 pounds in weight and slight paleness, he had been well

On examination, definite pallor of both skin and mucous membranes was evident The urine was grossly bloody, the hemoglobin 40 per cent and the red blood cell count 2,580,000 The blood pressure was 140/80, the nonprotein nitrogen 31 mg per cent By cystoscope there was seen a large papillary infiltrating growth in the bladder overlying the left ureteral orifice, attached to this and to the left lateral bladder wall Inferiorly it extended very nearly to the apex of the trigone Above, the tumor was sloughing, and here there were also several deposits of lime salts and areas of fresh clot

Cystogram showed a smooth filling defect on the left side of the bladder 2.5 cm in diameter with an irregular extension laterally Intravenous pyelograms showed the right renal pelvis and ureter well filled and apparently normal There was no shadow seen on the left up to seventy five minutes This suggested that the tumor had blocked the

left ureter and suppressed the left kidney function

A transfusion of whole blood was given with benefit and four days later on October 8, 1934, the following operation was performed under spinal anesthesia Transperitoneal ureterosigmoidostomy, right.

The abdominal cavity was opened and with the patient in the Trendelenburg position the intestines were walled upward, after which an exploration of the pelvis showed no evidence of cancerous metastases The left ureter was found to be somewhat larger than the thumb, definitely obstructed The right ureter was normal and showed vigorous peristalsis Through a vertical incision over it the retroperitoneum was incised and the ureter dissected free to within an inch and a half of the bladder, where it was cut off Its vesical end was tied and the ureter lifted upward from its bed over a distance of two and a half inches The retroperitoneum was then closed by interrupted sutures of silk The sigmoid loop was then prepared by milking its contents upward and downward, and holding it between two Allis clamps, an incision was made about two and a half inches long in one of the longitudinal striations This incision went through the muscularis down to the mucosa, and the wall of the bowel was dissected backward on either side for about one-eighth of an inch. All bleeding points were grasped with fine clamps and coagulated by the electric current The upper angle of the incision was then united to the wall of the ureter by a single stitch after which the bowel wall was closed over the ureter by interrupted silk stitches On reaching the lower end of the incision the ureter was transfixed by a single stitch bearing a curved

*From the Urological Clinic of the Peter Bent Brigham Hospital Boston Mass

Read at the meeting of the New England Branch of the American Urological Association, November 14 1935

†Quinby, William C — Clinical Professor of Genito-Urinary Surgery, Harvard University Medical School For record and address of author see This Week's Issue page 266

needle on either end after which the bowel mucosa was opened again using the electric current. There was no rolling whatever as the lower end of the ureter was invaginated into the lumen of the bowel by passing each end of the transfixing suture and bringing it out onto the surface of the sigmoid. Previous to this a strand of large-sized catgut about four inches in length was inserted into the lumen of the ureter to act as a partial splint. Following this the whole area of suture was buried by a second layer of silk sutures, after which the sigmoid was attached to the retroperitoneum by another single suture.

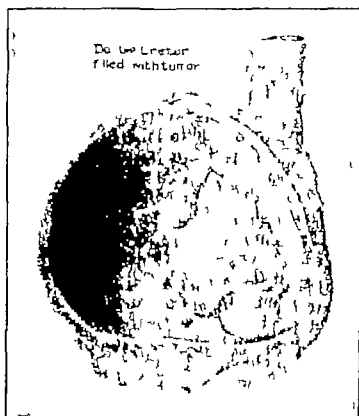
On October 26 the patient having made a satisfactory convalescence since the previous operation, a total cystectomy was carried out under spinal anesthesia. The abdomen was opened through the old scar and the peritoneum separated from the surface of the bladder the bladder itself being allowed to remain unopened. By upward traction on the vault, the bladder was gradually lifted out of the pelvis and there was found to be a marked induration and thickening of the left ureter outside the bladder itself. This was unexpected for although this left ureter was not carefully explored at the previous operation, it would seem likely that had it been a solid structure at the site of the previous operation this would have been evident. Continuation of delivery of the bladder was therefore carried out by working from the right side of the organ and on reaching the region of the urethra by the use of the high frequency cutting current a transverse incision was made going through the substance of the prostate. On reaching the posterior surface of the bladder dissection was made in front of the vesicles. There remained to be delivered then the left ureter and this was dissected upward as far as could conveniently be reached through the present incision, but it was found impossible to extend the dissection high enough to reach any portion of ureter which did not contain evident tumor. This tube was then clamped and cut across after ligation and the bladder removed. Except for this involvement of the left ureter there was no evidence in any place of extension of tumor tissue outside the bladder. Hemostasis was carefully attended to after which the wound was closed, an adequate drain being left in the depths of the pelvis. The peritoneum was not opened during this operation.

It would seem from investigation of the operative specimen in this case that we have been dealing with an instance of secondary neoplasm in the bladder which has descended the ureter from the renal pelvis above. It was entirely impossible to investigate the left kidney until now. We only knew that it was enlarged and obstructed. I had previously expected it to be a blocked-off hydronephrotic kidney but the presence of new growth in the ureter makes it highly probable that it contains neoplasm within its pelvis. A subsequent nephrectomy is therefore, clearly indicated.

On examination of the ureter in the operative specimen it was found to be double. No previous indication of this had been had, of course because the tumor mass overlaid the entrance of the ureter into the floor of the bladder.

Therefore on November 13 a left nephrectomy was performed as follows. Through a transverse incision under the left costal margin the kidney was exposed found to be very markedly dilated and tensely elastic to touch. It was impossible to tell what the contents of the kidney might be but it was assumed that they consisted of papillary carcinoma in large part. Investigation of the ureter revealed it to be double and to extend downward

about the size of 3 cm in diameter. The kidney was very hard to mobilize at its upper pole, so the ureter was cut across and using this as traction eventually the whole kidney was freed. Its vascular pedicle was apparently atrophic, the venous supply being single the arterial supply double. After the kidney had been cut away it was found that its contents were only bloody urine, no evidence of new growth being present. Had we been aware of this fact at an earlier period in the operation emptying the kidney would have much facilitated its excision.



Following removal of the kidney the stump of the ureter was carefully dissected out as far downward as the point of previous tying. By chance this laid just over the internal iliac vein so that some care was necessary in freeing the ureter to avoid tearing this structure. Convalescence after this third operation was quite without event and the patient was discharged home on the 25th of November 1934.

Pathological examination of the specimen submitted showed the new growth to be papillary carcinoma. Investigation of the ureter showed that the two ureters joined into a single one just at the junction of the bladder wall at which point there was but a single ureter so that the double ureter was of the "Y" type. It is possible, therefore, that the neoplasm originated in the ureteric epithelium near the point of junction of the two thus accounting for its equal distribution into each tube. The ureter as it passed through the bladder wall was also completely filled with tumor. It was very evident on examining the kidney that the neoplasm did not originate in the renal pelvis. We were therefore, forced to believe that this carcinoma was primary in the ureter or bladder the histology being consistent with either. It appears unlikely however that it represents a retrograde extension upward from the bladder and we believe that this was an instance of a primary papillary carcinoma of the ureter originating at the point of junction of the two limbs.

The patient has done very well during the year which has passed since operation. At his last visit he was found to have gained weight to have normal strength and the nonprotein nitrogen was 41 mg. per cent. He passes urine by rectum about once in three hours and once at night.

AN HYPOTHESIS FOR THE ORIGIN OF RENAL CALCULUS*

BY ALEXANDER RANDALL, M D †

WHEN one undertakes to explain the origin of stone in the upper urinary tract, one appears to be confronted by the fact that our theories of today seem to be increasing the complications of the picture rather than its simplification. Yet, when one tabulates the five prevalent theories relative to the causation of renal calculus, it is interesting to find that, in spite of their wide divergence, they are after all rather closely interrelated. It is essential, when attempting to solve any complex problem, that *cause* be put to one side and *effect* to the opposite side, and it is to be my present effort first to try to clarify this point of cause and effect in our present knowledge of renal stone and then, if a plausible cause for stone be found, to see if the subsequent effects are in keeping with the hypothesis for its origin.

First of all, let us be cognizant of what has happened in our understanding of stone in the lower urinary tract. For centuries considered a disease entity, and operated upon with what surgeons thought success, bladder stone is now looked upon as a symptom and not a disease. There is not a surgeon today but will finish an operation for the removal of stone from the bladder without appreciating that it is a resultant effect and without looking for its cause. Prostatic obstruction, diverticulum, fistula, tumor and ulcer are looked upon as the primary reasons for the formation of such a vesical calculus, and the prevention of its recurrence will depend upon the successful removal of the individual cause.

How often is the surgical problem of a renal calculus approached with a similar understanding of the fundamental pathology? How often, in the course of a difficult exposure, is a causal obstructive factor looked for and corrected? And how often, after the removal of a renal calculus, are steps of a prophylactic nature taken, both at the operating table and during the postoperative convalescence, to safeguard the patient against recurrence? In other words, do we approach every case of renal calculus looking upon the stone as an effect and, in each case, attempt to find a cause? And have we transported our knowledge of the recognized causal factors of stone in the lower urinary tract to an appreciation of what must be similar causal factors in the origin of stone in the upper urinary tract? I think we should have ceased

long ago to lecture, write papers and even publish books under the title of "Calculus Disease", for stone in any part of the urinary tract is but a symptom and not a disease entity.

Etiology—Let me briefly review for you the five theories which are current today as reasons why a kidney becomes encumbered with a calculus, and at the same time point out their close relationship.

1. Unquestionably, priority belongs to the dietary theory. This causal factor comes to our attention from two separate angles. First, and perhaps of the greatest importance, is the realization that stone of the bladder in childhood has almost disappeared from the picture of surgery. Fifty years ago (and for the period antedating this) it was found in civilized countries as a dominant factor in "calculus disease". It has been pointed out that in England, in 1800, forty-five per cent of the cases of vesical calculus occurred in children under fourteen years of age. In France over half of the cases of stone in Civiale's clinic were operations on patients under twenty years of age. In England, France and America this picture has so changed that bladder stone in childhood is today a rarity. And the only factor to which we can point, as bearing upon the disappearance of this surgical condition, has been a liberalization of the diet of childhood. Children today are fed from infancy on a diet which would have made our grandparents shudder, and this is to be compared with the picture of stone in childhood which still persists in its prevalence in the surgical clinics of the countries where the dietary is still of a variety exceedingly limited, as it used to be in Western Europe.

The second point under this theory has been the proof that diets deficient in vitamin A are exceedingly prolific of stone formation. The reason given is that such a diet causes certain changes in the epithelium of the urinary tract, which is termed "keratinization". Two things are significant. First, that such stones are consistently formed of calcium-magnesium phosphate, and secondly, that in experimental animals where stone has been so produced, such concretions have been made to disappear if the diet is changed to one rich in vitamin A. Here it seems we can clearly see cause and effect.

*Read at the meeting of the New England Branch of the American Urological Association November 14 1935

†Randall Alexander—Professor of Urology University of Pennsylvania School of Medicine. For record and address of author see This Week's Issue page 266

- 2 The second theory which enters this picture is that of infection. It has been said that if every case of stone were searched to its ultimate end an infection would be found underlying it. This is probably an overstatement, but, nevertheless, infection unquestionably does play a very definite part in the formation of some stones. There are numerous instances and examples to be cited in relation to this theory, but let me recall to mind Rosenow's work and also the observation of the frequent occurrence of renal calculus in the chronic ostomyelitis cases.

Again, two things are of great significance as regards infection and stone. First, the concomitant frequency of infection where epithelial changes due to vitamin A deficiency predominate with the interrelationship of these two theories, and secondly, the role that infection frequently plays as an etiological factor in the recurrence of renal stone. The rôle of infection should also be broadened to include those cases of encrusting cystitis and the encrustations about urinary fistulae. Here an infecting organism is looked upon as being responsible for the breaking down of urea into ammonia, causing an alkaline urine with the subsequent precipitation of urinary phosphates. It is pertinent to my theory that I again call attention to stone as an effect and to an infection as part of the cause.

- 3 The third theory is the effect of stasis and faulty drainage. Long a recognized factor in the lower urinary tract, it must likewise play a definite part in the etiology of certain stones in the upper urinary tract. Stone has been frequently watched during its period of actual growth, where partial occlusion of ureteral lumen has produced faulty drainage. Stone has been found in a relatively high percentage of cases where individuals have been bedridden, such as in the care of generalized disease, in the immobilization for fractured bones and in the care of cases with tuberculous lesions of the hip and spine. All these conditions are related to faulty renal drainage and, in addition, are frequently associated with chronic infection and yet again with the recognized decalcification of the bony skeleton and the loss of calcium during long periods of complete muscular inactivity.

Again, let me accentuate the close interrelation of these three theories: diet, infection and faulty drainage. It is neither a constant fact nor is it necessary to expect that every kidney pelvis which is poorly drained, even if also infected, must form a stone. Such is quite comparable

to the incidence of bladder calculus as an accompaniment of prostatic obstructions. The failure of stone development in cases where the ideal morbid set up is waiting is one of the strongest facts that we have to present in the realization that our present theories are not sufficient. They may be factors but not basic etiological facts.

- 4 Our fourth theory is that fascinating one of disturbance in the colloidal mechanism of the urine which plays a very important rôle in the body's normal ability to eliminate insoluble crystalloids in a supersaturated solution in the urine. It is pictured that the urinary colloids carry on their surfaces insoluble urinary crystalloids by what is termed "adsorption." The normal daily amount of the colloid is sufficient for the elimination of the normal daily amount of the insoluble crystalloids. That these urinary salts are present in a supersaturated state in the urine is an important fact, both as regards the function of the colloids and as bearing on the precipitation of the salt when stone forms. For, if one disturbs this so-called colloidal balance by either increasing the crystalloids or decreasing the colloid surface area, there then occurs a precipitation of the crystalloids and their appearance in the urine as actual insoluble material.

Stripped to this simple viewpoint, again let me call to your attention the interrelation of this etiological theory with the three previous ones. For, first of all infection with its morbid products, and epithelial degeneration as from a vitamin A deficient diet, are both recognized as reasons for a disturbance of the normal colloid mass, and wherever there is an increase in crystalloids, such as occurs in decalcification of the bony skeleton, we see the opposite picture of an attempt being made to eliminate more crystalloids than there is assumed to be colloidal surface to hold them in solution. Therefore, these four theories of stone formation although each may not be constant or sufficient, are nevertheless very closely interrelated.

- 5 Our fifth theory is the recent one, where it has been pointed out that disease of a hyperplastic character in the parathyroids is responsible for decalcification of the bony skeleton and the occurrence of an actual calcium diabetes in the urine. As a result of the studies made at the Massachusetts General Hospital it is claimed that this factor is present in ten per cent of all cases of renal calculus. Here we are unquestionably getting beyond the urinary tract and finding a causal factor of utmost importance. But

when we concentrate our view upon the urinary tract, such hypercalcaemia is not of itself a factor that produces a stone. It works in well with the theory of colloidal imbalance, for here again we picture an excess of crystalloids over and above the surface-holding power of the colloids, and as such, this theory of a reason for stone works in with the four previous ones as an interesting factor but not as an actual initiating lesion.

There seems to be a broad gap between the theoretical mechanism for possible stone growth in a renal pelvis, and our accurate knowledge as to why a stone came into existence. I can see reason in these various theories on the etiology of stone that can be of importance as to how a stone may grow, but none of them, to my mind, give a satisfactory reason as to why a stone does occur, where it starts, how it actually originates and why it is not washed away when still microscopic. It is particularly significant that no one of these five theories can be depended upon to produce a calculus in anywhere near a one hundred per cent of cases. We seem to have a plethora of theories and a paucity of facts. In the first place, it is no unusual thing to watch a patient with a chronic phosphaturia, a chronic oxaluria, or probably most interesting of all, a chronic cystinuria, in whom, in spite of the persistency of this perversion of the normal, a stone does not form. Secondly, we must realize that when a stone does occur in the renal pelvis, it virtually always starts as a unilateral lesion. Thirdly, as no one of these theories is infallible in the production of stone, so also the control of no one of them is of unfailing virtue in the prevention of the recurrence of stone. It is thoughts such as these which make me feel that these five theories, concerned with the etiology of stone, are all essentially secondary reasons, and none of them can be classed as a primary cause of stone formation. Nevertheless, they are of the utmost importance, even as secondary reasons, when one takes up the subject of the prevention of recurrence, for as such, each one has to be removed from the picture, or it remains as a potential invitation to the growth of a recurrent stone.

The *difficult part* of this problem is to fit into these etiological theories the *known variation* in the actual chemical character of the stone itself. Such concretions are known to be formed from calcium oxalate, calcium-magnesium phosphate, calcium carbonate and calcium-magnesium-ammonium phosphate. Again, sodium urate, ammonium urate, uric acid and the rarer salts of cystine and xanthine are found. It is easy to see that a disturbance in the calcium metabolism can very readily be a factor in the

growth of a calcium stone, but there it must end, and certainly could have no relationship to the formation of a stone of uric acid, a urate or one of the rarer salts.

It has been the existence of this multiplicity of theories, with the known divergence of stone chemistry, that has made it difficult for anyone to grasp or formulate a theory for stone formation, and this difficulty, I am sure, has been a reason why surgery has adopted the unfortunate middle ground of speaking of stone disease as an entity and, by so doing, losing all sight of etiology. Such a point of view has, of necessity, made it impractical to adopt any steps toward stone prevention and has led to the regrettable surgical attitude of removing a stone with a clean conscience and with the feeling that the entire surgical lesion has been corrected.

For the past few years I have attempted to explain the inconsistencies in the formation of a renal calculus by trying to separate the picture according to the chemical composition of a stone. This is to say that one would make a separate chapter according to the chemistry of a stone and then try to write into that chapter a causal factor and perhaps elaborate further on diagnosis, on treatment and on prevention. In some of our pictures this has not been so difficult to do. The stone which follows a vitamin A deficiency has been shown to be consistently formed of calcium-magnesium phosphate. The stones which follow hyperparathyroidism have likewise been of a definite chemical character and always a calcium salt. Again, those stones which form in the presence of an infection, which produces an alkaline urine, have been consistently a triple phosphate deposit.

But, there has been one very definite stumbling block which this mode of approach has not explained, and that is the occurrence of a laminated stone, in which might be a core of uric acid, a second lamination of urates, a third layer of pure oxalate crystals and even a fourth deposit of calcium-magnesium phosphate. The failure to explain these phenomena has caused me to set aside the pure chemical theorization and to approach the story of stone from a new angle of thought.

Let me present this hypothesis in very brief form. I believe there are but two basic causal factors which are capable of initiating the development of a stone in a renal pelvis. The difference between these two causal factors can be sharply delineated, the resultant stone shall be termed a "primary" or a "secondary" renal calculus, dependent upon which of these two causal factors is present.

In the *first class*, or the "primary" renal calculi, one finds those cases in which the clinical picture is especially clear, and every physician

has experienced such a case in his practice. To it belongs the individual in otherwise perfect health, who is suddenly seized with the clinical state known as calculus colic. Examination finds a man in the throes of renal colic due to a calculus measuring up to a centimeter in size, which has suddenly entered the upper ureter and has obstructed the same. X ray reveals a shadow just opposite the lower pole of the kidney. Urography proves this to be a calculus lying in the ureter, and behind it a normal pelvis that is just beginning to show the evidences of back pressure.

As I say, this clinical picture is unquestionably familiar to everyone and one stops to ask these questions: 'What caused that stone?' 'How long has it been growing?' 'Where has it been?' And why has it suddenly produced this severe clinical picture?

An answer to these questions I believe to be not difficult of formulation. It is my firm conviction that such a calculus has arisen as a gradual crystallization upon a lesion in the renal pelvis. Somewhere in the renal pelvis, most probably on a papilla, or in the papillary-calycal angle, there has occurred a primary ulcerative lesion. It is of small size but with a raw surface, and thereon has occurred, through one of the above theoretical reasons, the precipitation and coalescence of urinary salts. Following the colloidal chemical theory, the salts so precipitated are those which at that time are especially supersaturated in the urine. As such the deposit starts, and once started, has every reason to gradually increase in size. Being so fixed, it gives no symptoms of its presence until, due to some factor be it trauma, size, weight or sudden motion, it ceases to be a fixed concretion and breaks loose from its point of origin. The next natural course is nature's effort to extrude the calculus, and such extrusion means passage down the ureteral line of drainage with the result that one sees the patient in acute ureteral stone colic.

A stone of this type has interesting peculiarities, both on the x ray plate and on examination with a hand lens after its removal. It is frequently heart (or arrowhead) shaped, or else a long oval, and is characteristically of a single salt deposit. The heart-shaped stone is generally smooth with a rounded point, while the ovoid stone has a highly crystalline surface and one end, though evenly developed, shows sharp crystal points. But the opposite end of either variety shows every evidence of having been a point of mural attachment. One can visualize how such a stone crystallized upon a basic papillary or calycal, ulcer, how from such an origin further crystallization augmented growth, how it remained silent because fixed, how its shape originated, and so it developed

in an otherwise normal pelvis, until its size allowed of its being no longer adherent.

One thing remains to be explained, and that is the primary initiating lesion. Here it is my feeling that primary papillary or calycal ulceration is of much more frequent occurrence than we have been led to suppose or even made to think. Such ulceration could be either infectious, trophic, or allergic. In the past our pathologists have routinely examined kidneys at postmortem by opening them from the convex surface in toward the hilus. As you well know, it is infrequent that the pelvis is thus competently opened or, if subsequently cut, is completely searched. You cannot find in the textbooks on pathology of today any mention of any pathologic condition occurring in the renal pelvis other than the generalized one of pyelitis or the very self-evident one of tumor. The finer pathology of the renal pelvis has yet to be written. I would like to mention the brilliant work in this respect recently published by Lieberthal and von Huth, in regard to the early pyelitic lesions in renal tuberculosis. The facts demonstrated by them in renal tuberculosis are pregnant with possibilities in regard to the more frequent occurrence of pelvic ulceration in other infectious states.

In the *second class* belong the calculi which form in a renal pelvis in which urinary stasis is present because of some obstruction to the normal urine outflow. Examination by urography reveals the presence of hydronephrosis, and the stone grows as a complication of such a static condition. It has been the tendency to look at this picture in a reverse order, making the stone the cause of the hydronephrosis, rather than the resultant effect or complication of a hydronephrotic pelvis. Such stones are frequently found actually floating and freely movable in their habitat. They are nearly always smooth and round, sometimes multiple and faceted, and frequently laminated, being composed of different urinary salts. To me this picture is so closely akin to the recognized condition as seen in vesical calculus that it should need no further exposition.

As the first class, which form as crystallizations upon pelvic ulceration, are termed "primary" renal calculi, so this second class, postulated upon faulty pelvic drainage, are called "secondary" renal calculi. The actual origin of the "secondary" renal calculi demands nothing more for a nucleus than a cluster of desquamated cells, a bacterial clump or a tiny clot of blood. They are as easily assimilated into our clinical pabulum as the familiar vesical stone, and on equally parallel lines runs the observed fact that when all the essential factors appear to be present for a stone's growth, it does not, of necessity, materialize.

It remains to be explained why those stones, which are now termed "secondary" are fre-

quently found to be formed of varying chemical laminae. This occurrence should almost be expected rather than, of necessity, be explained. There is no doubt that, in such a supersaturated liquid as the urine, certain salts, at certain epochs, reach the threshold of their insolubility and precipitate in pure form over a period of time. Under these conditions there will be periods when one type of salt will be more easily precipitated than others, and the laminations will correspond to exactly such periods. Likewise, it is to be recognized that the growth of such stones can and does vary according to the type of deposit then being made, and we are all cognizant of the slow growth of the uric acid and urate stones, as compared with the rapid growth of the earthy and triple phosphate stones. The factor of supersaturation of a urinary salt becomes of greater consequence the more we dwell on these facts and, as such, lends greater weight to the rôle of colloidal chemistry.

Discussion—The problem of renal stone has been before the medical profession long enough for us not to know more positively its cause and its prevention. The problem is a complicated one and the effort to simplify it to a single given causal factor has undoubtedly led to delay in understanding, to multiplicity in theories and to disappointment in results.

As might be surmised, there are border-line cases and long-standing complicated cases whose explanation is buried in a confusion of pathology. It has been my purpose to look upon the simple case, the one without complicating elements, and by so doing try to see behind the scenes at birth. Such has led to the conclusion that some stones arise in what we would call a normal shaped pelvis and one whose drainage is to all appearances perfect, such I have termed "primary" renal calculi, others are found in pelvis which, for various reasons, are suffering from faulty drainage and such I have termed "secondary" renal calculi.

I have tried to present an argument that our present theories explanatory of the cause of renal calculus fail of their purpose and likewise do not answer pertinent questions in regard to the clinical course of the disease. For these reasons I have placed them in the category of important but secondary causes.

The theory of vitamin A deficiency, that of colloidal imbalance and that of parathyroid adenoma, play important rôles only in deciding the chemical composition of a calculus.

The theory of stasis stands, when such can be demonstrated to exist, and in such cases the presence of a calculus is to be considered a secondary and complicating factor of the stasis. The laminated calculi will be found in this group, as likewise most of the multiple stones, the large solitary stone, and the silent renal calculi.

The rôle that infection plays is twofold. In the case with stasis it enters as simply another contemplating factor to the pathological and surgical picture. That infection plays a far more important rôle in the causation of minor papillary or calyceal lesions in kidneys that are otherwise normal, and by so doing creates a focal point on which crystallization starts, is the crux of my hypothesis. It has been outlined how such stones may be recognized and it has been suggested that such should be termed "primary" renal calculi. There remains to be discussed the likelihood of such minor lesions. Experimental work carried on during the past three years in an effort to produce such minor lesions has been extremely difficult and bitterly disappointing. Trauma, electrical fulguration, chemical burns, and early lesions of vitamin A deficiency animals have been studied without conclusive results. The experiments of Rosenow suggest the rôle of distant focal infection and in clinical cases it has been sought and has been constantly found with startling consistency. The work of Lieberthal and von Huth, already referred to, in which they sought and demonstrated minor papillary or calyceal ulcers in early and in extremely latent cases with tubercle bacillus, confirms the idea of incipient pelvic lesions in blood borne infections. The spontaneous occurrence of the Hunner ulcer of the bladder (studied pathologically by Allen J. Smith and called by him "pan-mural cystitis"), long recognized as an example of suspected metastatic infection, is another analogous lesion, and it is likewise pertinent to recall the familiar occurrence of the precipitation of salts on various ulcerative bladder lesions. When we add to these possible factors in the field of infection the additional possibilities of circulatory troubles, of metabolic diseases, and of allergic reactions, it seems safe to surmise that pelvic lesions do, and must occur, in greater frequency than at present suspected. Fenwick's papillitis is another case at point. We have had the privilege of studying four cases where frank renal hematuria was clearly attributable to allergic reaction to food products. Such bleeding must of course have been accompanied by actual papillary or calyceal lesions and is recognized as belonging to the interesting group of anaphylactoid purpura. This adds just another possibility to the minor lesions of the renal pelvis wherein if the conditions be right, calcification could properly follow.

The hypothesis offered is that upon such a lesion crystallization of a "primary" renal calculus first takes place, and that its chemical character depends upon the salt in the urine, which at that epoch, is the most supersaturated one.

Therapeutic Deductions—Of the "primary" stones the vast majority will be found as ure-

teral calculi though some, of course, get no further than the true ureteropelvic junction. If our deductions are acceptable, their actual origin depends upon extrarenal causes. For accentuation one is tempted to put them down as due to prerenal causes.

Today I am trying to study every case of "primary" renal stone as one would study an arthritis—search out focal infection, look for allergic reactions, think of dietary habits and make the necessary laboratory studies for metabolic disorders, for in such I believe both the cause and the prevention of recurrence are to be found. The persistent stone former is a perfect laboratory for active research in this subject. There is a pet theory among some that patients go through a stone forming age and that, once beyond that age they cease creating further stones. I would like to suggest that in all probability, the intercurrent removal of an infected tooth, a bad gallbladder or some other chronic focal infection had much more to do with the cessation of the stone forming habit than the mere passage of the years. Focal pelvic infection must be combated by every active means at our disposal, but in addition let me urge that the patient be studied as a whole and with the intention of ruling out every possible prerenal factor that may play a part.

The "secondary" calculi, on the other hand present the real surgical problem. Here the lithotomy is but a step in the proper surgical handling. Keeping ever before us the picture of bladder stone let us approach each and every case of "secondary" renal calculus in exactly the same spirit making the stone of secondary interest, as compared with the acute problem of correcting the primary hydronephrotic state. Here the cause is always intrarenal (intrapelvic), and it is beyond the scope of this paper to discuss the surgical possibilities. But if the correction of faulty drainage is not definitely and satisfactorily obtained, let me advise the removal of the kidney, for recurrence of stone is almost a certainty.

The final word on the prevention of the recurrence of "secondary" calculi was said long ago (and then in regard to vesical stone) that nothing short of perfect drainage of the pelvis and sterilization of the same will give any assurance of success, and let me add that this is at times most difficult to attain.

DISCUSSION

Dr. JOHN H. CRYNORHAM. I am greatly impressed with this broad conception that our guest has taken in regard to the etiology and treatment of renal stone. As I understand him he includes five possible causes and he attributes the formation of stone to no one of them alone but to a possible combination of any or all of them. This broad point of view means advancement in the understanding of this subject. While he accepts the two causes that we have all been brought up with that is, stasis and infection

he emphasizes what we have more recently been hearing about deficient vitamin A diet, and includes recent knowledge in the field of endocrinology and the chemical condition of the urine as well as focal infection as possible etiologic causes. That he has dealt with these various factors and made a correlation of one or more or possibly all of these factors, is a rather new and broad point of view which I think is a somewhat new interpretation, and is to be commended. His consideration of the therapeutic measures at our command takes as fundamental the overcoming of stasis and infection when it exists. This is something that we have long appreciated. His attitude regarding the proper diet and the other two metabolic factors those that have given knowledge from a better understanding of endocrinology and the chemical composition of the urine as well as seeking focal infection in various structures of the body are relatively new and indicate that progress may be made along these lines. His attitude in regard to diet is substantiated by the experimental work of Grossman and that of Osborne and Mendel as well as the recent communication of Higgins which this society had the pleasure of hearing. His correlation of this information with the other factors that he has mentioned, seems to me to be the best interpretation and with further work along these lines that Dr. Randall indicates, may well be helpful not only in handling existing stone but in connection with its prevention and recurrence. Personally I have received much information from the communication and wish to add my word of appreciation of what Dr. Randall has brought to us this evening.

Dr. WILLIAM C. QUINBY. Mr. Chairman Gentlemen—it has been a great pleasure to listen to Dr. Randall's theories as well as his knowledge on this urologically universal subject of stone formation. I am glad that he takes the point of view that stone formation is not a disease entity but rather the result of a temporarily abnormal state of the body. I know Dr. Randall wishes us to visualize the kidney as an organ which has various states of being according to those of the body in which it lies. A persistent body state such for instance as occurs in deficiencies of diet, must inevitably have an effect on the kidney. From the physiological point of view the kidney first liberates from the blood stream a fluid of the same constituents as the blood serum minus its albumin. Following this before the urine is propelled into the pelvis, there is absorption by the tubules of certain constituents which the body cannot afford to lose but which must be eliminated through the glomerulus because otherwise filtration would not be possible according to normal osmotic laws. Therefore we have the problem not only of filtration but also of absorption which produces concentration. So the crystalloids and colloids found in the urine are in some instances much more concentrated than they are in the blood stream from which the urine is made. This means that the kidney normally is a labile organ which must be constantly shifting its various activities to compensate for the various changes in composition of the blood flowing through it.

It is conceivable that inability of this absorptive or concentrating power of the kidney at one time or another and for reasons as yet not understood leads to the upset of the colloid and crystalloid balance of the urine with resultant formation of stone. We know something about infection and stasis as factors in stone formation. Vitamin deficiency we are beginning to know something about. The intimate chemistry however of the causation of stone has not yet been elucidated.

It is not inconceivable that we may later find in

the kidney an analogous situation to that for instance which occurs when some anesthetics are administered. Here chemical reactions occur in cells of the body, especially those of the brain, which are reversible. It is probable that a solution of lipoids occurs which, after the anesthetic has been removed, reverts back to the normal condition. Possibly a similar chemical reaction may occur in the tubule cells of the kidney under circumstances as yet unknown. Certain factors may conceivably depress them at one time, forbidding or at least interfering with normal absorption from the glomerular product, at another time allowing normal absorption to continue. In this way, it is fairly easy to see how the colloid balance of the urine can be temporarily upset.

These remarks are at present entirely theoretical and have no practical bearing at the moment. Nevertheless, we are learning more and more about stone formation, due to such analysis of the subject as has been so ably given us by Dr. Randall tonight.

DR. FULLER ALBRIGHT, *Mr. Chairman, Dr. Randall, Members of the Society*—I am very much indebted to this society for inviting me here tonight and giving me an opportunity of hearing this very interesting presentation. Dr. Randall brings up the question of what keeps the stone in the kidney until it is large enough to be a stone. He offered a very interesting suggestion as to what that may be. My work at the Massachusetts General Hospital neither confirms nor disproves this hypothesis. Certain facts I do know.

We have had twenty-nine cases of proved hyperparathyroidism at the Massachusetts General Hospital and nineteen of these had kidney stones. If one allows for the four cases of bilateral stones, of the fifty-eight kidneys in these twenty-nine patients, twenty-three had had kidney stones, about 40 per cent. We also know that in hyperparathyroidism there is a marked increase of calcium and phosphorus excretion in the urine. We know that these stones are made up largely of calcium phosphate. It is not too much to assume that the reason that this group of patients, as opposed to another group of patients, has stones is because the individuals of the group have an increased amount of calcium and phosphorus in the urine. In other words, whatever is happening in most cases of kidney stones, it would seem that in these cases the one factor is that they have too much of something in their urine. I doubt that there is any other factor in these cases which would not be present in normal individuals. If these stones in hyperparathyroidism are primary stones and the theory of Dr. Randall is correct, it would seem that normal people have about a 40 per cent tendency to have ulcers in any one kidney and would have about a 40 per cent chance of forming stones in any one kidney if they had hyperparathyroidism. That, at first, seems rather unlikely. On the other hand, on looking at these pictures of Dr. Randall's, I can see one possibility of the above reasoning being incorrect.

As we study these cases of hyperparathyroidism we notice that many of them show phosphate casts in the urine. These casts are all formed in the collecting tubules. Most of them are formed at the papilla, just where the tubules enter the pelvis of the kidney. As you see them in sections, quite often the cast becomes attached to the papilla and it is not unusual in x-rays to actually see calcium deposits in the papilla, right at the end. If you picture the calcium phosphate cast being located at the end of the papilla, it might start a little ulcer. There might be an increased tendency, therefore, for ulcers in these cases. That would bring

our experiences in line with the hypothesis of Dr. Randall.

Our studies at the Massachusetts General Hospital have all started from our interest in hyperparathyroidism and we have tried to see whether what we have learned in that condition might not help us in the study of stone formation in general. This question came to our minds. In hyperparathyroidism we believe the one predisposing factor is the increased amount of calcium and phosphate in the urine. How much increased is it? It is not any more than twice as much, if that, as you get by drinking a lot of milk at any one time. The point I wish to bring out is that the amount is not so extraordinary, but that an individual in his regular diet might pick such a one so that the net result as regards the composition of his urine would be comparable with hyperparathyroidism. We believe more and more the theory that increased crystalloids in the urine are the primary factor in most cases of stone formation. This is probably true of the calcium phosphate stones of hyperparathyroidism, of the cystine stones of cystinuria, of the uric acid stones of gout, of the phosphate stones of the milk drinkers. Why isn't its application even more general? As we study the various stones, most of them are phosphate stones and phosphates are a very common substance for people to take. If they take a large amount of alkali at the same time, as with the Sippy régime, they get the ideal background for the precipitation of these stones.

In conclusion I would say that I have no information as to how the stone actually gets started. I repeat that it is my guess that the reason why some people get stones and others don't is because they have a change in metabolism or a peculiarity of diet which results in their having more crystalloids in their urine than can be held in solution. In the case of phosphates, this may be due, not to an increase of phosphates, but to a lack of acidity of the urine.

DR. J. DELLINGER BARNEY. After hearing this interesting paper of Dr. Randall's, I am sure it is a most difficult thing to discuss a subject like this in the face of all we have heard tonight. We are beginning to recognize that the subject of urinary lithiasis may be classed very well with cancer or tuberculosis. I think we all recognize also that urinary lithiasis seems to be regarded not as a disease so much as a symptom of something wrong, either locally or generally. Just what that is, we are all trying to find out. Dr. Randall has spoken of all these various theories and I am very much interested and very much impressed by the clarity with which he has told us about them.

Without being critical, I want to ask questions, simply because it might help me to get a little more light on the subject.

In regard to stasis, how many cases do you see with stone as compared with stasis without stone? How many cases of infection of the kidney without stone as compared with those with stone? If it is a vitamin or dietary disturbance, why do we get stones only on one side and not necessarily on both sides, because presumably that dietary deficiency affects one kidney quite as much as the other? How many cases do you see of focal infection, teeth, tonsils, sinuses or whatever, with stones, as compared with the numbers of patients you see without stones? I am not trying to explain this, I am just pointing out what we all acknowledge to be the facts. In regard to hyperthyroidism, with which I am a little more familiar, it is a little difficult to see how or why, after removal of the parathyroid gland, and the passage of the stone or its removal, stones do not recur so far as we know. Infection is still there, the diet perhaps has not

changed and the conditions are not essentially different or at all different from what they were before and yet stones do not recur. Even if there is an excess of calcium in the urine the stones are more often unilateral than bilateral. It is a peculiar problem and I don't know any better way to get at it than along the lines Dr. Randall has suggested, namely that we must get the pathologists to study the kidney with a great deal more minute care than heretofore, hoping that we may find some of the lesions which Dr. Randall has described and also it seems to me we might well profit by the more intensive study of the average normal patient. That may be theoretical but if we could theoretically take a group of people and keep careful record of their urine from a chemical standpoint varying with the diet, we might throw some light on the subject.

After a good deal of thought, without doing very much about it because it is hard to know what to do I have come to the conclusion that after all it is a question for further metabolic study, further dietary endocrinological and physiological study. It doesn't matter whether you, our physiologists or chemists do it, but I think along these lines we may eventually find the answer to this problem.

Dr. G. G. SMITH: I would like to ask Dr. Randall what would happen if he gave these men uric acid.

Dr. EDWARD J. O'BRIEN: I would like to speak of a very interesting case of a child three months old that had renal calculi. I saw this case a couple of months ago at the Cambridge City Hospital. The child was brought to the hospital and sent to the Pediatric Service and was diagnosed by the pediatricians as marasmus and a severe gastroenteritis. The child did not do very well but died. At autopsy, among other things, was discovered the presence of multiple calculi in the kidneys. Dr. Timothy Leary, pathologist at the hospital in his report of the autopsy states "The kidneys combined weight was 36 grams. On section they presented grayish pink surfaces with normally prominent pyramids. Cortex was 2 cm wide. Capsules stripped readily to reveal lobulated grayish pink smooth surfaces. Pelvis and ureter on left normal. In calices and pelvis of right kidney there were numerous small solid yellow calculi less than 1 cm. in diameter. Ureter normal."

He further reports "Received several pinpoint brownish calculi together with two which measure approximately 1 mm. in largest diameter. Surfaces smooth and slightly rough. Tests of oxalate, calcium and phosphates were negative. Uric acid was positive."

This was an undernourished child and was probably a case of vitamin A deficiency and that was probably the reason for the formation of these calculi.

I report this case because I feel that we probably would find more calculi in these infants if search was made for them at autopsy.

Dr. CLYDE L. DEMING: I would like to ask Dr. Randall two questions. His theory of papillary ulceration is an interesting observation and he offers three theories for this infection atrophic lesion and allergic lesion. I would like to know if he has considered the theory which Dr. Cushing stated some time ago when he noticed that in brain lesions, especially of the base, certain ulcerations occurred in the stomach and in the intestines, these ulcers being epithelial ulcerations of an acute nature. Recently Parker has described in his work on injury in the thalamus and ulcerations of the epithelium of the stomach and in the intestine. Recently we have had at least fifteen autopsies with injuries to the base of the brain followed by acute ulcerations and perforations of the stom-

ach and intestine. Might not then some brain lesion have a bearing on the ulcerations of which Dr. Randall speaks?

The second question is based upon Dr. Loew's work, which shows that stimulation of the vagus has produced an aceto-choline substance which causes ulceration of epithelial surfaces. Since the autonomic system has now been demonstrated to run to the base of the brain may it not be possible that some stimulation of the nerves causes that nerve to secrete a substance which would produce a localized ulceration of an epithelial surface such as the calyx of a kidney?

Dr. RANDALL: I came to Boston with the expectation of a keen discussion of my subject and I have not been mistaken in my interpretation of the New England Branch and thank you for the generous way in which you have given me your reactions and ideas. I have attempted to present this subject from a purely clinical point of view. I have studied sixty-seven recent cases (twenty-three of renal stones and the remaining ureteral stones) in an effort to establish some relationship to the theory of pelvic pathology as a basic initiating lesion. When I say ulceration I do not mean that it has to be infectious, trophic changes, infarction, perhaps allergy may play their parts. That focal infection does play a role I know because it has been interesting to see how regularly something real in the way of an acute infectious process has antedated the symptoms of primary stone by something under two months. I know the clinical aspect is a poor way to present a subject to prove anything but if you seek it, that infectious side is too constantly present to overlook and when we come to the question of prevention I am certain it is to be eliminated as one of the most frequent causes of recurrent calculi.

I was delighted to hear Dr. Deming. I said the finer pathology of the renal pelvis has yet to be written.

I have been especially interested in Dr. Albright's work but he answers his own question, for I do not mind if the tubules are congested with precipitated salts, they must come out from the tubules on the papilla, causing trophic changes and further crystallization. Of course his picture is on one side only that of calcium phosphate and it doesn't enter into the picture one iota if uric acid calculi are present. Being so consistently calcium phosphate it doesn't even touch the calcium carbonate stones which have run much higher than any other salt in our chemical analysis of stone in over 250 cases. It apparently doesn't enter into calcium magnesium phosphate stones or the triple phosphate ones. I think the chances are that in the parathyroid picture the early lesion is a papillary erosion. You must realize that you can have inflammation and ulceration without infection. Those pictures I showed of our rat experiments in vitamin A deficiency reveal a clear-cut ulcer but no infection.

Dr. Cunningham brought out a point I am glad to answer. That is, in the prevention of stone in the group I have classified as primary I suggested in the paper that they can almost be called prerenal because their primary trouble is due to something outside the kidney. Therefore, prevention consists of the removal of the stone and then immediately you have to take steps to prevent recurrence by a close analysis of your patient from every one of those different angles, focal infections, metabolic studies, perhaps allergic reactions, etc.

Dr. Barney asked for some figures. I can give them to him. In twenty-seven cases of renal calculus found in the kidney pelvis or above the ureteropelvic junction I could class but three of

them as primary I showed you pictures of two of them Twenty one of these I classed as true secondary renal calculi They are secondary to the following causes and associated stasis four associated with supernumerary vessels, three were metabolic, three in unrotated kidneys, two in pyonephrosis, two with tumor, two with ureteropelvic stenosis, one with ptosis, one in a horseshoe kidney, one in a case of transplanted ureter That leaves three unclassified, and they were cases of extremely advanced and destructive pathology The vast majority of intrapelvic stones are of the secondary variety, and that means secondary to something that caused urinary stasis They are strictly analogous to our vesical calculi

Of thirty six cases of stone in the ureter, sixteen could be easily classed as primary calculi, as defined in the paper The remainder defied classification, two were multiple and bilateral, nine were just low

ureteral stones, passed after cystoscopic manipulation, and one occurred in a tuberculous kidney The majority do, however, separate themselves fairly easily into primary and secondary classifications, and I omitted this evidence because I did not think it conclusive or necessary I have tried to take the simplest type of uncomplicated case and by analyzing it, to approach a possible explanation and cause It isn't possible to classify every one In other words, my effort has been to try to simplify things all the way along the line, and if (as I believe we can) we are able to show the close relationship of only the infectious origin of the primary stones and the obstructive origin of the secondary stones, we need only to grasp these two hard facts to begin to have a definite program on how to prevent, in a large percentage of cases, recurrence of renal calculi

THE MANAGEMENT OF FIBROMA OF THE RETROPHARYNX*

Report of a Case

BY HOLLIS L. ALBRIGHT, M.D.†

BENIGN tumors of the pharynx and retropharynx are rare Malignant tumors of the base of the tongue, naso- and oropharynx are far more common Because of the deep inaccessibility of benign tumors of this region, growth may continue unabated until serious encroachment upon the soft and bony structures at the base of the skull occurs, ending in the death of the patient Such a case, clinically diagnosed as a pharyngeal fibroma, was recently seen by the author‡ in which the apparently benign growth over a period of years had filled the oro- and nasopharynx, caused pressure necrosis of the antral and orbital walls, with widening of the interorbital space and ocular distortion The tumor at autopsy, however, proved to be a slowly growing adamantinoma

Steadily enlarging discrete tumors arising in the deep tissues of the neck are sometimes regarded as malignant growths, inremovable, with reliance being placed upon radiotherapy for palliation The following case report is that of a patient in whom the possibility of a malignant growth in this region was considered by Dr George H Powers of Boston who referred the patient to the Clinic for opinion and operation (Fig 1)

CASE 49450—1935—S W, a forty-nine years old white unemployed male, was admitted on July 25, 1935 complaining of a swelling of the upper right lateral neck which began seven years ago and was steadily increasing in size The tonsils had been removed in 1914 The patient was well until seven years ago when he had an abscessed lower right jaw following extraction of two teeth Swelling of the right neck in the submandibular region developed at that time and had never disappeared since To-

gether with the steady increase in size of the growth, there was progressive difficulty in swallowing plus loss of appetite and loss of fifteen pounds during the past year Speech became slurred and indis-



FIG 1

tinct, the voice became lowered in pitch and respiration audible There was increasing general weakness

Examination revealed a 119 lb lean, sallow male who showed evidence of considerable loss of weight General examination was otherwise negative There were no moles or pigmentation of the von Recklinghausen type In the upper right cervical region there was visible change in the contour of the neck due to protrusion of a rounded, smooth, firm swell-

*From the Lahey Clinic Boston Mass

† Rachenfibrom —Pathological Institute—Eppendorf Krankenhaus Hamburg Germany—January 1935

‡ Albright Hollis L —Associate Surgical Staff New England Baptist Hospital For record and address of author see "This Week's Issue" page 266

ing 8 cm in diameter. There was displacement of the larynx to the left. When the patient swallowed the tumor was seen to be pushed forcibly from its deep retrolaryngeal position so as to cause markedly increased irregularity in the contour of the lateral neck. The tumor disappeared beneath the carotid vessels with displacement of the latter outward and posteriorly.

The digastric muscle was then divided at its tendinous attachment to the hyoid bone and the posterior belly was reflected superoposteriorly thereby exposing the presenting surface of the tumor. The carotid vessels were dissected free and retracted

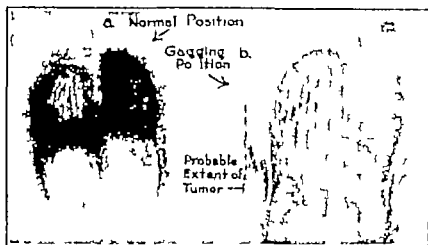


FIG. 2.

Intra-oral examination showed marked protrusion of the tumor into the right posterior and lateral pharynx, with intact pharyngeal mucosa. It filled two thirds of the pharyngeal cavity with displacement of the uvula upwards and to the left. The tumor extended from the base of the tongue to above the soft palate and overhung the larynx with displacement of the latter to the left. (Fig. 2)

Laboratory studies were essentially negative. The bleeding and clotting times were normal. The blood Hinton was negative. A diagnosis of evidently benign retropharyngeal fibroma of probable salivary gland origin was made (Fig. 3)

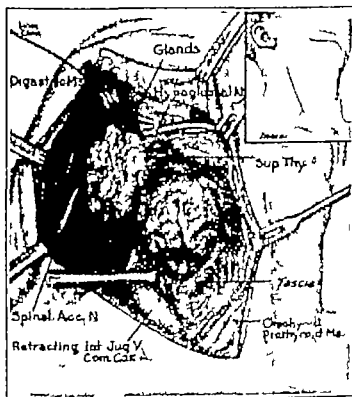


FIG. 3

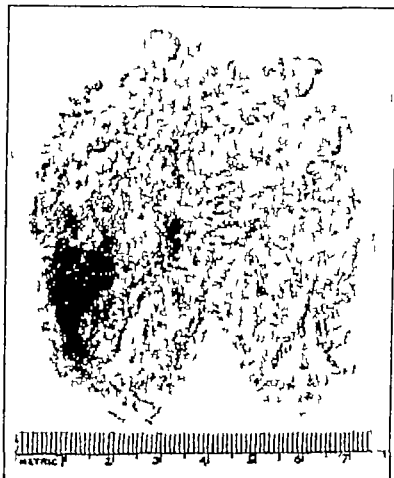


FIG. 4



FIG. 5

Operation—July 27 1935 by Dr. Frank H. Lahey. An oblique linear incision was made along the anterior border of the right sternomastoid muscle which was freed and retracted posteriorly. The spinal accessory nerve was preserved intact, after which the posterior belly of the digastric muscle, and the hypoglossal nerve were brought into view

laterally. The mass was well encapsulated and was delivered by digital separation of the planes of cleavage. It was necessary to divide the superior thyroid artery. The tumor was removed with its capsule intact. No attachment to nerve fibres or trunks could be made out. A gauze drain was placed

in the tumor bed and brought out through the central portion of the wound. The incision was then closed with a layer of subcutaneous sutures of plain catgut and Michel clips in the skin.

Pathologic description by Dr. Shields Warren. The specimen consists of an ovoid mass of tissue, weighing 85 grams, measuring 9 x 45 x 45 cm. It is completely encapsulated and the surface is smooth. Cut section reveals a rim of yellowish gray, slightly translucent tissue from 5 to 10 mm and thick surrounding ragged cystic tissue traversed by fibrous strands, many of which contain clotted blood.

Microscopically the tumor is surrounded by a definite fibrous capsule. Peripherally, there are rows of fibroblasts with parallel orientation and marked palisading of the nuclei. Collagen is present in large amounts and is fairly dense. More centrally the tissue becomes edematous and is made up of almost acellular collagen with dilated blood vessels and some perivascular tumor cell clusters. The neoplastic fibroblasts are uniform in size, well differentiated and no mitoses are seen. There are broad regions of hemorrhage often with peripheral hemosiderin deposits. The blood vessels are thin walled. The most characteristic features of the tumor are the well-defined strands of somewhat elongated fibroblasts with prominent palisading of the nuclei. Diagnosis: Fibroma, probably of perineural origin.

On the first postoperative day, the patient had a transient spell of acute dyspnea, choking and cyanosis which lasted fifteen minutes. However, with loosening of dressing and bringing the patient up into sitting position his condition became immediately better and his convalescence henceforth was

excellent. The drain was loosened on the third and removed on the fourth day. At the time of the patient's discharge from the hospital on the eighth day, the wound was well healed except for the small draining sinus. After the fourth day, there was noticeable improvement in the voice, with less slurring of speech, and the patient could eat a normal meal.

He was seen one month after operation. There was slight drainage from the healing sinus, which had decreased considerably in size. His condition was much improved. He had gained weight, and speech and deglutition were normal. (Fig. 6.)



FIG 6

At the end of two months (September 20, 1935) he had gained twenty seven pounds, felt well and was restored to his normal activities.

IONIZATION IN THE TREATMENT OF HAY FEVER AND ALLIED CONDITIONS*

BY SAMUEL W. GARFIN, M.D.,† AND SAMUEL M. PEARL, M.D.†

INTRODUCTION

THE use of the galvanic current in the treatment of various nasal affections has been known to medicine for many years. St. Clair Thomson¹ mentions this as a means of treating "nasal hydropnea," the source of his information being an article published by Creswell Baber in 1898.

Ionization, using zinc solutions, has also been widely employed in various affections of the nasal cavities. Noire² has employed this method of treatment for the reduction of large inferior turbinates and reports good results with it. Fox³ used it in the postoperative treatment of maxillary sinusitis and Hollender and Cottle⁴ for chronic rhinitis. Harris⁵, Feldman⁶, Gale⁷, McCoy⁸, Sputh⁹ and many others have employed zinc ionization in many rhinologic conditions and report successful results.

Intranasal zinc ionization for the treatment of hay fever and its allied conditions is of more recent date. Hollender¹⁰ has administered more

than 1000 ionization treatments during the past ten years for various rhinologic conditions and more recently has utilized this method extensively for seasonal and perennial hay fever. Démétriades¹¹ and Franklin¹² report favorable results in the treatment of vasomotor and hay fever conditions. Of more recent date, encouraging results are reported by Warwick¹³, Alden¹⁴, Hays¹⁵, Haseltine¹⁶, Tobey¹⁷ and others.

Ionization

There are three principal actions of electricity on conductors, mainly, chemical, thermal and electromagnetic. Chemical action is mainly produced by direct currents. When a galvanic (direct) current is applied to an electrolytic solution, this latter is split or dissociated into its component atoms, and negative and positive ions are liberated. This chemical process of dissociation is known as ionization¹⁸. The transmission of these chemical ions into the tissues by means of an electric current is known as "Phoresis." The process is really Iontophoresis and not Ionization.

Historical

Iontophoresis or Ionization was first introduced about the beginning of the century and

*From the Department of Immunology and the Department of Laryngology of the Boston City Hospital.

†Garfin, Samuel W.—Assistant Surgeon Aural Service Boston City Hospital. Pearl, Samuel M.—Physician for Immunology Boston City Hospital. For records and addresses of authors see This Week's Issue page 266.

at that time had many enthusiastic followers Leduc¹⁹, the chief originator of ionic medication, maintained that its chief advantage was that it enabled the introduction of drugs in any quantity and at the exact point required. He proved by classical experiments that the effect was actually due to the flow of current and not to simple absorption by the skin from the wet pad soaked in the drug. A pad of gauze moistened with a solution of strychnine sulphate was applied to the internal surface of a rabbit's ear and held down by a small metal plate. Even if the pad was thus left in contact for a long time, nothing happened. If however, the pad was made part of a galvanic circuit and connected to the positive pole while an indifferent pad electrode moistened with water or salt solution placed against any other part of the rabbit's body was connected to the negative pole, upon starting the current flow in a few minutes the rabbit was seized with convulsions and died with the symptoms of strychnine poisoning.

More recent investigations have also established that the moment a medicinal ion enters the body, it is almost immediately deprived of its charge by the electrolyte of the body fluids, the blood stream and lymph. Everything points to the fact that ions from the outside cannot be introduced into any but the most superficial tissues, and beneficial results in lesions of deeper structures when ionic medication is employed are simply due to the passage of the galvanic current itself and not to any medicinal solution in which the electrodes are soaked.

Method of Procedure

The treatment consists in thoroughly anesthetizing the entire nasal cavity, following this the nasal chambers are again packed with cotton strips saturated with a metallic solution. This consists of one per cent zinc tin and cadmium chloride in glycerine. A bare copper wire varying in gauge from 12-18 is placed in the packing in such a manner as to avoid direct contact with the nasal mucosa. This acts as the anode or positive pole and both sides of the nose are treated simultaneously. The cathode or negative contact consists of a pad soaked in saline solution and brought in contact with the patient's palm. The galvanic current is gradually turned on until the ammeter registers about 10 milliamperes and the treatment is continued for about fifteen minutes. In our experience the average was 12 ma for twelve minutes giving about 150 milliamperes. However, no hard and fast rule can be applied as the amount of dosage in each case as this is a matter of experience which is acquired by practice. It is important to bear in mind that excessive current and prolonged time period may result in coagulation of the tissues which must be avoided.

The discomfort during the treatment is

slight. There is profuse salivation the patient experiences a metallic taste and at times feels a tingling sensation in the nose and about the upper incisor teeth and roof of the mouth.

The Reaction

When the packs are removed the nasal mucosa is covered with a greyish film which cannot be removed by rubbing. The reaction begins within a few hours following the treatment and reaches its height within eight hours. The turbinates and the other parts of the nasal mucosa become swollen and breathing becomes impaired. The patient complains of nasal obstruction of varying amounts of pain about the nose and face with headache. The reaction varies in different individuals and is in proportion to the intensity of the treatment. On the second day following the treatment the pain subsides the nose, however, is still obstructed. Most of the patients are now able to resume their usual occupations. At this time, too, a gelatinous membrane forms within the nose about the turbinates, the septum and floor of the nose. Thus the patient is able to expel on the third day following the treatment. In some cases this was removed in order to facilitate nasal breathing. By the end of the third or fourth day the nose is usually free of membrane, the turbinates have decreased in size and the mucosa generally appears moderately reddened, with slight crusting. In most cases, as will be detailed below, the patient is relieved of his symptoms. At the end of six days rhinoscopy reveals a comparatively normal appearance of the nose.

The theory of this treatment is that when a metallic solution is brought in contact with the nasal mucous membrane precipitation of the proteins of the superficial cells takes place but when a mild current is passed through the tissues the metallic ions penetrate more deeply and precipitate more of the proteins of the cells.

It is our opinion that this change which takes place in the nasal mucous membrane as a result of the reaction to ionization, renders the nasal mucosa less sensitive to external causative agents whatever they may be. Following the theory of Coca²⁰ that the nose (nasal mucous membrane) being the shock organ which initiates the attacks the treatment alters the nasal mucosa in such a way as to make it "shock proof."

The total number of patients treated was sixty-eight who received about 100 ionization treatments and included the following:

1	Vasomotor rhinitis	25
(a)	" with hay fever	5
(b)	" " asthma	5
2	Hay fever	
(a)	Early (spring)	7
(b)	Late (summer)	6
(c)	Early and late	2
3	Hay fever with asthma	13
4	Asthma	"
(a)	Pollen	5
(b)	Bronchial	2

Before treatment was begun, the patients were examined in the department of allergy either by Dr Sanborn or Dr Pearl and treatment of these patients was undertaken after consultation with the department of allergy. In many cases, especially those which did not respond to the immunization or who presented themselves too late for injections, ionization was undertaken at the request of Dr Sanborn or Dr Pearl.

Among the patients with vasomotor rhinitis, there were a number who had various degrees of infection, one, Case 44, had a pansinusitis of extreme degree. One patient, Case 17, had bronchial asthma and another, Case 7, gave positive tests to animal emanations. (See table.)

In a number of patients the clinical findings were at variance with the symptoms. The patient would complain bitterly of severe sneezing attacks, obstructed nose and copious watery discharge, yet clinical examination very often failed to show the typical vasomotor appearance one would expect. Treatment in a number of these cases was undertaken very reluctantly and it is most gratifying to report that the greater number of these patients were entirely relieved of their symptoms.

Results of Treatment

There were thirty-five cases of vasomotor rhinitis, five of which suffered in addition from late hay fever, five from asthma, and one from tree pollen fever. A number of the vasomotor patients also had purulent rhinitis, but the sinuses were negative by Roentgen examination. Of the straight vasomotor cases, all but two, Cases 2 and 45, were entirely relieved of their symptoms. The majority received only one treatment. Those who were not relieved received two comparatively intensive treatments. The most striking results were obtained in Cases 3, 23, 27, 37 and 48. Case 3 is a boy of ten years with extreme vasomotor symptoms in addition to a marked purulent rhinitis. He was referred to the hospital by a very competent rhinologist with a diagnosis of chronic bilateral ethmoiditis and an operation was requested. The x-ray of the sinuses did not show sinusitis. He was treated for three years with vaccines and pollens with very little relief, and at the suggestion of Dr Pearl, received one ionization treatment. The patient went through the usual reaction and, when he returned one week later, was entirely free of symptoms and rhinoscopy showed a normal appearance of the nose. To date of writing, three and a half months since the ionization, the patient is entirely free of symptoms and shows marked improvement in general health.

Of the five patients who had vasomotor rhinitis and hay fever, four were entirely relieved, one obtained about fifty per cent relief. These

patients were treated at the time then hay fever symptoms were most active.

Of the four patients with vasomotor rhinitis and asthma, all were relieved of their nasal symptoms. In two of these, Cases 17 and 63, the asthma has been markedly improved the time elapsed since treatment being three and four and a half months respectively. In one patient, Case 44, an extremely severe case of vasomotor rhinitis, asthma and pansinusitis, a marked improvement was obtained in the nasal symptoms and the asthma. One patient, Case 43, is entirely free of both vasomotor and asthma symptoms, but only a short time has elapsed since the ionization and it is, therefore, too early to evaluate these cases.

All the early hay fever patients were treated during the active stage and received one treatment. They were all completely relieved of their symptoms and remained symptom free during the season. The late hay fever patients uncomplicated by asthma, were also entirely relieved by one treatment. One patient, Case 55, obtained fifty per cent relief. There were thirteen patients who in addition to hay fever had asthma. All of these patients were relieved of their hay fever symptoms and in most instances obtained partial or complete relief from the asthma. Case 18 was completely relieved of hay fever, but the asthma was not materially influenced.

The relief of symptoms in asthma, in the majority of patients, began in seven to ten days following treatment. In some patients, however, the asthma was relieved as promptly as were the hay fever symptoms.

There were seven patients with asthma not complicated by hay fever. Two of these were not relieved at all, two (with pollen asthma) were markedly relieved and became almost free of symptoms. To date of writing, however, only a month has elapsed since treatment, two patients with bronchial asthma remain entirely free of symptoms to date, about one month following treatment.

It is our opinion that the best results can be obtained only by the cooperation of the allergist and rhinologist. An effort should be made by the allergist to establish the cause of the patient's condition and eliminate it if possible.

CONCLUSIONS

1. This is a preliminary report of six months' experience in the treatment by ionization of sixty-eight cases of hay fever (100 ionization treatments), vasomotor rhinitis and asthma.
2. The immediate and complete relief from symptoms is most remarkable in vasomotor rhinitis and hay fever treated during the active stage of the disease. Only two patients out of thirty-five vasomotor cases failed to obtain immediate relief.

No	Hos: Recc P m	Result	
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2	1 3		18 4
3	4676	n Nose nor	we in the
4	C		re, Ear
5	1 1	9/15 now al sneeze	r Inter
6	2160		8 (July)
7	2400		urt ophle
8	2500		8
9	"	ymptoms.	in recent
10	3156	symptoms free	13 3
11	34436		ngom 10
12	34727		itia and
13	36687		24t del
14	36874	Bl sneeze 10 wks aft. Now well	funda
15	37309	ntirely free of symptoms	Therapy
16	39480		orischen
17	39853	hma better (B A.)	no-Kato
18	36545	ma.) 197
19	36786		sal also
20	40214	normal	a allied
21	40650	in 1 mo Nose normal	-aryng-
22	40799		i in th
23	39933	oldiam	(Sept.)
24	40411		type
25	30969	Diabet.	M iter
26	31091	fection	reat nt
27	27716		193
28	23162		mucou
29	21117		(M rch)
30	19123		P 23
31	11445		Theory
32	10792	ild asthma.	
33	14058		
34	13890	hma imp markedly	
35	68115	of symptoms	
36	15554	norm no symptoms	
37	93998		
38	98120		
39	369028		
40	264792	B A.	
41	33075		
42	358599		
43	383328		
44	401949	thma. Sinus same	
45	403355		
46	407715		
47	369628		
48	48733		
49	B C		
50	L Q		
51	P F		
52	S A		
53	H F		
54	J A.		
55	R. N		
56	M. W		
57	L. A.	e of symptoms	
58	A. I	free	
Pri		Result	
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No			
59	E B		
60	M. B		
61	F S		
62	M. E	Marked improvement of asthma symptoma.	
63	S. H.		
64	C P	me asthma	
65	172403		
66	L. W		
67	has	Asthma marked improvement.	
68			

- 3 In twenty asthma patients both with and without hay fever or vasomotor rhinitis, no relief was obtained in two, eighteen were relieved from 50 to 100 per cent. The asthma patients with nasal symptoms were practically entirely relieved of their nasal symptoms.
- 4 The change in the turbinates and the rest of the nasal mucosa to a healthy appearance within a period of four to six days is in most striking contrast to the previous sickly pale boggy, edematous and water logged condition.
- 5 No ill effects have been observed in any of the cases.
- 6 This being a preliminary report, the permanency of this relief cannot as yet be evaluated.

We wish to express our sincere gratitude to Dr. George P. Sanborn the chief of the department of immunology and to Dr. Louis M. Freedman chief of the oral service at the Boston City Hospital for their many helpful suggestions in the preparation of this work.

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MASSACHUSETTS MEDICO LEGAL SOCIETY

WHY PEOPLE COMMIT CRIME AND HOW
TO MEET THE PROBLEM*

BY AMOS OSBORNE SQUIRE, M.D.†

Dr. Gay and Members of the Profession

MINE is not a paper. It is not very scientific. According to your program I was asked to speak on "Why People Commit Crime and How to Meet the Problem."

Sometimes, I wonder why I should be invited to speak on crime by the profession. I remember some years ago discussing this subject before the Medical Jurisprudence Society of New York and the Manhattan Medical Society. At the conclusion of what I had to say, a doctor came to me and complimented me on my address and said, "I hope that I shall never meet you up the River." I said I hoped I wouldn't meet him. Some two or three years later, I was examining the new men at Sing Sing, and as I was examining one of them this chap said to me "Do you remember me Doctor?" I said "No I do not." He said "Do you remember speaking before the Academy of Medicine in New York and somebody came up to speak to you and said "I hope that I shall

never meet you up the River?" I said, "I think that did happen." And he said, "I am the doctor who made that remark."

The only thing I can say to you is that I think you are on thin ice, but of course that doesn't apply to Dr. Gay.

I have been Medical Examiner of Westchester County for ten years, and have been connected with Sing Sing Prison since 1900. I am now Consultant at Sing Sing. But, during those years, I came in contact with and examined probably some 30,000 inmates. Taking a history of these men, naturally I made some observations on the criminal situation and I know that there is no group of people to whom I would rather talk more than I would to a group of medico-legal minds.

We should be interested in crime first because it is costing so much money. I don't know whether you read Senator Copeland's statement, when he was Chairman of the Crime Commission of the Senate, but during the investigation it was brought out that crime is costing \$13,000,000,000 a year in the United States. It is rather difficult for us, as medical men to conceive of what a billion dollars is but I have

Read at the meeting of the Massachusetts Medico-Legal Society February 6, 1935.

†Squire Amos O.—Chief Medical Examiner, Westchester County New York. 22 years of criminal case. This Week's Issue page 244.

been told that a billion dollars would be the result of counting a dollar every second from the time a man is born until he got to be thirty-three years of age

We, as medical men, are interested in crime, then, because we are paying for it

We are also interested in it because so many people commit crime. Today, we have approximately 117,000 prisoners and 200,000 in our reformatories. William J. Burns, just prior to his death, told me that he presumed, after making a study, that not over ten per cent of the people who commit crime are ever apprehended or punished.

We have a large group of antisocial people in our country. I have thought for some years past that the reason there is more crime than ever before is due to the fact that there is too much disrespect for the law and disrespect for the lawmakers, because, as a country, we are a great manufacturer of laws. We have, in this country, over two million laws and ordinances. We manufacture them at the rate of one hundred thousand a year. Almost everybody who is selected by the City Government or the State or the County or the Federal Legislature thinks that his reputation is dependent upon the number of laws suggested during his tenure of office. I remember attending a prison conference where one thousand penologists were present from all over North America for a week. A State Senator spoke at the meeting. He said that he had been a Senator for ten years and that he had one plank in his platform, to vote against every law suggested, and he expected to remain a Senator as long as he lived. When he got through, I went over and shook his hand, and, by the way, he was from Massachusetts and said, "Old Man, if I ever move over into Massachusetts, I will move into your district."

The reason there is disrespect for the law is because laws have been enacted that are never intended to be enforced, or else we have had antiquated laws to which nobody pays any attention.

I went down to Pinehurst last spring with my family. On the way down, we thought we would go to Virginia Beach, so we had to go to Norfolk and we decided to stay there all night. On the way through the city, I was stopped twice by two different policemen, telling me that I had broken the traffic ordinances of Norfolk. I apologized, saying that I was trying to obey, but explaining that the laws that I had disobeyed were not in vogue where I came from. After dinner at the hotel, I sat in the lounge, alongside of a gentleman and we engaged in conversation. I said to him, "Where do you live?" He said, "In Norfolk." I said, "You have an interesting city, a fine city. But you know, coming to this hotel tonight, I was stopped twice by the officers, telling me that I had broken ordinances." He laughed and said,

"Don't worry. We have one hundred and sixty-seven ordinances for crossing the street."

And so it is that we have in this country of ours more laws than the combined laws of any five countries of Europe. The late Chief Justice Taft of the Supreme Court, and also the present Chief Justice Hughes, have repeatedly stated before Bar Associations, in discussing the criminal situation with the lawyers, that the great number of laws is one of the reasons why we have so much crime, because we have developed a disrespect for law.

I have never agreed with the Lombroso theme that those who commit crime appear different from the rest of us. In other words, after thirty-five years' experience, I never felt as though I could go down Broadway and pick out a criminal. They look and talk just as you and I do. Lombroso stated that people who committed crime, particularly the psychopathic, had receding foreheads, big ears, high cheek bones, coarse, dark hair, and sometimes the murderers had a twitching of their mouths to one side.

I have felt for sometime past that probably the increase in crime, and one of the causes of crime, has been the moving picture. I have been impressed for years that the showing on the screen of the taking of human life and showing homicide to be of no particular value, cannot help but impress some children, particularly, that life is not so valuable as you and I hold it to be. This was brought out particularly at the murder trial of two-gun Crowley at which I testified recently. This poor boy, with another boy, had committed murder of a girl by the name of Brennan, who came from a Maine city and who was tired of the quiet of her town and wanted to go where there was more life. She landed in New York in a speak-easy and hired herself out as a hostess, in one of those places where you pay ten cents for the purpose of dancing with some person you have never seen before. Coming up from New York one night, Crowley was driving the car and Dirwinger was in the back seat, apparently without any reason, Dirwinger killed the girl in the back seat. They didn't know what to do with the body until they come to my county, and there they threw the body over the wall in Yonkers. I was notified and performed an autopsy on the deceased. And, of course, it is assumed that a crime is committed where the deceased is found. Later, it was discovered that the crime was committed in the Bronx, so we tried him in the Bronx. But the point I want to make is this. I was subpoenaed and appeared at the trial because I had autopsied the deceased. I was waiting to be called, and before I was called, there was a recess of five minutes. I walked a little fifteen-year old high school boy. On one side of him was his counsel, appointed by the Court. They were coming up before the Bar to discuss with

the Supreme Court Justice whether this fifteen year old boy was to be tried in the Supreme Court or in the Children's Court, because of his age. We have a law in New York State, particularly applying outside of New York City where delinquents under sixteen should be tried in the Children's Court. The Judge, looking down on this little boy, said to him, "How is it, son that you could have been accused of a crime at your age?" And the little lad promptly said "Your Honor, I saw it in the movies." This little lad, with another group, had gone to a delicatessen store and had held up the man in his place of business. I can picture the delicatessen man seeing a group of children, playing with them, failing to hold up his hands, and this little boy shooting him.

I am a firm believer that moving picture producers and managers of moving picture houses owe a duty to society to produce clean, wholesome moving pictures.

I remember the night we were to electrocute the Diamond brothers and one other. I felt kindly toward one of the Diamond brothers, the younger of the two. It so distressed me that I took a walk up Broadway, and thought I would go to a moving picture in order to divert my mind before the duty which I had to perform later in the evening. Finally, I did go to a moving picture house, and in the first thirty minutes, they killed seven on the screen just the thing I was trying to avoid. It so annoyed me that I had to get up and go out and wait around until it was time to take the train back to the prison.

I am a firm believer that the motion pictures have played a big part in our present criminal situation.

Of course, there is no doubt in the minds of those who have studied the criminal situation that environment is probably the greatest single agency which produces it. Those of us who come from large cities, like Boston and New York, realize that there are certain situations and there are certain sections of our cities where children are playing on the highways and the streets. I remember attending a conference with Warden Lawes and Father Cashman. We went down in the lower east side of New York, and we saw thousands of boys and girls playing games of chance, using profane language. Father Cashman turned to me and said, "Isn't it strange that we don't have more criminals when we realize their environment?"

Some years ago, I used to receive letters from mothers all over the country, wondering what the prospects were of their little boys becoming criminals because they were left handed. They had read this in a magazine somewhere, probably. One woman wrote me that she was very much perturbed about her six year old boy, who was left handed. I was glad to answer

letters like that, because I could reply and tell them that the person answering the letter was left handed, and so were my father and my brother, and, although I had been in prison for twenty five to thirty years, I had been there through choice. I went down to the Library in New York about this, and I wasn't able to find anything on it either there or at the Academy of Medicine. And so I began to gather statistics. Out of the next five thousand men who came to Sing Sing, I found that ninety six per cent were right handed and the balance left-handed, which would probably be the percent age you would have of the group here.

We have been very much depressed over the increase in drug addicts as a source of our crime situation. Prior to 1919, and that is rather strange because prohibition was to go into effect that year, but I can't find any connection between that and drug addiction, for a period of six years, our average admission to Sing Sing Prison, as far as the drug problem was concerned, was thirteen a year. So when I tell you that thirteen out of fifteen hundred new men coming to us in one year were drug addicts, you will say that that isn't much of a problem. In 1917, there were four. In 1920 the number had increased one hundred per cent. In 1921 it had increased five hundred per cent over the average. In 1922, it increased nine hundred per cent. Now as a country we used more dope per 100,000 than any other country in the world. We exceeded China.

I appeared before the Foreign Relations Committee in Congress on a resolution presented and signed by the President, asking the foreign countries to grow fewer poppies, in the hopes that there would be less drug addicts in this country. It is presumed that there are approximately 2,000 tons of opium produced in the world each year. We are reliably informed that the scientific and medicinal needs do not exceed seventy five tons. So we have the difference between these amounts, which difference has a relation to the problem of those people. Congressman Porter went to Geneva and sat in with the League of Nations Division, trying to persuade Great Britain, Serbia, Turkey and other countries to raise fewer poppies. After remaining five months, he reported back to the President that these countries refused to grow less because they were receiving a revenue from its growth and sale. The next year, I was privileged to appear before Congress on a bill passed to forbid the importation of opium for the purpose of making heroin. You know you haven't been able to procure any legally in the last ten years. But, I am sorry to report that there is probably as much dope smuggled into the country, and I am particularly speaking of heroin, as there is here, or was here legitimately and prior to the enactment of that law.

I am particularly interested in heroin because of the crime situation. Ninety-six per cent of the addicts are heroin addicts. It is a drug of youth, convenient to take, either by snuffing it, by mouth or by hypodermic injection. A study of the men who come to us has convinced us that a great many of the murders, with no rhyme or reason for the commission of the crime, and robberies, never would have been committed if it had not been that the persons had been doped with heroin. Take the Becker murder case, those four gunmen, prior to their deaths, stated that each of them in the pool room, had doped himself with heroin before he went out on the street, for the purpose of killing a man he had never seen before.

I am deeply concerned about how we are going to counteract this habit with our youth, particularly our boys. We know that these bootleggers of heroin sometimes will hang around high schools and give boys, particularly, a little snuff of this drug, in order to create a group that they might sell the drug to, and then carry on their terrible design.

I have never been impressed that the war, as a cause, had very much to do with the increase in crime. The average age of the prisoner today, according to the government's statistics, in the whole United States, is twenty-three years. Forty per cent of all crime committed in the United States last year, and that means that those who were apprehended because of crimes, were in their nineteenth year. There were more in their nineteenth year than in any other age group. Now, the war has been over for the last sixteen years. Therefore, the average prisoner today in the United States was under five years old when the war was over. He certainly never was overseas. We thought that maybe the crime increase after the war was probably due to the men who had been overseas, because of shooting people there, so that when they came back to the States they forgot the war was over and continued shooting people. So, having been in the service during the war, I was rather anxious to gather statistics. We asked every man whether he was or was not in the service. I remember one year, out of seventeen hundred new men, I found only fifty-two had been in the army or navy, and only twenty-six of them had been overseas, which is, of course, too small a percentage to blame the war, for the cause of the present crime situation.

Then, again, it is said that some people commit crime because they are not very well developed mentally. During the World War, I was in the Navy. I examined many hundreds of men for the service. Then, for a while, I examined the men in the draft. I was impressed with the fact that the men I was examining for the service were no higher mentally than the men in prison. When the War

was over, I wrote to the Secretary of War at Washington, and asked him to give me an idea of the mental level of the group that went to War from the states. He replied that two and a half million men from the states were presumed to have a mental intelligence of fourteen or fifteen years. The white men in the draft, because they were psychologically examined, had an intelligence of thirteen years and six months. And twenty thousand colored men had an intelligence of ten years and three months.

All that was within two months of the mental level of the men we had in prison.

Another group of people who commit crime are designated in penology as psychopaths. They make up about thirty per cent of our prison population. Generally, they are college graduates, or high school graduates, certainly a large group of them have sufficient schooling to insure good behavior. In order for me to convey what I want to, let me tell you a story.

Some years ago, I had, as one of the inmates in prison, a young chap who happened to have graduated from my college. His brother is today, and has been for years, one of our most successful physicians in New York City. I knew his mother, because she used to come to see her son in prison. Soon after he was graduated from college, he committed a crime in New York and was sent to Elmira. He came out of there and then was sent to Sing Sing for ten years, and then, after his discharge, came back for five years. It was during this five-year period that I was looking for a secretary, and I selected him. He kept saying to me, "Doc, I don't mind doing the five years here because I am very definitely guilty, but I hate to think about the ten years sentence that I served, because I wasn't the chap in that woman's apartment." Well, he kept telling me that right along, and I got rather tired of listening to it. So I said to him, "Let's write to the Court and find out if the stenographer still is alive, and if he has the minutes of your trial, I will purchase them, and if I think there is any doubt of your conviction, I will ask the Governor to commute you."

Well, the court stenographer was still alive, so I purchased the minutes and read them over. I interviewed his brother, who was a doctor, and I said, "Was Frank in her apartment?" He said, "Doctor, there may have been a mistake in that case. I wouldn't say. But I happened to have been in the house when the cops came after that burglar raid, and they brought out but one picture, and that was this fellow's picture, and they said, 'Does that look like the chap in your apartment?' And she said, 'It does.'" So that led me to think there was some doubt. But, in the meantime, Frank had become re-

ligious. He used to go to church every Sunday. He also used to publish the prison bulletin, a very excellent magazine, where the contributions were given by the convicts. Each issue contained two or three pieces of poetry that Frank composed.

So, having all these data, and considering the fact that he had reached thirty seven years of age, I thought maybe he had reached the point in life where, if he were given one more chance, he would go straight. So I went up to Albany paid my own expenses, interviewed the Governor, and told him the story. He said, "Well Doctor, you should be able to pick one out of twenty or twenty five thousand to go straight. I will take a chance." I said, "Governor, he is the best medical stenographer I ever had. I can procure a position at \$50.00 a week for him with a Doctor." In the meantime, I, of course, got in touch with my doctor friend, and had this chap paroled. He was engaged by my doctor friend.

I went to lunch with Frank about once a week because I wanted Frank to go straight. I wanted him to go straight because of himself, and secondly, I didn't want the Governor to twist me the rest of my life over the fact that I couldn't select somebody who might go straight. After going to town for six or seven weeks to have lunch with him, I called my doctor friend one day, only to find that he hadn't showed up there. Then, I began to get disturbed. Two months later, I was walking into the prison and the guard said, "The Warden would like to see you." So I went down to Warden Lawes' office, and he showed me three checks, totaling \$1300 that Frank had stolen from the prison. He had gone to work, when he held the position in New York and he had sent three bills to Sing Sing Prison for coal presumed to have been delivered at the institution, and Frank, with the crooks inside, had approved the bill, and forged the signatures of heads of departments. Well, the checks had gone across the hall to the Warden's office, and the Warden had signed on the dotted line. Frank had intercepted the checks and cashed them in New Jersey. They sent Frank's finger prints all over the country, and within two months, word came from Pittsburgh that a fellow with finger prints exactly like his was being detained. And so there was Frank, this college graduate, indicted on fourteen counts in Pittsburgh, they gave him ten years there.

I had to go down to Pittsburgh on some business later, and I thought I would go down and see Frank and incidentally the Warden whom I knew. I was hoping that Frank would say to me, "Doc, I am sorry. I am sorry that you spent \$150 to procure the minutes of my trial and that you went to see the Governor." But

when he was sent for, all he said was, "Doc how's the gang?" He was absolutely unmindful of what had been done for him.

Well time went on, and I think it was in 1925 that I had been appointed Medical Examiner in Westchester County. He saw in the Pittsburgh paper, mention of the fact that I had a suite of offices with the District Attorney at the Court office in White Plains. Well, I could picture him saying, "Doc must be pretty close to the District Attorney. Maybe he could get this warrant squashed." So he wrote me

"Dear Doctor

"You must be close to the District Attorney. Won't you please use your influence to get that squashed for me? If you do, I will save about three years down here."

Of course, I wrote to Frank and told him that I thought I had gone as far as I should.

Time went on, and he served his time, and he came back to Sing Sing for the unexpired time that I had got him out of. Well, last February, he left us. And the day before election last fall I was back in Pittsburgh and I thought I would go down to see Stanley Ash the Warden of the Penitentiary there, after I had spoken before the Rotary Club. I said, "Stanley, the last time I was at this Penitentiary, you had an old friend of mine here." He said, "What was his name?" I told him and he said, "My God, he is here now!" Well, the Warden sent for him, and the first thing the fellow said was, "Doc, do you know I think I will die in prison!" I said, "Frank, I know you will."

He is a psychopathic criminal, and nobody but God himself can rehabilitate a man of that type.

Then we had another case. Some years ago, you people heard a lot about the Mutual Welfare League, an organization for the purpose of having self government in prison. The newspapers played it up. The moving picture people took pictures of us. We had a convict Court, they were voted on and believe me they are always roughnecks, and they are a fine bunch to sit in Court on some of their other inmates! Coming into the prison one day, there was a well-dressed man leaving. I overheard him saying, "You know this whole thing meets with my favor. I think it is a wonderful scheme, this Mutual Welfare League. I would like to donate something to its cause." So he pulled out a check and wrote it out for \$100 and gave it to the person with whom he was talking. He went a few feet, turned back and said, "By the way [after fishing for his wallet], I must have left my wallet on the dresser at home. Won't somebody cash a check for \$10 for me?" So somebody handed him a \$10 bill. He went out. Four days

elapsed and both checks came back, "No account in the bank"

Those of us who knew the incident realized that it wouldn't be long before the man would be back in Sing Sing Prison. Six months later, I was examining the men, and as I looked down, I thought I saw the profile of the person that I had seen six months before out in front of the prison. When he came up to me, I said, "Aren't you the fellow who gave the phony checks?" He admitted that he was.

Now, he was a college man and one of the cleverest forgers I have ever known in prison. Most of the forgers in prison trace. But this chap, we will call him Mike because that isn't his name, could take a piece of paper with your name written on it, give him just ten seconds to look at it and he could take a similar piece of paper and write your name and you could not tell which was which. He was most unusual. When my friends visited me socially, I would pull in Mike and I would show how he could forge a signature without doing a bit of tracing, and with only a ten seconds' observation. We never would present a set of resolutions unless they were penned by him. He had been in prisons all over the world.

One day he had a magazine in his hand and I could see a picture as he opened it. He wanted me to read it, and I said, "With your consent, I will take it to the hospital with me and read it." It was the *Bankers' News*, a magazine published by the banking group, and in it was an article by William J. Burns, chasing this man from Portland, Maine, to Portland, Oregon, and from Quebec to Cuba. Later when I saw him, I said to him, "My gracious, Mike, but you have an awful record." And he said, "Doc, it isn't half there."

There is another case of a college graduate.

Now, I don't know about you ladies, but we men, when traveling much, generally talk to whoever may be in the train. I remember, when I was going to a prison conference in New Orleans, we went by way of Chicago. I got on the train at the Illinois Station there, and went into the smoking end before I retired. I was alone for a moment, and presently a well-dressed man came in. I offered him a cigar and we smoked. He said, "Where do you hail from?" I said, "Sing Sing Prison." He looked me over rather carefully, and we discussed Sing Sing. "Where do you hail from?" I asked him. He said, "Walla Walla Prison." Having been there, we discussed that. I said to him, "What are you there?" He said, "I happen to be the Warden." I discovered that we were going down to the same conference, and the first thing he said to me, after we became acquainted, was, "Did you ever have Mike?" I said, "Yes, we have had him three times."

And I say again, he was a college graduate, a very shrewd man, who, in ordinary times,

probably could command \$1,000 a month for his ability, but still a chap who lived the life of a psychopathic criminal.

That is the reason why some of us interested in penology have come to the conclusion, and I am talking particularly about New York, that when you sentence a man to prison, there should be a minimum and no maximum. In other words, in the case of every person who goes out on parole from prison in New York State, the Parole Board gets the opinion of the Chaplain and the Warden, as to what they think of the prospects, but where you have a person who has a definite sentence, it doesn't make any difference what you think, his time has expired and he goes out. And, with psychopathic criminals, who make up thirty per cent of our population, you can readily understand what a tremendous tax it is on the people to support them.

It costs New York \$2,000 of the taxpayers' money to send a man to Sing Sing. Probably the time will come when we will not have any maximum sentence. But, the psychopathic criminal will be with us until he reaches his last days.

Now, what about capital punishment? Massachusetts, I think, has it. I used to feel, personally, that maybe capital punishment was best. But, when I tell you that last year, in this country, we had 12,000 murders, and only 112 people executed because of them you can readily understand what a small percentage suffer the extreme penalty.

As a Medical Examiner, and having a murder once a week, I see the fallacy of capital punishment in our State, as carried out today. In other words, I believe that if we are to retain it in order to lessen crime, we should apprehend, indict, try and carry it out in a short space of time. I can tell you that I have caused to be electrocuted condemned men who have waited in their cells for three and one-half years. I said to Warden Lawes about one of them, "He will die from natural causes before he gets to the chair."

I say that if we are going to retain capital punishment, let us have it like one, two, three, and it's done, and not the way it is carried out today here. I really don't think that people mind dying in the chair now. I have known two hundred men condemned to death, and I have given the signal for one hundred and thirty-eight of them, and I have never yet seen anybody give a hang, going to the chair. Certainly, we never have to stimulate them. I never had anybody ask for a stimulant, except one man. That was years ago, and I received an emergency call at three o'clock in the morning, being informed that the man in the pre-execution cell was in danger of losing all control of himself. I mixed a dose of aromatic spirits of ammonia, the stimulant for such an

instance, and hurried to the man's cell. He and the Chaplain, both alarmingly pale, were sitting on the cot, side by side. Except for the difference in dress, it would have been difficult to tell which was facing death. When I held out the cup containing the ammonia the condemned man waved it aside and said, "Give it to the Chaplain, he needs it more than I do."

We had another case of a fellow by the name of Becker. As I was going through the condemned cells, this fellow said to me, "Doc, I am doomed to die on Thursday, and I don't want to die on Thursday." I said, "What is the matter with Thursday?" He said, "Thursday is my boy's birthday, and I don't like to have him think that his father died in the electric chair on his birthday." Well, I went down to Warden Lawes' office, and said "Did you know that Thursday is the birthday of Becker's boy?" He doesn't care whether we kill him tomorrow or Friday or any other time but not on Thursday." Well, we kept him alive until Saturday.

You know, I was interested in your statistics here. I have had, as Medical Examiner in the last ten years, over six hundred and fifty cases, where I have officially declared them to be suicides. I have had about four hundred more where I have had to say they were accidents or homicides. I suppose the law is similar to that here in Massachusetts. The law presumes that a man doesn't take his own life. And as I say, I have to sign a lot of these and in the back of my head I am satisfied that they are suicides, but I have to classify them as homicides or accidents, and not suicides.

I think I don't know of a man who has been in a condemned cell who wouldn't rather go to the chair than to isolated sections of our State away from the group and without any hope of ever being pardoned with writing privileges and visiting privileges denied to him. To my mind he would be dead as far as society is concerned. I would put him in a place like that in the State and make him work.

Why we had three suicides in the condemned cells because they got tired of waiting. One of them was a fellow by the name of Flood. He was the only chap in the condemned cells for execution who came under that particular law in New York which says that if you set fire to a building intentionally and anybody is killed in that building it is murder in the first degree. Flood was the only chap who ever came to us for that particular crime. He was man of unusual intelligence, and he made a thorough study of the death house routine and discovered a flaw that no one else had detected. After perfecting his plans, he wrote a letter to the Warden, saying that he hoped the guard would not be blamed, or suffer discipline or dismissal, since in what he was about to do the guard was in

no way at fault. He had found that the only time when he was not under direct observation was when the guard on duty was collecting spoons and plates. Except when engaged in that duty, the guard sat where he could see the occupants of each cell in the wing. Flood's cell was at the end of the corridor. The guard came for his spoon and plate first. Flood timed him and learned that it took an average of four minutes to complete the rounds after a meal. On the basis of that knowledge, he worked out a way to destroy himself. On the wall opposite the row of cells, was a clock, which was visible from the end cell occupied by Flood, but not from all the others. Just after dinner one night, an inmate who could not see the clock called to Flood to ask the time. Flood did not answer. The call was repeated louder and still Flood did not answer. "He's asleep," said the guard, giving the other inmate the time. "He dropped off to sleep mighty quick." "Yeah." The guard stared at Flood who lay on his bunk, face to the wall, "Must be sleeping pretty sound." After a moment, the guard became suspicious. He got up and went over to investigate. Flood was already dead. He had arranged a towel around his neck in such a way that it was hidden beneath his shirt collar, and facing the wall, he had twisted it, strangling himself. While gathering up the utensils, the guard had never been more than fifteen feet away, but Flood had carried out his plan with such swiftness, deftness, strength and determination that he died without making a sound that could be overheard.

So I say that if we had some distant part of the State that could be taken out of politics and put into the hands of the Court of Appeals where these fellows could be made to work, it would be much better. Deny them visiting privileges and writing privileges let them be legally dead. To my mind that would be a much more severe penalty than the death penalty.

Now, what are we going to do to meet the problem? The first thing that suggests itself to me is to deport the alien criminals.

There was a murder in Ossining a few weeks ago. A girl was stabbed to death. I sent the body over to the morgue and took everybody out of the house and sent them up to the Police Station. In Westchester County, the Medical Examiner does the investigating, he is the one who holds the hearing on the matter. After I had autopsied the victim I went up to talk to these people. Later, we found that this woman who was stabbed to death and all these people in jail were smuggled into the country through New Bedford. They admitted that they gave the fellow who ran the ship \$50 apiece to forget that they had come over. Knowing that I couldn't pin the murder on a particular one of

them, I said that I would get rid of all of them. So I called up the Immigration Officer and told him to come over and get them. But the Police Chief finally said that he was sorry to report that he couldn't send any of those people back, because they were smuggled in before 1921. Probably Ossining is supporting them as the "unemployed" now.

The other day, we had a case in Rye, New York. There was a fellow there who admitted to me that he was illegally in this country from Germany. He had hired himself in Hamburg as a waiter, got over to Hoboken and left his ship, staying here a couple of years illegally. He went back to Hamburg and spent a year, and then he came back to the States in 1913. Then the War was on so he thought he would go back to fight for Germany for a couple of years. So he spent three years in the German Army. But the United States is a good place to come back to, in his estimation, so he came back as a waiter again. When he got here, he bought a lot of canned fish in cheap places, and he peddled this around in the residential section of Westchester County. Well, he sold a can of fish to one of the residents, who died in two hours, and more of them nearly died. I couldn't get him for murder or manslaughter, so the best thing I could get him on was the Sanitary Code, because he had been selling unwholesome fish. He was punished with a \$50 fine. But when he told me that he was in this country illegally, I said to myself, "I'll send him back to Germany." So I telephoned the immigration authorities, and told them to send him back. I told them that it wasn't the \$50 that we were after, but we wanted to get rid of him. Well, they looked up the whole thing, and the report that came back to me was that although he said he was here illegally, they said that he was all right and that they could not deport him.

I tell you that it is a horrible situation. We have in New York 11,000 prisoners, and ten per cent of them are alien criminals, costing the taxpayers \$425 every year to support each one of them.

There has been a law on the statute books which says that persons committing a felony may be deported. I would like to have this organization go on record to ask your Congressmen and Senators whether this alien law is being enforced one hundred per cent after the prisoners leave the prisons. If I had my way, these people would stay in prison until the boat was ready to sail. It would not be, then, as it is frequently done that these people are put out on bail and then skip the bail.

What an economic saving it would be, and what a saving of sorrow to get rid of alien criminals!

Another way of getting rid of some of the crime is to carry out the system of probation. I am a firm believer in giving a boy or girl a chance on the first mistake. If you want to make a bad boy worse, send him to prison. There is no question about that. I was talking at the Academy of Medicine one night, and a presiding Supreme Court Judge, very flowery in his discourse, got up and said that when he sent a boy to prison, he sent him there out of a spirit of love, that he sent him there for treatment, not for punishment. Everybody applauded. My turn came, and I told the group how delighted I was to hear the learned Justice speak, and how nice it was to have him tell us that he sent boys away to Sing Sing out of love and for treatment. But if my memory serves me right, I have a boy working in the hospital at Sing Sing who is sixteen years and three months old, which is the minimum age for sentence, and he gave that boy a twenty-nine year sentence as a first offender. I can tell that Justice, and I could tell that group that no matter how bad the boy was, the probabilities are that living as he does now, with sixty per cent of the group having committed crime before, what he didn't know about crime before he entered, he knows today.

Every enlightened city and state is developing that probationary system. In Westchester, we have spent \$125,000 a year in the administration of our probationary system. In fact, it is done in Massachusetts. And what is the answer? I am told that hundreds of boys, with suspended sentences at Sing Sing, in fact ninety-two per cent of them, are making good on probation. What a salvaging! How much better it is than to send them to Sing Sing Prison, where they lose their citizenship, and where they are associating with men who have spent their lives in crime! How much better it is for the family!

Sometimes, people criticize Judges for placing people on probation, but everybody today in Westchester County knows that the Judge, before sentencing a boy or a man, has as good a detailed history of that person as it is possible to obtain, so that he is able to see the possibilities before he passes out the sentence or gives a suspended sentence. This is probably true in your State, too.

Another way, and the only way that seems to be any way of lessening crime—and we have got to talk of the future—is in the line of prevention. If the average age of the persons in prisons of the United States is twenty-three, that would mean that the boy who is thirteen years old today will be the criminal ten years hence. There is no question about that.

The only hope I see, so far as the present sit-

uation is concerned, is that there is little for those who have gone through the reformatory or the penitentiary, or the state prison from the standpoint of prevention. The only agencies that, to my mind, would be able to cope with the situation are the Boy Scouts and the Girl Scouts.

We have, in the United States 1,250,000 Boy Scouts and 317,000 Girl Scouts. And before I forget it, let me say a word about the Girl Scouts, because the women should be interested in this. During the last thirty years, we have been able to find that delinquency has increased to a greater percentage with the girl than with the boy.

But these boys and girls in the Scouts have an opportunity for self expression. They are taught to do a good turn every day which to my mind, is so important. They have an opportunity for outdoor life, for camp life for nature and bird study, for study of the flowers and trees. They can get something out of it by getting together and, as I say, give expression to their leadership. I have never yet had a man in Sing Sing Prison who admitted to me he had ever been a Boy Scout. The Superintendent of the reformatory with which I am connected told me that he can recall, out of 30,000 boys but three he knew of definitely that had been Boy Scouts. The Judge of the Children's Court at St. Louis told me a few years ago after addressing a group interested in the Scout movement, that that year he had had seventeen hundred boys, from seven to seventeen years of age, with not a single Boy Scout in the group.

I had an interesting experience a few weeks ago. I came in my driveway one evening after doing an autopsy at Ossining. I carry an electric saw in my outfit, which is rather heavy. A little boy jumped over my wall, and he helped me out of my car with my things. So I pulled out a quarter, and I said, "Here's a quarter for you." He said "Oh, no, Doctor, that is one of my good turns." Then I asked him who he was, and found out that he was a twelve year old chap who lived in one of the poorer sections of Ossining, a little Italian boy. I said to him, "I wonder if your mother would allow you to come up and have supper with us to night at six o'clock?" I said six o'clock instead of seven so that it would be more nearly his time. Well, he said that he didn't know but that he would see if he could. He went home and took a bath and came back all slicked up. Well, I will tell you that I have spent a good many pleasant evenings, but I don't know of a more illuminating or a more interesting hour than I spent with that twelve year old boy whom I had never seen before. I learned that he was a Boy Scout and lived in the poorer section of the city, where the environment is none too good. To my mind, he is the hope of our civilization.

I became a Rotarian in 1921, because I happened to be out in Auburn one night, seated in the old Osborne Hotel there, and I heard a group of men singing and then I heard somebody get up and say that the club had a camp about six miles back of Auburn, where they were going to take a group of boys who normally wouldn't have a vacation. The thought came to me then that I had been living with the underworld for a long time and with boys and men whose environment had been none too good. When this meeting was over, I went into an adjoining room and joined up with the Rotarians. To me that was the secret of the criminal situation. I asked how Ossining could have a club because I told them that I wanted to associate myself with a group of men who would interest themselves in the boys, because the boys of today are the men of tomorrow. Within six months we had our own club and I am proud to say that in Westchester County, we group our funds together and take care of eight hundred boys, who, normally, wouldn't have an opportunity to develop their lives.

Speaking about the Boy and Girl Scout movement not only should we give of our funds, but we should become actively engaged ourselves, in trying to train these boys. I am pretty busy, and I know you are, too. But, there is nothing that I enjoy in the world more than I do to have a group of boys or girls in scouts. They are very enthusiastic. One time they told me that I could examine them in some subjects because they would get a merit badge if they passed.

I do not have a son but I have a daughter, who has just graduated in law. When she was in college, she used to come back every week for three hours to attend her Girl Scout troop.

I want to say to you that there is no agency that I can see which will be a greater force for lessening crime that is comparable with those institutions, the Boy Scouts and the Girl Scouts.

Lastly, because I must stop you and I can lessen crime if we pay more attention to our own children. We talk about the underprivileged boy and girl. As I travel around I often find that the underprivileged boy or girl is in our own household. I had a boy with me some few years ago, he was a college graduate, his father was and is today the Dean of one of the largest universities in the United States. He went overseas before the War and joined the Aviation Service in England and when he got into the War he transferred to our service. He met with an accident, sustained a fractured skull and was in the hospital for months in Paris. He came back and remained a couple of months here. In a college club in New York City, he carelessly forged a check and as a result of that forgery, he came to Sing Sing for three and one-half years. He had been there only

a few days when I took him into the hospital, as all the nursing is done by convicts. He had been there four days, when he said to me, "Doctor, this is a terrible place to be. I have been here four days, and I have had a lot of time to think. I have been thinking whether I would ever have been to State Prison if my mother had lived. My mother died when I was three months old and I was brought up by a governess. It never occurred to me that I loved my father as I pictured a boy should love a father, or that my father loved me as I pictured a father should love a boy. I don't want to blame father for my being here, but I have often thought that he was cold." So I wrote to the father and asked him to write to his son, because I believed he was worth salvaging. It was his first mistake. But his father wrote back in his letter to me, "He is dead to me." But I still wrote to the father, and I said, "Won't you come to Ossining and come to see me?" I am very careful in my correspondence in matters of this kind, I use my own personal letter head. I told him that he could come in and see me, and a little later on, somebody else would come in to see him. My idea was that if I could get him there, I could have the boy walk in. He wouldn't have to visit him in the other room, in the regular visiting room. But he still wrote to me, "I will never see him again in my life." Three years passed, and I realized that I had on my hands a college graduate, a brilliant boy who had the makings of a manly man. So I called him in to my office and I said to him, "Isn't there somebody on the outside who will interest himself in you?" He said, "Well, I don't know. I have an uncle, he hasn't written to me since I have been here, and I don't know his reaction. But I don't mind if you call him up." I went to my uptown office and called his uncle. I invited him down to my college club to have luncheon. I brought with me the letters I had received from his brother. We discussed matters pretty thoroughly. He said, "You know, my brother was always cold, he was always very firm. I remember when he was on the disciplinary committee at the University. If there was ever any misconduct and he made a ruling, he would never rescind his sentence." So I said to him, "Won't you come over and see the boy?" He said, "Yes, I will." So this good uncle came over every Saturday, and when that boy left Sing Sing, his uncle took him out to a western city. Eight years have passed, and today that same boy, whose father disowned him, is one of the most prominent and one of the most successful business men of that city.

You can imagine the pleasure that I have. Almost every year, when I go to the coast, I stop at that city so that I can shake the hand of a boy who made good, in spite of his father.

Here is another little incident which may interest you. I go to the Yale-West Point football game every year at New Haven. A year ago last fall, my wife and daughter were with me at the game. We sat there in the beautiful bowl with 80,000 people, more or less. Between the halves of twenty minutes, one of the fourth-class men, a boy who was going to graduate the next spring, came up the stairway, and immediately in front of us was the boy's mother, sister and father. He kissed his sister and his mother, and he turned to his father and extended his hand to his own father, and his own father never accepted it. Tears were in the eyes of the mother and sister. Tears were in all our eyes. Then, after but a few moments, the twenty-minute period was up, so the boy turned and kissed his mother and sister, and he said to his father, "Won't you forgive me?" His father never moved. I saw him go down and go to his group, and I said to my wife and daughter, "I wonder how many men I have known who have been in prison because of that type of relationship between a father and a son."

I would say to all men, "Don't think that all men who go to prison are roughnecks." You know, thirty-eight of them last year were college graduates, and one hundred and twenty-eight of them were high-school graduates, and a major portion of them had been through the grammar school. We have all types there.

So, let us have the confidence of our own children, and if we have that, there is very little danger of them becoming antisocial. I thank you.

DISCUSSION

PRESIDENT GAY: Thank you, Dr. Squire. Are there any questions, gentlemen?

DR. SQUIRE: I would like to add that there is often a lot of criticism over the management of prisons, and a lot of people oppose athletic contests in prisons. You will be interested in this, which is a true story.

We have a football team that plays outside teams on Sunday, and the fifty cents that people pay to see the game goes to buy uniforms and footballs, and in the summer, this money furnishes baseballs and bats and uniforms for the baseball leaders. I think it was last October that I was watching one of the games on a Sunday afternoon. We have the same people referee and umpire the games that umpire the West Point games the day before, in other words, if there is a game at West Point on Saturday, the umpire comes down and umpires the prison game on Sunday.

We had a team that came to us that played rough football, so much so that you could detect it during the play. The Sing Sing team, by the way, is called the "Black Sheep" team. One of the players on the Sing Sing team was thrown, and after being thrown, one of the outsiders walked on him. He was unconscious, but the opponent walked on him just the same. The referee, seeing it, put the fellow out of the game for playing rough. When the fellow

came to be inquired as to where the fellow was and he was told that he was put out of the game because the referee thought he intentionally stepped on him. He went to the referee and said "I don't like that. I don't think he meant it. He is a good player. He is the best player they have and I think he ought to be put back." He was the captain of the Sing Sing team. So they finally persuaded the referee to put the fellow back in the game. After the game and on the way out to the washhouse where they were going to take baths and change clothes I walked down to this boy and I said "That was a wonderfully fine thing for you to do. You were walked on by somebody who threw you violently and still you had that sporting spirit that you wanted to play the good game and you went over to the referee and asked him to bring the fellow back into the game." He turned to me and he said, "Doctor, I have been playing football two years and I can't help but believe that had I had an opportunity to play football on the outside of prison I never would have been in prison. It has taught me the value of self-control."

To me that compensated any criticism that I have heard that maybe the fellows shouldn't play football inside the prison.

DR. OVERHOLSER I am interested in Dr. Squire's reaction to the question as to how prevalent mental deficiency is among the inmates that he sees.

DR. SQUIRE Well, of course in Sing Sing we do not receive for the most part, this type of person. We have an institution set aside for mental defectives. In other words the law is that if a Judge has a person before him who is believed to be mentally defective generally he is not sent to the prison but he is sent to this institution. We have nine hundred at this institution. If one should come to Sing Sing prison the examining physicians usually transfer him for mental defectiveness.

That is taken care of very well in New York State. I do not know whether other states do this or not.

DR. OVERHOLSER Massachusetts had the first law and New York had the first institution.

DR. SQUIRE I will say this. I do think that no state has a better reputation for the management of penal institutions or advanced thought in penology than you have right here in your own state. I think that there is no question about that. It is so much better that we have adopted your Sanford Bates whom I know very well, and who is a progressive penologist.

DR. BARNETT I am especially interested in the question of probation which evidently is becoming one of the outstanding means of taking care of the

early criminal and the fact that probation is available for first offenders has a tendency to lead to that first offense.

DR. SQUIRE I don't feel so. I have never been in sympathy with the Baumes law in New York. We had a Senator from Newburgh who was appointed Chairman of the Committee on the recodifying of the criminal code as far as punishment was concerned. His idea was that we were having so much crime that more time should be given in prison. So he advanced sentences where they were five years he made it ten, etc. But instead of lessening crime, it increased it. It isn't the severity of the sentence that will curb crime. It is swift justice that will do it. If a fellow committed a crime and he knew that he would be punished for it, I believe that he would think a second time before doing it again. You and I know that if we were in prison a day we would be cured. It isn't the length of time. We would be more cured in a short time than we would be if we stayed there ten years.

But, we are too slow in justice. We don't apprehend ninety per cent of the crime in this country.

I had to laugh the other day. I was talking to the Chief of Police and he was telling what a wonderful thing it was to go about putting tags on parked cars for sixty minute parking. He had all the police force doing it. I said to him "For goodness sake here is a list of murders in this town. Why don't you get the murderers?" I gave him a whole sheet full of them. I said to him "The taxpayers want these murders solved. I have never heard of a parked car killing anybody in this County."

And we are paying dearly. Granted that the Judge may fine you a dollar for your parked car but that is of no moment when you consider a whole list of unsolved murders.

Where we are slow is in our crime detection. We are way behind the European countries. I was privileged to spend a couple of weeks in London, Vienna, and Paris in their crime detection laboratories. And when they tell you that they apprehend eighty per cent of their criminals and when you know that we apprehend only ten per cent it is mighty serious.

There are no politics over there. It wouldn't make any difference if you were the king if you committed an offense you would be punished. They respect police officers over there and they respect the law. They don't publicize crime. I was in London one time while a murder case was being tried. I had never been to a murder trial over there so I attended part of the trial. I got on the ship at Southampton to come back to the States and seven weeks later I saw where the fellow was hung. Believe me, over here he wouldn't have been caught yet.

EXCERPTS FROM THE BULLETIN OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

Last year the common cold cost more than \$5,000,000 in loss of wages. More absences from work are due to it than to any other illness. When you have a cold stay home, and if it is severe remember pneumonia as a possible danger.

Rudolph Virchow who gave to biology the impetus which formed the foundation for the study of heredity was interested enough in politics to be a member of the German Reichstag many years of his life.

The increasing number of cases of trench mouth is attributed by Dr. Don C. Lyons, of Jackson Mich., to uncleanness in glasses used in taverns and eating establishments serving alcoholic beverages.

Doctors think of what they call the "clinical picture" in studying their cases. "What is spoken of as a clinical picture," said Dr. Francis W. Peabody, former Professor of Medicine at Harvard Medical School "is not just a photograph of a man sick in bed. It is an impressionistic painting of the patient surrounded by his home, his work, his relations, his joys, sorrows, hopes and fears."

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT, M.D.

TRACY B MALLORY, M.D., *Editor*

CASE 22061

PRESENTATION OF CASE

A thirty-one year old Italian toolmaker was admitted complaining of a persistent cold

About one month before entry the patient developed a slight cough productive of a small amount of yellowish sputum This began to subside a week later, at which time he attended a carnival On the following day he had "chills" and three days later developed fever and malaise Thereafter he was confined to bed For a few days following this exacerbation his cough was productive of brownish sputum but since had continued to be yellowish in color with an occasional foul odor There were infrequent night sweats, considerable anorexia, and some insomnia The slightest exertion caused shortness of breath

Physical examination showed a well-developed and nourished young man who looked moderately ill The skin was moist and warm Chest expansion was limited on the right side Distant bronchial breathing was heard in the right infraclavicular region There was lessened tactile fremitus, dullness, distant bronchial breathing, and high pitched exaggerated vocal resonance over the right lower chest posteriorly An inspiratory friction rub was audible in this region and a pleuropericardial rub was said to have been heard over the precordium Examination of the heart was otherwise normal The blood pressure was 110/70 There was questionable clubbing of the fingers

The temperature was 99°, the pulse 110 The respirations were 30

Examination of the blood showed a red cell count of 4,900,000, with a hemoglobin of 85 per cent The white cell count was 9,800, 81 per cent polymorphonuclears A single sputum specimen was mucoid in appearance with scattered blood flecks A single acid-fast bacillus was found

X-ray examination of the chest showed dullness in the lower half of the right lung field In the upper portion of the chest dullness was more marked in the hilar region

On the afternoon of his second hospital day

the patient suddenly became markedly dyspneic, cyanotic, and apprehensive The respirations increased to 50 and the pulse became weak with a rate of 170 The chest signs were unchanged The patient expectorated a small amount of strongly tenacious sputum but his condition remained unchanged A white blood cell count was 27,000 An x-ray showed, in addition to the previous findings, dullness involving the right apex and infraclavicular regions and marked displacement of the trachea to the right Despite the administration of small doses of morphin and the use of an oxygen tent the patient's condition remained unchanged The temperature rose to 103°, and he died about twelve hours after the onset of the acute episode, at the beginning of his third hospital day

DIFFERENTIAL DIAGNOSIS

DR EARLE M CHAPMAN Will you please demonstrate the x-rays, Dr Holmes

DR GEORGE W HOLMES I do not understand the x-ray note It is a bit ambiguous The difference was twenty-four hours This film was taken from the front of the chest apparently in the upright position This one was taken with the patient lying on the back, a portable film The difference in appearance may be due to difference in position of films or it may be due to shift of fluid in the pleural space I rather think it is the former and not an actual change in the lung condition in this interval There is a considerable area of dullness here and yet the heart is not displaced away from it In fact, if anything the heart is toward the lesion I am not able to make out the position of the diaphragm on either side Usually when there is no fluid present you can see the diaphragm even though the lung is collapsed This failure to see the diaphragm may be due partly to the quality of the film—both films are poor I think we can say that the left lung is normal and that the heart is not enlarged It is displaced somewhat toward the lesion The lesion in the lower part of the chest must be due in part to collapse of the lung Air is not getting into the lower half of the chest in the normal way I do not think that would explain the whole picture however There is either some fluid in the pleural space or consolidation in the lung, as well as partial collapse

DR CHAPMAN I must say that this final report is much different from that appearing in the abstract You did not comment on the trachea, Dr Holmes

DR HOLMES I would not be at all concerned about the displacement of the trachea It may be due to rotation, although it does look as though it were displaced

DR CHAPMAN We can say it did not push it away but seemed to contract the mediastinum toward the side of the lesion

To go back over the history, there are two or

three points that are of interest to lead to the summary of the situation. The first thing is he is thirty-one years old and an Italian tool maker. Ofhand I do not think of any industrial hazard in toolmaking except in the granite industry where men are exposed to large amounts of silica dust. We do not know where he was a toolmaker.

A month before entry he complained of the onset of cough and chills appeared a week later. He was ill first and then went to a carnival came back, and the following day took to his bed. He was in bed three weeks before he came to the hospital. The next point is that he had occasional foul sputum. I suppose we might assume that he had intermittent bronchial obstruction. Severe shortness of breath was an outstanding complaint. Upon physical examination we found he had distant bronchial breathing in the right infraclavicular region and over the right lower lobe there was dullness diminished tactile fremitus and distant bronchial breathing. These are the signs of partial obstruction to the bronchus, with partial collapse. However the physical finding of increased vocal resonance is rather confusing and I do not see how it fits unless there is a cavity. In other words, it may be amphoric breathing but it is hard to tell. However, the signs are consistent with partial obstruction to a bronchus with some consolidation or collapse of the lobe.

There was questionable clubbing of the fingers. We must remember he had been ill four weeks and this may be true clubbing beginning after four weeks' illness.

There is no mention of examination of the abdomen or glands. We do not know whether the spleen was palpable or not.

When we come to the laboratory examination I would like to know whether the Hinton test was done. It is hard to attach much significance to the finding of a single acid fast bacillus because objects resembling acid fast bacilli can easily be seen on a scratched piece of glassware so it is important to have clean glassware with no scratches.

As to the x-rays, what happened, following this terminal episode, is that there was a spread of dullness over the upper lung field and the mediastinum contracted toward the side of the lesion rather than away from it.

I believe that this man had signs of partial obstruction to his bronchus with probable collapse or consolidation behind it and in this area later a lung abscess formed. The rapidity of the process and the progression of the symptoms as contrasted with the first case are in favor of lung abscess. In favor of this is the occasional foul sputum and the changes in physical signs. The x-ray is consistent with it and Dr Holmes bears it out in saying that it is also consistent with collapse or partial collapse of the right lower lobe.

There is no history of aspiration of a foreign body unless we assume that an Italian at a carnival may have inspired a foreign body. I do not know. As Dr Lord has pointed out in a review of a series of cases in about fifty per cent of the patients lung abscess is attributable to aspiration but in thirty-three per cent of them the onset is insidious and no cause can be found.

The next step is to look for the cause of the obstruction of the bronchus to the lower lobe.

"In the upper portion of the chest dullness was more marked in the hilar region." That is very suggestive the way it is reported here but Dr Holmes did not stress it as in the report. What do you think there is in that area, Dr Holmes?

Dr HOLMES: I think that that statement means nothing. If you read the one in the report the dullness was more marked in the hilar region and has nothing to do with dullness in the upper part of the chest.

Dr CHAPMAN: Then, as a cause of obstruction we must think of foreign body, possibly aspirated at the time of the carnival and an unresolved pneumonitis, the process going on while the man kept on his feet and finally leading to a lung abscess.

Another possible cause is neoplasm. He is rather young, thirty-one, for carcinoma, but it is possible that a lymphoblastoma in the region of the right bronchus could cause pressure and partial collapse and lead to pneumonitis. The physical examination, however, does not support this. There is no report of glandular enlargement, no evidence of disease of the lymphatic system.

Syphilis we must think of, and there again there is no Hinton report. I think we must exclude it assuming it is negative.

Tuberculosis is a disturbing point. The finding of a single acid fast organism I am inclined to discount. The first picture does not show anything to indicate tuberculosis above the fourth rib, does it, Dr Holmes?

Dr HOLMES: No.

Dr CHAPMAN: I think tuberculosis is quite unlikely. Recently Dr Hawkes, a former house officer here, reported an epidemic of trichinosis in Italian people and his first case pursued a course not unlike this and died of unresolved pneumonia of the right lower lobe. It was not until after the second week of the disease that eosinophilia appeared. In his case the eosinophilia was the best lead but in our case no report is made of the differential count. It simply says that there were 81 per cent polymorphonuclears. No differential count was done on the count of 27,000. Although trichinosis should be considered, it is quite unlikely.

Lesions in the esophagus such as traction diverticulum would lead to erosion through the

bionchus with this picture. No history of difficulty in swallowing was indicated.

Apparently the pericardium is involved, at least the parietal surface, as he had a pleuro-pericardial rub.

The final episode may give a clue to the whole thing. It is a mysterious one. The physical signs suggest massive collapse and the mediastinum shifted over to the side of the lesion but there is no x-ray evidence of further collapse there. He may have had a sudden extension resulting from rupture of encysted fluid, probably purulent, into the lung tissue and perhaps into the pleural cavity. The x-ray was taken lying down and such an episode would account for the diffuse dullness over the upper lobe. Consistent with this is the rise in white count, the marked shortness of breath and the rapid exitus.

In conclusion, my diagnosis is lung abscess with some process partially obstructing the bronchus to the right lower lobe. Originally because of the report on the paper I thought it was neoplasm and possibly, because of the report of density of the hilus, lymphoblastoma or sarcoma, but the x-ray does not bear that out, nor do the remaining physical findings, so that I am left with just that diagnosis alone.

DR DONALD S KING: I saw this patient the day he was admitted. In addition to the physical signs as given in the record I found a definite unilateral wheeze. As Dr Chapman has told you the recorded physical signs were those of partial bronchial obstruction, and the musical râles limited to one side seemed to me further evidence of such a condition. When I examined the patient there was also a change in the breath sounds, and instead of much diminished breathing there was bronchial breathing at the right base so that I felt justified in making a diagnosis of collapse with an open bronchus. We were then faced with the question of what was causing this obstruction. The first thought naturally was intrabronchial tumor, and I think we did mention tuberculosis as a possibility because we have recently been impressed by the frequency of a tuberculous process within the trachea and bronchi. We have had two cases this fall with collapse of the upper lobe who were bronchoscoped with the expectation that a tumor would be shown. Neither case showed outcropping but the mucous membrane was abnormal in both cases and a biopsy specimen was diagnosed as tuberculosis. A third case showed only slight changes in the parenchyma of one lung. The other lung appeared normal. Because of a persistent positive sputum artificial pneumothorax was instituted on the affected side, but in spite of eight months of such treatment with a complete collapse, the patient continued to raise a large amount of sputum containing many tubercle bacilli. Bronchoscopy was finally performed and showed

the left main bronchus almost filled by tuberculous granulation tissue.

The day after this first examination I received a telephone call in which the sudden change in the clinical picture was described. Because of what we had found on the previous examination I thought that there had probably been a sudden complete occlusion of the bronchus and that we were dealing with a massive collapse. The patient was then examined to see if we could find evidence of complete bronchial obstruction sufficient to warrant an emergency bronchoscopy. We also had in mind a possible emergency artificial pneumothorax in order to relieve the symptoms which are sometimes caused by an acute massive collapse. Physical examination and x-ray, however, did not give us evidence of such an obstruction so that the advice was for morphia and oxygen. Although the patient was relieved by these measures he died a few hours later. We were not prepared for the autopsy findings.

CLINICAL DIAGNOSES

Lobar pneumonia
Neoplasm?
Tuberculosis of the lung?

DR EARLE M CHAPMAN'S DIAGNOSIS

Abscess of the lung

ANATOMIC DIAGNOSES

Tuberculosis, chronic, right upper lobe
Acute tuberculous pneumonia, right lower lobe
Pulmonary embolus
Pulmonary infarction, early, left lower
Pulmonary atelectasis, right upper

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY: This man had his sudden terminal episode two or three days too early for the convenience of the hospital. I think if they had had more time to investigate they would have come closer to the diagnosis. He came to us with a number of questioned diagnoses on the death report varying from lobar pneumonia, through abscess, cancer of the lung, to tuberculosis. What we found was a very extensive severe tuberculosis, nothing else. He had an old fibrous lesion at the apex, evidently the source of the infection, and then an acute tuberculous pneumonia which involved primarily his lower lobe on the same side, approximately three-fourths of that lobe was solid with tuberculous pneumonia, almost lobar distribution. There were scattered spots through his various other lobes with occasional lobules of tuberculosis, evidently a pneumonia spread by the air passages rather than through the blood stream. We found nothing to explain the bronchial plugging except the pres-

ence of a large amount of thin mucoid exudate which could easily come and go and produce a varying picture. The right upper lobe showed extensive atelectasis.

The terminal episode was still more of a complete surprise. That consisted of a large pulmonary embolus which lodged in the artery to the left lower lobe.

A PHYSICIAN Any evidence of tuberculosis in the left lung?

DR. MALLORY There was one spot way down at the left base where a group of several lobules showed pneumonic exudate, with scattered individual lobules elsewhere, but no very large amount.

A PHYSICIAN Was there any pleural effusion?

DR. MALLORY About 100 cubic centimeters.

A PHYSICIAN Where did the embolus come from?

DR. MALLORY We do not know. We were restricted to the chest. Such cases usually in my experience show thrombosis of the deep veins of the leg, however.

CASE 22062

PRESENTATION OF CASE

A fifty-seven year old unemployed Syrian entered complaining of hematuria.

Twelve years before admission following right lumbar pain a stone was removed from his right kidney. He remained well until seven years before admission when another stone was removed from the same kidney. There were no symptoms following the second operation until three months before admission when he developed burning pain upon micturition, and cloudy urine. At about the same time he began to have frequency six to eight times and nocturia one to four times. Two months before admission he began passing small clots of blood which continued until his urine became pink and more recently deep red. On several occasions during the week before entry he had been unable to urinate until a clot was passed. During this two month period he had pain in both kidney regions. On the morning of admission he entered the Out-Patient Department with acute urinary retention. Eighteen ounces of red urine was obtained and an attempt at cystoscopy in the Out Patient Department was fruitless because of the large amount of blood in the bladder. During the past three months his appetite had been poor and he had lost about 30 pounds in weight.

His marital and family histories are non-contributory. He had had an attack of gonorrhea thirty years before entry.

Physical examination showed a fairly well developed and undernourished, pale, dehydrated

man with a slight trace of acetone on his breath. The skin and mucous membranes were pale. Many of his teeth were missing. The heart and lungs were negative. There was a hard questionable rough mass about 8 centimeters in diameter situated just above the umbilicus which was taken to be the bladder. There was a scar in the right flank. The blood pressure was 130/70.

The temperature was 100.1°, the pulse 112. The respirations were 30.

The urine was red and showed a brown tint for sugar. The sediment was loaded with red blood cells and also contained a few white blood cells. Examination of the blood showed a white cell count of 10,900. The nonprotein nitrogen of the blood was 51 milligrams. The blood sugar was 456 milligrams.

A plain abdominal film showed a slightly enlarged right kidney outline. The left kidney was very large and elongated and overlying its lower pole were three shadows having the appearance of stones. There was also a shadow two centimeters in diameter overlying the lower right sacrum apparently in the course of the right ureter. There were also two small faint shadows in the region of the gallbladder. Intravenous dye appeared on the left in good concentration. On the right there was very little evidence of secretion. The upper urinary tract on this side appeared considerably dilated. On the left there was gross dilatation of the kidney pelvis and major calices with clubbing of the minor calices. The bladder was not visualized. The lung fields were clear.

On the second day bilateral nephrostomies were performed. A cystoscopy was not very satisfactory but there seemed to be marked edema and a large amount of blood clot clinging to the bladder wall. There were some areas that suggested neoplasm. Five days later a suprapubic cystotomy and fulguration of the bladder tumor were performed. Following operation there was a sharp rise in temperature. In spite of insulin treatment, 10 to 30 units a day, his blood sugar remained fairly elevated. His nonprotein nitrogen rose to 81. The CO₂ combining power was 36.4 per cent. He rapidly failed and died twelve days after admission.

DIFFERENTIAL DIAGNOSIS

DR. E. ROSS MINTZ There are a number of diagnoses given to us in this history practically ready made. Among them are recurrent nephrolithiasis, diabetes mellitus, and a vesical neoplasm. It is not unusual for patients with one kidney stone to form others. It is not common, however, for renal stones to produce gross hematuria, although they may very well do so yet it is not the rule. The character of hematuria that one sees in calculus disease of the kidney is usually a pinkish urine or microscopic hematuria, and not hematuria with

clots, clots so large as to produce obstruction to urination, and fill the bladder so completely with blood. If the hematuria is renal in origin one must consider the question of renal neoplasm associated with stones. This is fairly common in the papillary and epidermoid carcinoma of the pelvis of the kidney and would fit in with a question of a tumor in the bladder, yet the probability is that there is no renal tumor.

I notice there has been no mention of what the serum calcium and phosphorus showed in this particular case, although it probably would not have any relation to the present condition, yet it would be interesting to know if the patient had evidence of hyperparathyroidism.

A flat plate of the abdomen showed a number of shadows in the left renal pelvis which had the appearance of stones, and there was also a shadow in the right lower quadrant in the course of the right ureter. Intravenous neopax was not excreted by the right kidney, but was by the left. In all probability the patient had a small stone in the lower end of the right ureter which probably completely obstructed it. This would fit in with the finding of a large kidney on the right side. It is interesting to note that at no time were there any symptoms of left renal colic. On cystoscopy a bladder tumor was found. It would be important to know just what type of tumor was found and the size and location of the tumor. It may well be that a vesical neoplasm could obstruct the right orifice accounting for the nonfunctioning kidney on that side.

The high nonprotein nitrogen could be explained in various ways. The patient was evidently acidotic, for the carbon dioxide combining power was 36.4 per cent. The elevated nonprotein nitrogen might have been due to marked renal damage caused by blockage in the right ureter and stones in the left, which may or may not have completely blocked the ureteral pelvic junction, or may have been due to an overdistended bladder with back pressure. It is, however, unusual with that amount of nitrogenous retention and kidney damage and also considering the patient's age, fifty-seven, to have the blood pressure only 130/70, taking into consideration that on physical examination no cardiac lesion was found. I am also surprised to see that the temperature is no higher, and also that there are no more than a few white cells in the urine, for it is known that diabetics are very prone to infection. It makes one wonder if the patient has a completely blocked-off kidney on the right with a pyonephrosis behind it.

It would be interesting to know just what was obtained and what was found when the bilateral nephrostomies were done. It would seem that if the hematuria were coming from the kidneys the nephrostomy tubes should have

been able to take care of it without having the bladder fill with blood clots five days after the operation. It would make one feel that without question the hematuria was vesical in origin and probably the tumor in the bladder was more extensive than the record of the operative findings indicates.

Nephrostomies are not without dangers. I have seen excessive bleeding, sepsis in the kidney, and in one particular case a renal infarct following this operation.

One begins to wonder whether the patient's temperature of 100.2°, the white count of 10,900, and the blood pressure of 130/70 indicate the real pathology present. It sounds to me as though the patient were in extremis, and confirmatory evidence for this can be deduced from these three findings. Sepsis is unquestionably present and probably will be found in the right kidney either in the form of a pyonephrosis or in the form of smalliliary abscesses. Of course, there will be sepsis in the left kidney.

I believe the lesion in the bladder is an epidermoid carcinoma. As no calcium and phosphorus blood studies were done, one cannot say whether the patient has a parathyroid tumor. A history of recurrent bilateral stones is highly suggestive of it, although a fair percentage of cases with bilateral stones have been proved to have no pathology in the parathyroid gland.

CLINICAL DIAGNOSES

Bilateral renal calculi
Carcinoma of the bladder
Diabetes mellitus

DR. E. ROSS MINTZ'S DIAGNOSES

Epidermoid carcinoma of the bladder
Bilateral nephrolithiasis
Diabetes mellitus
Pyelonephritis

ANATOMIC DIAGNOSES

Epidermoid carcinoma of the bladder, bilateral
Hydronephrosis
Pyelonephritis
Nephrolithiasis
Operative wounds Cystotomy and bilateral nephrostomy
Septic spleen
Arteriosclerosis
Parathyroid cyst

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY. The autopsy findings confirm the double diagnosis of nephrolithiasis and carcinoma of the bladder. The cavity of the bladder was almost completely filled

with a large, partly necrotic cauliflower mass, which was attached to the posterior wall. It did not involve the mouth of either ureter. On microscopic examination it proved extremely undifferentiated, but a suggestion of cornification here and there made us feel that it should be classified as an epidermoid. The right kidney pelvis was greatly dilated and the nephrostomy wound opened into it. Practically no recognizable renal parenchyma could be identified. The left kidney was extremely large, weighing 650 grams. This was due probably in part to compensatory hypertrophy, and certainly in part to an extensive infectious process since on section innumerable small abscesses were evident. The pelvis contained five stones, varying in size

from three centimeters to four millimeters in maximal diameter. The renal vein was partially occluded by a fresh thrombus. The patient showed a typical septic spleen which weighed slightly over 700 grams, was very soft and flabby with invisible markings. The heart was essentially negative except for numerous sclerotic patches in the coronary arteries and a moderate degree of calcification at the bases of the aortic cusps. It was not felt however that these findings would have produced any symptoms. The parathyroids were examined with care but proved negative except for the presence of a small cyst in one gland. Cysts of this type are fairly common incidental autopsy findings and have no functional significance.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.04 per year \$8.58 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway, Boston, Mass

PROTAMINE INSULIN

ANY advancement in the treatment of diabetes is "news." No better proof of this is required of the vast multitude of diabetics in the country and of their relatives and friends than the prominence given in the press recently to the Hagedorn protamine insulin. Unlike many announcements of new remedies, this would appear to err on the side of conservatism, because the implications which must follow a control of the blood sugar of diabetics for twenty-four hours are so far-reaching. If the blood sugar is normal, the blood fat, the reaction of the blood, the glycogen storage in the tissues presumably will become normal too, and in fact, the diabetic will approach still more closely the normal state. As a result, complications should decrease and the premature arteriosclerosis of the diabetic, which insulin had deferred to a considerable extent, should begin to be a thing of the past.

It is true that the present preparation of protamine insulin will not act quickly enough in coma and will not enable the patient to eat

carelessly. However in combination with regular insulin it will allow adequate diets, and by controlling the disease not only prevent the onset of hyperglycemia with the danger of coma, but hypoglycemia with the danger of reactions. Results to date of studies now in progress suggest that there will result a preparation of protamine insulin which can be used exclusively—without the aid of regular insulin.

Protamine insulin promises to work almost a revolution in the treatment of diabetes. To the Naunyn, Allen, and Banting Eras, our friends at the George F. Baker Clinic tell us that we now must add a fourth, the Hagedorn Era.

It is no secret that the new protamine insulin came to Boston first for trial, because of a hint from a Boston medical Nobel Prize winner. A year ago in Copenhagen he met another Nobel medalist, Professor Klogh, who is one of the Trustees of the Steno Memorial Hospital, and there was introduced to Dr. Hagedorn.

Hagedorn is a familiar name to doctors. The present Hagedorn is known the world over because of the Hagedorn-Jensen technique for estimation of the blood sugar. His originality and versatility are well-known. For some years he has been in charge of the laboratory in Copenhagen in which insulin is manufactured for the Scandinavian countries, Finland, Norway, Sweden, and Denmark, under the supervision of the Danish king. The profits from the sale of insulin have been set aside for research, both in an adjoining laboratory and in a hospital of twenty-two beds, chiefly for diabetics, just across the street. Dr. Hagedorn presides over all three institutions, and in each his inventive genius is apparent.

Commercial insulin is an acid—insulin hydrochloride—with a pH of 2.4. It thus radically differs from the reaction of the blood which is alkaline and has a pH of 7.4. Hagedorn conceived the idea of combining insulin with a base, and for this purpose resorted some years ago to trials with the various protamines, produced first by Miescher in 1868 and first used as protein precipitants by Kossel in 1890. A product near the pH of body fluids naturally would diffuse more slowly than one whose reaction was acid. We understand Hagedorn went through a laborious process in his search for the protamine he wanted, and suspect it required all the patience of an Ehrlich in his discovery of 606. Oddly enough, the protamine in the sperm of fish, and particularly in that of *salmo iridus*, rainbow trout, an American fish, proved the best to use. At present regular insulin and the protamine are dispensed in separate bottles and must be mixed before injection. A precipitate forms, but this is of so fine a character that it readily passes through a hypodermic needle.

and indeed causes no more local reaction than ordinary insulin

This new discovery in the treatment of diabetes wakes us all up. It makes us realize how rapid progress in medicine has grown to be. Galen described his two cases of diabetes in the second century, but it was not until the sixteenth century that Paracelsus evaporated the urine of a diabetic and observed that it left a large residue of "salt." Rollo instituted the dietetic treatment of diabetes only 140 years ago. When Toronto gave us insulin, we became altogether too smug in our satisfaction that diabetes were living twice as long as half a generation ago and not dying, on the average until they reached sixty three years. We were hardly prepared for a new therapeutic diabetic milestone so soon and it is for this reason that Hagedorn's protamine insulin upsets all our calculations.

Best of all, this new discovery of Hagedorn emphasizes anew that it is brains not bricks and mortar, which bring progress in medicine. We do not need more beds in our hospitals anywhere nearly so much as we need more brains. Think of what already has been wrought through this new method of treatment. It has given hope literally to millions of diabetics throughout the world and they are stimulated to keep alive a few months longer to reap its benefits. No extra hospital beds will be required!

In "Man the Unknown" Carrel refers to diabetes, and his remarks are most pertinent to the present occasion. "For instance insulin brings about the disappearance of the symptoms of diabetes. But it does not cure the disease. Diabetes can be mastered only by the discovery of its causes and of the means of bringing about the repair or the replacement of the degenerated pancreatic cells. It is obvious that the mere administration to the sick of the chemicals which they need is not sufficient. The organs must be rendered capable of normally manufacturing these chemicals within the body. But the knowledge of the mechanisms responsible for the soundness of glands is far more profound than that of the products of these glands. We have so far followed the easiest road. We now have to switch to rough ground and enter uncharted countries. The hope of humanity lies in the prevention of degenerative and mental diseases, not in the mere care of their symptoms. The progress of medicine will not come from the construction of larger and better hospitals, or larger and better factories for pharmaceutical products. It depends entirely on imagination on observation of the sick, on meditation and experimentation in the silence of the laboratory."

If Carrel is correct and brains are important in the field of medicine, how long will it take

for us plain people, following the lead of Presidents Lowell and Conant, to demand that brains shall be recognized in every field of human endeavor?

HOUSE BILL NO 34

THE hearing on this bill was conducted on January 23, and was sponsored by Dr Stephen Rushmore, Dr Charles E Mungan, Dr Frank H Lahey, Dr Francis R Mahony and Dr Walter P Bowers

The opposition was conducted by representatives of the College of Physicians and Surgeons and the Massachusetts Osteopathic Association.

There is an opportunity for all physicians interested in this matter to use influence with members of the Legislature before the report is considered by the General Court.

Persons interested in having House Bill 34 become a law may well ask questions as to how their hopes may be realized. It is to the interest of nearly every person in the state to have the bill passed, but on the other hand few persons are interested in doing anything about it. It is a problem of practical politics.

The first consideration concerns the importance of the issue. Does it really make any difference what kind of doctors are permitted to practice in Massachusetts? Is disease after all something which can be controlled by intelligent actions? Can one, by taking thought, add years to the span of his life? Yes, is the emphatic answer to each of these questions, and yet one finds many persons whose activities suggest that their answer would be No.

There is no doubt that better health is possible, that better protection against disease is practicable, that better protection against incompetent and unscrupulous physicians can be obtained if the citizens are willing to provide the means. It is not a question of increased expenditure of money—it is merely by exercise of duly constituted authority to secure protection, legal enactment to increase the scope of the work of machinery already created and functioning.

In order to secure this legal enactment it must be made clear to the legislators that what far sighted statesmen sought years ago has become a popular demand. It must be made clear to the citizens just what is at stake. They must understand that it is their health which is involved their protection which is sought, and they must be persuaded that a real danger exists.

There is little need of new facts hitherto unknown—new facts would merely support what is known. It is rather a problem of bringing to the attention of voters throughout the state facts which have been well known to a small

group for years. As the knowledge is spread there will be attempted rebuttal by misrepresentation of fact and motive and recriminations will be rife.

The persons best qualified to take the leading part in spreading knowledge of the facts are the physicians. To them, in spite of much misrepresentation and abuse for the doctor, the sick instinctively turn for knowledge about disease and its relief. They, better than any other group, can lead the way. Yet comparatively few physicians are keenly aware of the facts in the present intolerable situation. Massachusetts has the lowest statutory standards of practice in the United States, and there are admitted to practice in Massachusetts each year a considerable number of physicians whom no other state in the Union would regard as qualified even to be admitted to the examination for licensure.

There is presented then to the medical profession a duty and an opportunity to enlighten the public, so that public opinion will demand that Massachusetts should give to its citizens at least as much statutory protection as the other states give to their citizens.

'Terias irradiant! Let them enlighten the earth! Let the medical profession do its part in enlightening the voters of Massachusetts.'

The Massachusetts Medical Society

THE SURGICAL SECTION

THE Surgical Section of the Massachusetts Medical Society will hold its annual session in Springfield at 9:30 on the morning of June ninth. Dr. Mont R. Reid, Professor of Surgery at the University of Cincinnati, has accepted an invitation to address the Section, and has chosen to speak on the subject of "Wound Healing." Dr. Reid and his colleagues have been conducting some researches on this very fundamental problem, a problem of interest not only to surgeons but to all practitioners of medicine, every one of whom is concerned with the practical side of this subject in greater or lesser degree. Dr. Reid, noted for his painstaking work and for his surgical finesse, will present a paper which everyone should hear.

The balance of the program of the Section will be varied to appeal to the interest of different groups of surgeons, rather than limited to a symposium on one subject. The officers of the Section will be glad to receive, from members of the Society anywhere in the state, abstracts of papers which they deem worthy of inclusion in the program, and desire to present. Such requests should be submitted before March first, and will be carefully considered before the final program is selected.

With the increased tendency in recent years

toward limitation and concentration of interest and fields of activity among doctors, it should be emphasized that, just as surgeons would be better surgeons if they attended more scientific meetings on purely medical subjects, so also will those doing medical work profit by attendance at surgical meetings.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

SOWLES, HORACE K. A.B., M.D. Harvard University Medical School 1915. F.A.C.S. Assistant Visiting Surgeon, Massachusetts General Hospital. Associate Surgeon, Faulkner Hospital. Consulting Surgeon, Lawrence Memorial Hospital. His subject is "Obliterative Cholangitis Involving the Extrahepatic Bile Ducts." Page 227. Address: 279 Clarendon Street, Boston, Mass.

QUINBY, WILLIAM C. A.B., M.D. Harvard University Medical School 1902. F.A.C.S. Clinical Professor of Genito-Urinary Surgery, Harvard University Medical School. Urologist, Peter Bent Brigham Hospital, Boston. His subject is "Ureterovesical Carcinoma. Cystectomy—Ureterosigmoidostomy." Page 232. Address: Peter Bent Brigham Hospital, Boston.

RANDALL, ALEXANDER M.A., M.D. Johns Hopkins University Medical School 1907. F.A.C.S. Professor of Urology, University of Pennsylvania School of Medicine. Urologist, Hospital of the University of Pennsylvania, Chestnut Hill, Germantown Hospitals, Philadelphia, and Abington Memorial Hospital, Abington. His subject is "An Hypothesis for the Origin of Renal Calculus." Page 234. Address: 1323 Medical Arts Building, Philadelphia, Pa.

ALBRIGHT, HOLLIS L. A.B., M.D. Harvard University Medical School 1931. Formerly, Fellow in Surgery, Lahey Clinic. Now, Associate, Surgical Staff, New England Baptist Hospital. His subject is "The Management of Fibroma of the Retiopharynx. Report of a Case." Page 242. Address: 171 Bay State Road, Boston.

GARFIN, SAMUEL W. D.M.D., M.D. Boston University School of Medicine 1922. Assistant Laryngologist, Collis P. Huntington Memorial Hospital. Assistant Surgeon, Aural Service, Boston City Hospital. Assistant Laryngologist, Beth Israel Hospital. Address: 485 Commonwealth Avenue, Boston. Associated with him is

PEARL, SAMUEL M. M.D. Tufts College Medical School 1911. Assistant Visiting Physician for Immunology, Boston City Hospital. Address: 27 Bay State Road, Boston. Then sub-

ject is "Ionization in the Treatment of Hay Fever and Allied Conditions" Page 244.

SQUIRE, AMOS O. M.D. Columbia University College of Physicians and Surgeons 1899 Chief Medical Examiner, Westchester County New York. Consultant, Sing Sing Prison. His subject is "Why People Commit Crime and How to Meet the Problem" Page 247 Address 36 South Highland Avenue, Ossining N. Y.

The Massachusetts Medical Society

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DIABETES IN PREGNANCY

Until the discovery of insulin diabetes in pregnancy was a very serious complication. Fortunately diabetes was a definite cause of sterility, few diabetics becoming pregnant. Fortunately again diabetes was a cause of miscarriage, so that actually very few diabetics who became pregnant ever succeeded in reaching term, and among those who did reach term most of the babies were born dead. Because of the small chance of a diabetic having a living child and because of the extreme danger to the mother from coma and diabetic death, most diabetics were advised against becoming pregnant and those who did become pregnant were very often aborted.

Now, insulin has very largely changed this picture. Insulin is doing for the diabetic pregnant patient what insulin has done for the ordinary medical diabetic. It has increased fertility. It has saved the lives of children developing diabetes in their teens who, before the discovery of insulin, would never have lived to maturity, so that some of these diabetics have actually been delivered of living children. In consequence, insulin has materially increased the number of diabetic patients who may become pregnant. Under intelligent care, it has made pregnancy safe for these diabetic mothers, but not yet does it guarantee living children to every diabetic.

The problem of diabetes in pregnancy is primarily a medical problem. No one should think of caring for a sick diabetic, who is pregnant, who is not a trained specialist in diabetes. The obstetrician's rôle in this complication is not

important until delivery. The method of delivering these diabetics must be entirely individualized. One cannot intelligently say that all diabetics should be handled in one manner. If one believes that all diabetics should be delivered normally at term, certain diabetic babies are going to be lost. If one says that all diabetics should be delivered by Caesarean section, certain cases will be sectioned that do not need it. The mild diabetic requires very little care beyond that given a normal case, but the severe diabetic—the child who developed diabetes in the teens, who is alive today because of insulin, and who we feel should have only one or two pregnancies—does require very different treatment. Upon this latter type of case Caesarean section offers the best chance for the baby.

We know definitely that some babies die in utero after viability that might well be saved if delivered before intrauterine death. Each case must be decided on its individual merits.

It is not nearly enough to call a case successfully treated when a living baby is delivered. Experience has taught that babies of these diabetic mothers are most unstable. After birth they have very strange metabolic reactions—some of them have demonstrated a remarkable condition of hypoglycemia. These babies must be nursed and cared for by one trained in diabetes as carefully as the mothers have been cared for during the pregnancy. Consequently one sees that the problem of diabetes in pregnancy is threefold.

1 A medical problem. The internist specializing in diabetes must have intimate control of the patient all during the pregnancy and labor, special attention being given those mothers who would not be living today were it not for insulin.

2 An obstetrical problem. The method of delivering these cases requires expert judgment, each case to be individualized.

3 A pediatric problem. Because of the severe metabolic disturbances that these newborn infants show, they must be under expert diabetic, pediatric care after birth.

If the diabetic who becomes pregnant is followed in this threefold manner, no mothers should be lost because of diabetes and the fetal mortality should become lower.

MISCELLANY

A RECEPTION TO DR. WILLIAM B. KEELE

In response to invitations extended by Dr. Charles F. Williams public health officials, physicians, representatives of voluntary health organizations and associates of these groups met at the Myles Standish Hotel on the evening of January 29, 1936 to do honor to Dr. William B. Keeler the newly appointed Health Commissioner of Boston.

A series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

Dr Wilinsky as host and toastmaster gracefully introduced the after dinner speakers and incidentally reviewed the history of the public health activities of Massachusetts and Boston, and as each speaker was presented, explained his relation to the accomplishments of the various health agencies of the state and city

Dr Keeler, at the close of the program, expressed his appreciation of the high honor conferred on him by his Honor Mayor Mansfield, and spoke with evident emotion of his regard and affection for Dr Mahoney, his predecessor, and for Dr Wilinsky, under both of whom he had served for fourteen years in the Boston Department of Public Health. He cordially invited the cooperation of organizations and individuals interested in the city's health problems and gave assurance that the doors of his Department will always be open for conferences and suggestions

The spirit of the occasion gives assurance that the capital city of Massachusetts will have an administration of its health problems in full accord with its traditions

AN HONOR TO DR HENRY POLLOCK

A testimonial dinner was given to Dr Henry Pollock at the Parker House, January 30, 1936, by about three hundred associates and friends of the Massachusetts Memorial Hospitals

In addition to his position as Superintendent of the Hospitals, Dr Pollock is an Associate Commissioner of the Department of Mental Diseases under Dr Overholser

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR DECEMBER, 1935

Disease	Dec, 1935	Dec, 1934	5 Yr Average*
Anterior Poliomyelitis.....	21	1	12
Chickenpox	1537	1780	1453
Diphtheria	54	68	185
Dog Bite.....	487	463	336
Epidemic Cerebrospinal Meningitis	10	10	8
German Measles.....	93	328	115
Gonorrhea	530	570	589
Lobar Pneumonia.....	566	285	416
Measles	483	650	1186
Mumps	1239	242	429
Scarlet Fever.....	1013	648	1107
Syphilis	437	383	417
Tuberculosis, Pulmonary.....	290	254	289
Tuberculosis, Other Forms.....	20	30	34
Typhoid Fever.....	5	11	20
Undulant Fever.....	6	—	—
Whooping Cough.....	292	651	736

*Based on the figures for the preceding 5 years

RARE DISEASES

Anterior poliomyelitis was reported from Belmont, 1, Beverly, 2, Boston, 3 Groton, 1 Lawrence, 1

Lynn, 4, Quincy, 1, Salem, 1, Saugus, 1, Shrewsbury, 1, Wareham, 1, Watertown, 1, Winchester, 1, Woburn, 1, Worcester, 1, total, 21

Anthrax was reported from Lynn, 1

Diphtheria was reported from Belmont, 1, Boston, 5, Brockton, 1, Chelsea, 1, Chicopee, 19, Dighton, 1, Fall River, 7, Franklin, 2, Lowell, 8, Melrose, 1, New Bedford, 2, Northbridge, 1, Revere, 1, Taunton, 2, Waltham, 1, Worcester, 1, total, 54

Dysentery (amebic) was reported from Medford, 1, New Bedford, 1, total, 2

Encephalitis lethargica was reported from Belmont, 1, Leominster, 1, total, 2

Epidemic cerebrospinal meningitis was reported from Leominster, 1, Newburyport, 1, Newton, 1, Springfield, 1, Winthrop, 1, Worcester, 5, total, 10

Malaria was reported from Boston, 1

Pellagra was reported from Beverly, 1, Boston, 1, total, 2

Septic sore throat was reported from Amherst, 1, Boston, 5, Chicopee, 2, Lynn, 1, Malden, 1, Stoneham, 1, Topsfield, 1, total, 12

Tetanus was reported from Boston, 1, Fitchburg, 1, Haverhill, 1, total, 3

Trachoma was reported from Bedford, 1, Somerville, 1, total, 2

Trichinosis was reported from Deerfield, 1, Plymouth, 1, total, 2

Undulant fever was reported from Holyoke, 1, Kingston, 1, Quincy, 1, Templeton, 1, Worcester, 2, total, 6

With 396 reported cases, diphtheria showed a very pleasing decrease of 37 per cent over last year's figure. Through November, diphtheria deaths were running 54 per cent below 1934.

Typhoid fever, with 112 reported cases, showed a decrease of 16 per cent over 1934.

There were 1,392 cases of anterior poliomyelitis reported in 1935 with 21 of these in December. Fifty seven deaths were reported through November as compared with 114 deaths in 1931 when there were 1,428 reported cases.

Although the figure for December, 10, is not remarkable, there were 83 cases of epidemic cerebrospinal meningitis in 1935 as compared with 66 in 1934, the increase being noted chiefly in May and October.

Lobar pneumonia was considerably above last December's figure and the yearly total was higher than for any year since 1929.

Scarlet fever has been running higher than 1934 since October and it would appear that the increased prevalence will be maintained through 1936.

Pulmonary tuberculosis for December was higher than 1934 as is the yearly total. The deaths, however, through November showed a considerable decrease over last year's figure.

Tuberculosis, other forms, whooping cough and measles were reported below December of 1934.

Mumps had its highest reported December incidence

German measles, while not remarkable for December had its highest reported total for any year 33,265 cases

Chickenpox There is nothing remarkable in the incidence of this disease

Undulant fever with 6 cases reported in December and 43 for the year had an increased incidence over 1934

The reporting of dog bites continues to run higher than last year

AN HONOR TO DR. JAMES B AYER

In recognition of the completion of twenty five years of teaching at the Harvard Medical School Dr James B Ayer James Jackson Putnam Clinical Professor of Neurology was honored recently at a dinner at the Tavern Club Boston

Dr C Macfie Campbell acted as toastmaster and speeches were delivered by Drs James H Means W Jason Mixer George L Walton Merrill Moore and Henry R Viets

CONNECTICUT STATE MEDICAL SOCIETY MAKES PROGRESS

At the session of the House of Delegates held in conjunction with the annual meeting of the Connecticut State Medical Society in May 1935 it was voted that the President of the Association shall on or before the 15th of June, 1935 appoint a Committee of eight members of which not more than one shall be resident in any County The function of this Committee shall be to inquire into the administration and activities of the Secretary of the Connecticut State Medical Society directing especial attention to

"1 The employment of a full time executive secretary for the Society

"2 The continuation of a volunteer secretary with a full time executive assistant.

3 The establishment of a permanent office for the Association in Hartford.

"4 Inquire into the expense likely to be incurred by such a program

"5 Suggested methods of financing the increase in the State Society budget incident to such program

6 Ways in which administrative activities of the various County Association Secretaries can be consolidated in a central State office

"This Committee shall report to the Council of the Connecticut State Medical Society not later than January 1 1936 presenting a résumé of its findings and recommendations for improved administration in the office of the Secretary"

This Committee on the Administration of the Office of the Secretary labored long and well It corresponded with the Secretary of every other State Medical Society in the Union and was surprised to learn that its own society members paid less in annual dues than the members of any other state society except two It also obtained first hand information from other societies where a full time secretary is successfully employed such as New Jersey In its report to the Council this Committee recommended "that a permanent executive secretary a male and a layman should be employed at a salary approximating \$4000 and that a capable stenographic assistant at \$1200 should be added to the office The Committee expressed itself as believing that a volunteer secretary with a full time executive assistant would be but a partial answer to the present and future needs of the Society It further recommended the establishment of a permanent office for the Society in Hartford on the grounds that the State Legislature State Medical Board of Examiners and State Department of Health are all located in Hartford and this city is centrally located geographically The Committee suggested a budget of \$12000 to meet which the dues per capita would be increased from \$400 to \$800 per year and a saving realized by substituting a quarterly bulletin for the present expensive annual publication known as the Proceedings Furthermore the Committee suggested several ways in which the work of the component County Association Secretaries could be consolidated in a central State Society office

The Council of the State Medical Society was far from agreeing unanimously with the recommendations of the special Committee. Consequently a questionnaire was sent to every member requesting an expression of opinion as to whether a full time secretary or a part time member secretary with full time executive assistant was desired. There was some ambiguity in the wording of the questionnaire so that many of the members feel that the resulting ballot did not express the true opinion of all concerned The fact remains however that returns favored a part time member secretary with executive assistant.

The Council therefore, presented to the House of Delegates met in special session at New Haven on January 16 1936 the following resolutions all of which were adopted

1 The Council recommends to the House of Delegates that so much of a previous vote of the House of Delegates of an unknown date that authorizes the return to the County Associations of 10 per cent of the State dues collected by the County Associations be rescinded and that in the future the entire amount of the State dues collected by the County treasurers shall be delivered to the Treasurer of the Connecticut State Medical Society after the deduction of 5 per cent of the total amount collected which shall be the County Treasurer's recompense for his services in connection with the collection of the dues as at present.

2 The Council recommends to the House of Delegates that the publication of a single bound volume of the Transactions of the Connecticut State Medical Society be discontinued In the place thereof there shall be published a "Quarterly Bulletin on the Connecticut State Medical So-

ciety" in the months of May, August, November and February of each year and distributed to all members of the Society. This Bulletin in addition to other material shall include—in the May issue, a directory of members of the Society, in the August issue, complete reports of business transacted by the House of Delegates at its annual meeting in May, and all reports presented before the House, in the November issue, comprehensive abstracts of all papers presented before the Connecticut Clinical Congress, in the February issue, such papers of conspicuous merit as may have been presented before the State Society or any County Association during the year.

Reprints of material published in the Bulletin will be supplied to authors or others on order at cost.

3 The Council recommends to the House of Delegates that an office for the Connecticut State Medical Society be established, and that in this office there shall be employed a competent stenographer on a full time basis at a sufficient salary to recompense a properly trained person, not to exceed \$1,500 per annum, and this office be provided with such furniture and equipment as may be required, cost thereof to be approved by the Council.

4 (a) The Council recommends to the House of Delegates that a member of the Society shall be nominated and elected at the Annual Meeting in 1936 and annually thereafter, to an office to be known as the Administrative Secretary of the Society. The function of this Secretary shall be as prescribed in Section 4, Chapter VI, of the By Laws, to carry on all administrative activities of the Society, and to keep its records and its roster, and to serve as the Secretary of the Council, of which he shall be a regular voting member as provided in Chapter VII, Section I, of the By Laws. This Secretary shall receive an honorarium of \$600 per annum, to be paid from the funds of the Society in twelve equal monthly installments of \$50 each.

(b) It is further recommended that two additional Secretaries shall be nominated by the Council and elected by the House of Delegates at its annual meeting in 1936 and annually thereafter. The first of these to be known as Legislative Secretary, whose function shall be to serve as the Secretary and executive officer of the Committee on Public Policy and Legislation, and to carry on such legislative activity as may be required, the Secretary to receive an honorarium of \$250 a year to be paid from the funds of the Society. The second of these additional secretaries shall be known as the Secretary on Scientific Work. His function shall be to serve as Chairman of the Committee on Scientific Work, to edit, publish, and distribute through the central office of the Society, the Quarterly Bulletin mentioned above, to arrange all scientific programs of the Society and to cooperate with

the various County Societies in the arrangement of their programs. This Secretary shall receive an annual honorarium of \$300 to be paid from the funds of the Society. The Legislative Secretary and the Secretary on Scientific Work shall not be voting members of the Council, but shall meet with that body from time to time and assist in its deliberations.

5 The Council further recommends that the Chairman of the Council, the Treasurer, and the three Secretaries of the Society shall be constituted a Budget Committee, that shall on or before the first of May each year, set up a budget for the Society which shall be submitted to the Council—sitting as the Finance Committee, as provided in Chapter VII, Section I, of the By Laws—for approval and submitted to the House of Delegates in its annual meeting for adoption.

6 The Council recommends to the House of Delegates that the dues collected from each member of the Connecticut State Medical Society for the year 1936 shall be \$5.00 and that the previous vote of the House of Delegates establishing the dues for 1936 at \$4.00 be rescinded.

By the adoption of these last six resolutions the Connecticut State Medical Society at its annual meeting on May 20-21, 1936, will create a better organized secretarial office than it now possesses and will proceed to publish a quarterly bulletin in place of its annual Proceedings. This surely is a step toward a more efficient organization and in the right direction.

CORRESPONDENCE

A HITHERTO (?) UNDESCRIBED SOURCE OF DERMATITIS VENENATA

Editor, *New England Journal of Medicine*,

I would like to bring to the attention of your readers an apparently hitherto unrecorded source of dermatitis venenata.

On December 9, 1935, there came to my office a high governmental official of a neighboring state with a large, oval, inflammatory area on the left side of his lower chest and upper abdomen. This area was approximately six inches by five in diameter and was red and dry almost to fissuring, resembling the eczema craquelé of the French, while the periphery was delicately peeling, simulating pityriasis rosea in that the free, loose edge of the desquamating scales was toward the center rather than toward the outer border.

The history revealed that five weeks previously a similar outbreak had occurred and subsequently died down and after an interval the present attack had developed. Itching and discomfort had preceded both of these eruptions and the home physician had recommended cold boric solution packs.

The patient uses two popular soaps, either of which, in the dryness of winter, can produce eczema craquelé on a susceptible skin, but not the unusual

type of desquamation observed in this instance. Boric acid can upset certain skins but even this possible etiological factor did not touch the patient's integument until after itching and discomfort had appeared.

Because of the boric acid complication no diagnosis was made and the patient was given a mild zinc oxide paste.

On December 11 a telephone message stated that the periphery of the patch had cleared that the disagreeable sensations had abated but that the centre showed no appreciable change. The addition of a zinc calamine glycerine and phenol lotion was recommended to precede the application of the paste.

On December 30 after a trip to Florida the patient returned to show two areas symmetrically placed over the lower chest and the upper abdomen each about 4" x 5" moist, dusky pinkish red fading in intensity gradually toward the outer edge but without any signs of desquamation. No applications of any sort had been made so that this time we saw the rash in its virgin state.

The story since the previous visit was that on the second day in Florida the eruption began to fade and soon had fully vanished. The northern journey began on December 28 and on going to bed that night the earlier itching and discomfort had reappeared and the two present patches were evident.

Dermatitis artefacta could easily account for this extraordinary outburst but the upstanding manly nature of the patient excluded such a thought once and forever. The question of drugs was raised—especially phenolphthalein and the barbiturates although such a limited distribution seemed to make this surmise absurd and furthermore the taking of drugs was denied.

After further cogitation the patient was told that this phenomenon was easily explicable but that he himself was the one and not the physician who could solve the riddle because in all probability the outbreak was due to contact with some substance which could not be guessed by a stranger.

The man who was obviously intelligent, keen and interested was given time to think.

In a few moments the answer came. It seems that friends had advised the carrying of a gas cartridge in a pseudo-fountain pen because of threatening letters and the over-possible crank. The suggestion had been adopted just before the first cutaneous outbreak and when on duty the fake pen had been carried in an upper waistcoat pocket.

On reaching Florida, the first day had been cold and the northern clothes had been worn. Afterwards in the normal Florida weather sports clothes and evening clothes were used. For the homeward journey the winter suit was donned.

Recall the history. In the north, after a certain event, an eruption appeared and for the most part continued. In the south after one cold day certain clothes were discarded and the eruption disappeared. On the return journey the northern clothes were resumed and within twelve hours more or less the eruption had returned!

With these data in mind the waistcoat was exam-

ined. It gave no smell to the patient or to the inquisitive doctor but the upper waistcoat pockets fitted precisely over the two great plaques on the patient's torso! Questioning revealed that the gas gun was carried in either upper pocket from time to time. The cartridge was investigated but that also gave forth no appreciable odor or moisture.

Two separate attempts have been made to ascertain the name and nature of the gas in this cartridge but thus far the manufacturer or discharging company has ignored my letters of inquiry.

CHARLES J. WHITE, M.D.

250 Marlborough Street, Boston

P. S. A belated letter from the patient states that in all probability the tear gas present in the cartridge is chloroacetophenone.

A NEW BOOK ABOUT ARTISTS

Editor *New England Journal of Medicine*

May I call the attention of physicians interested in art to "Illyrian Spring" by Ann Bridge (Little Brown & Co., Boston, 1935).

This tale of the Dalmatian Coast and of the two artists who work there, will, I think be of much interest to all physicians who paint, or to those others who like to see the efforts of their friends in artistic expression.

WM. PEARCE COVES, M.D.

13 Monmouth Court,
Brookline, Mass.

RECENT DEATH

MOAKLEY—ROBERT CLEMENT MOAKLEY, M.D., of Lexington, Massachusetts died at his home January 30, 1936. He was born in Lexington April 15, 1877 the son of James and Mary (Downey) Moakley. He graduated from the College of Physicians and Surgeons (Boston) in 1915.

Two brothers, John, of Lexington and William L. Moakley of Watertown and four sisters, Mrs. John E. Burke of Lynn, Mrs. Florian D. Record of Quincy, Mrs. Cornelius D. Gallagher of Lexington and Mrs. Patrick H. Mahoney of Wrentham survive him.

NOTICES

ANNOUNCEMENT

JOSEPH LENTINE, M.D. announces the opening of his office at 500 Park Drive, Boston.

REMOVAL

EDWARD ALLEN EDWARDS, M.D., announces the removal of his office to 330 Dartmouth Street, at Beacon Street, Boston.

AWARDS

The New England Society of Psychiatry at its next Spring meeting will make two awards: one of \$50.00 and one of \$5.00 to the writer (or writers) of the best papers completed or published during the calendar year of 1935 embodying research in

psychiatry by a younger worker (or workers) Physicians, psychologists, social workers, or others are eligible Membership in the Society is not a requisite

Authors who present articles for consideration should make arrangements with the publishers of their papers to preserve the plates, until such time as the awards are made, from which reprints could be made and furnished to the members by the Society

Writers who have once received an Award are not again eligible Seasoned writers, senior physicians, or heads of departments in which there are junior workers, while not inevitably excluded, will not generally be regarded as eligible for the Awards

The work on which the papers are based should preferably have been done in New England or by workers now living in New England

The papers will be examined by a Committee of three members who are accustomed to reviewing papers, and by the Executive Committee of the Society They will be judged on the basis of their scientific quality

Copies of articles or marked copies of journals in which the articles appeared should be sent before March 1, 1936, to the Secretary of the Society

Superintendents of institutions, public or private, for the care of mental patients in New England, also Deans of colleges and universities maintaining medical schools or departments of psychology are requested to post this notice, and to send to the Secretary a list of such papers published as they think entitled to be considered for the Awards

HARLAN J PAINE, MD, *Secretary*

North Grafton, Mass

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P M on Thursday, February 13, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr Henry A. Christian, Physician in Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic To it are cordially invited practitioners and medical students

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr Christian

REPORTS AND NOTICES OF MEETINGS

WILLIAM HARVEY MEDICAL SOCIETY

The William Harvey Medical Society met at the Beth Israel Hospital Dec 13, 1935, Dr Nathan Sidel presiding Dr Martin Dawson, assistant professor of medicine at Columbia University School of Medicine, spoke on "Rheumatoid and Osteo-Arthritis"

Chronic arthritis is the greatest single cause of disability in this part of the world, causing the loss of seven and a half million weeks' work in the

United States each year One of every five patients seeking medical advice does so because of ailments attributable to chronic arthritis The disease is divisible into two main classes rheumatoid arthritis and osteo-arthritis, each a separate disease with different etiology, different pathology, and different clinical course

Rheumatoid arthritis is characterized by a chronic progressive involvement of articular structures Eighty per cent of the cases develop between the ages of twenty and fifty years The disease is three times more prevalent in females than in males Its manifestations are protean, but there is no reason for separating it into such categories as "atrophic", or "infectious" types. Marie Strumpell's disease and Still's disease are also merely clinical manifestations of the same underlying pathological process

The etiology is unknown, although it is probably a specific infectious disease, and circumstantial evidence has pointed to hemolytic streptococcus infection as the probable causative agent The geographical distribution of the disease is similar to that of rheumatic fever, the incidence being high in temperate climates, and low in southern and subtropical regions The seasonal incidence of onset is the same as that of hemolytic streptococcus infections, the peak being from February to May Serum from patients with rheumatoid arthritis agglutinates certain strains of streptococci in dilutions as high as one part in one hundred and sixty Such agglutination occurs only in patients with diseases of known streptococcus etiology Only certain strains of streptococci belonging to the alpha group (the group responsible for most human infections) are so agglutinated In spite of this evidence, streptococci are not recoverable from either the joints or the blood stream in cases of the disease The concept of allergy must be utilized to explain the observant relationships

Dr Dawson warned against the unreserved acceptance of the theory of focal infection Tonsillar infection may be of importance, but the importance of prostatic and dental infection as causative of rheumatoid arthritis has been over emphasized

Pathologically rheumatoid arthritis begins in the periarticular tissues There follows the formation of a connective tissue pannus over the articular cartilage, which subsequently results in the destruction of the cartilage The focal collections of small round cells in the synovia are as characteristic of rheumatoid arthritis as the tubercle is of tuberculosis X ray studies reveal generalized osteoporosis, and a swelling of the periarticular tissues of the involved joints Although disturbances of metabolism occur in some instances, none have been consistently demonstrated Constitutional manifestations such as fever and accelerated sedimentation rate are frequently observed The relationship between rheumatoid arthritis and rheumatic fever, although interesting, has not been proved

Osteo-arthritis must be considered as a degenerative disease, due to the wear and tear of many years' use, or to abnormal traumata to one particular joint. It is a disease of old age, and infectious processes have no part in its etiology. Pathological changes are confined to local areas and there is no general systemic involvement such as is found in rheumatoid arthritis. There is a central degeneration of the articular cartilage, with subsequent increased strain on the periphery and resultant hypertrophic spur formation. There is little or no change in the synovia. X-rays reveal spur formation and do not show the osteoporosis characteristic of rheumatoid arthritis.

Osteo-arthritis is insidious in onset, and may not attract the attention of the patient until fairly far advanced. The terminal phalangeal of the wrist and the knee joints are those most frequently involved. They are "gnarled" in appearance in contradistinction to the fusiform swelling observed in rheumatoid arthritic joints. Systemic symptoms are absent and the sedimentation rate is normal or only slightly elevated.

The prognosis in rheumatoid arthritis must be guarded. Twenty to 25 per cent grow progressively worse. 50 per cent show improvement and 5 per cent recover completely. Since 70 to 80 per cent of cases improve without treatment, conclusions as to the efficacy of any particular form or therapy must be carefully considered. Osteo-arthritis is a progressive degeneration and recovery cannot be expected.

In the treatment of rheumatoid arthritis rest is as important as it is in the treatment of tuberculosis. Daily motion of the affected joints must be maintained, however but not to an extent sufficient to tax the physical ability of the patient. Physiotherapy is of value in many cases and local treatment to prevent the development of deformities or to correct those already existent, is of importance. Dr. Dawson condemned the prescription of unseasoned diets, and recommended high vitamin high caloric feedings. There is little evidence to substantiate the theory of focal infection as the exciting agent, except for tonsillar infection. Obviously infected tonsils should be removed. Trial of numerous vaccines has failed to show any definite benefit from this form of therapy. Foreign protein shock may bring about temporary but not permanent improvement. Injections of colloidal metals have not been of value. Aspirin and codein should be used freely to relieve discomfort.

The treatment of osteo-arthritis consists in attempting to prevent the progression of the disease since nothing can be done to restore degenerated cartilage. Weight reduction and physiotherapy are often of value in arresting the rapidity of the degenerative process. Special diets, vaccines, removal of foci of infection and drug therapy are not indicated.

BOSTON SOCIETY OF BIOLOGISTS

The December meeting of the Boston Society of Biologists was held on December 18 at the Harvard Biological Laboratories in Cambridge. The first paper of the evening was on "Certain Metabolic Effects of the Pituitary" by Dr. Joseph C. Aub. It has been known for some time that if the pituitary is removed an atrophy of the parathyroid results, while if there is hypertrophy of the pituitary gland the parathyroid is overactive. In the lead there is a low blood calcium after hypophysectomy there is no abnormality in the calcium metabolism of acromegalics.

Dr. Aub studied the calcium metabolism in a typical case of basophilic adenoma. This patient, who had been a normal girl at the age of ten began to gain weight rapidly at about the age of twelve, became sluggish mentally and amenorrhea followed. Examination showed a considerable amount of hirsutism, purplish atrophic striae and by x-ray a definite decalcification of the bones with a loss of two inches in height. The blood pressure was 150/110 and there was considerable prolan in the urine. By putting her on a low calcium diet, containing 100 milligrams of calcium a day this patient's calcium metabolism was studied before and after treatment. The normal person on this diet excretes 150 milligrams of calcium in the urine and 450 milligrams in the feces. This patient before treatment excreted five times the normal amount of calcium in her urine and feces. After x-ray treatment the calcium output became lower than normal, the blood pressure reached the normal level, she lost weight, the catamenia became normal and her bones became normally calcified again.

A study of the magnesium showed no abnormality before or after treatment and the blood calcium was at all times within normal limits. The basal metabolism rate which before treatment had been minus 34 rose to the usual level and her sugar tolerance which had shown a characteristic diabetic curve also returned to normal.

The second paper was on "Area in Vision and Theories of Retinal Interaction" by Dr. George Wald. As the area of the visual field is increased all the functions of the eye improve. The relationship between the area of the field and the values of these various functions were considered from both an experimental and mathematical point of view. Although it was previously found that the product of the area times the threshold is roughly equal to a constant in the case of foveal fields, and that the square root of the area times the threshold is approximately equal to another constant in the case of peripheral fields, no general equation has previously been derived to account for this relationship in all parts of the field. Dr. Wald has carefully worked out such an equation and has shown that the calculated figures closely coincide

Obviously this report is chiefly one of results in congestive failure. The paucity of angina cases comes from no prejudice against the procedure for them, but simply from the fact that the angina patients seen here have either had inadequate medical treatment, or have been too seriously sick for operation, or have been given alcohol nerve injections by preference.

This report includes no patient with thyrotoxicosis. In all instances the ablated thyroid gland was normal histologically.

III Methods of Procedure

Patients seen in the Out Patient Department whom it was felt might benefit from total thyroidectomy have been sent into the medical service for further study. There, after complete workup, they have been seen by members of the cardiac and thyroid clinics, and of the surgical service who have given their opinions as to the feasibility of operation.

On the day of operation, the patients have been transferred to the surgical service. The operations have been performed by one of three surgeons, Dr Arthur W Allen, Dr Edward D Churchill or Dr Richard H Miller. The patients have in some cases been discharged directly from the surgical ward, and in other cases have returned to the medical ward for further convalescence before discharge. In all instances the medical men have followed the patients in the surgical wards, and every effort for cooperation between the two services has been made.

Following discharge from the hospital, patients have been followed at regular intervals by one of us (R J C) in the metabolism laboratory. He has had the constant assistance of various members of the thyroid and cardiac clinics.

Six of the patients reported in this series are private ones operated on in the Baker Memorial or Phillips House. They have been selected and followed in much the same way as the ward patients, except that the follow-ups have been made by their own physicians. We are indebted to Dr P D White, Dr H B Sprague and Dr John Cass for permission to include their patients in this report.

The evaluation of results presented here has been made following considerable deliberation. It takes into account the opinions of members of the patient's family in some cases, in some cases that of the family physician or the patient's private consultant, but finally it represents the opinion of the writers who have seen these cases through their course. Criticism of selection and evaluation of results have also been checked over, on the basis of case summaries, by members of another hospital clinic carrying on the same work. The agreement as to classification of patients has been surprisingly close.

IV Selection of Cases

The proper selection of cases for total thyroidectomy presents perhaps the greatest and the most important problem of all. In the early months we tried to be guided largely by the previous short experience of those in the pioneer clinics. That we have made several errors in judgment will be apparent on inspection of the data. We have continued to learn from our own experience and from that of others. On the basis of this experience at the present time we would list the following as cases in which operation is definitely contraindicated.

- 1 Patients that have not been given the benefit of entirely adequate medical treatment over a sufficient period of time for full evaluation of its results.
- 2 Patients showing a rapid progression in spite of adequate medical care. A case such as No 1 (see below) with gross breaks in compensation at yearly intervals may be considered as slowly progressive. Cases such as No 17 and No 21 with second breaks in compensation within three months of the first in spite of rest and adequate care are too rapidly progressive. Cases of syphilitic heart disease as No 7 are per se too rapid in their downward course.
- 3 Patients with such severe heart disease that they are unable to establish and maintain compensation on digitalis and bed rest. This eliminates cases with persistent ascites or hydrothorax as No 6.
- 4 Patients with high grade mitral stenosis or other mechanical obstruction giving rise to high venous pressure sustained after compensation has been restored.
- 5 Patients with a low preoperative basal metabolism. Generally minus fifteen is considered to be the borderline, but as may be seen in case No 16, an angina with a good result, the preoperative level was minus seventeen.
- 6 Patients with chronic pulmonary disease of any type. The possibility of pulmonary infarction or thrombosis in cardiac patients as a cause for rapid failure in spite of adequate treatment has recently been emphasized⁵, and when it has been suspected should certainly contraindicate operation. See case No 21.
- 7 Patients with severe nephritis—low P S P test or high N P N.
- 8 Patients with malignant or severe hypertension, especially if associated with generalized arteriosclerosis. See cases No 9 and No 11.
- 9 Patients with active rheumatic infection, bacterial endocarditis, or other concomitant infection.

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with the experimental. He concludes that there is no retinal interaction and that the number of elements involved constitute the only important factor.

The last paper was delivered by Vincent E Morgan on the "Study of the Solubility of Muscle Hemoglobin." Muscle hemoglobin, or myoglobin, was first crystallized in 1932 when its preparation from horse heart muscle was described. The fact that it is much more soluble in certain phosphate solutions than is blood hemoglobin, has been used in the separation of these two forms of hemoglobin. By carefully controlling the concentration of the phosphate solution, Dr Morgan has been able to separate these two hemoglobins so that in his preparation there is only one part of blood hemoglobin to one million of myoglobin.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

The regular meeting of the Essex South District Medical Society was held at the Danvers State Hospital, Hathorne, on January 8, 1936.

Dr Bonner and members of his staff conducted the Society through the Wards. After the ward visit an interesting clinic was held and the following papers were read by Staff members:

The Use of Estrogenic Substances in Involution Psychosis, Dr Melvin Goodman.

The Effect of Physical Illness on Some Cases of Mental Disease, Dr Salvador Jacobs.

Some Usual and Unusual Methods of Suicidal Attempts in Mental Cases, Dr Edgar C Yerbury.

About seventy members were in attendance at dinner which was followed by a most instructive talk on:

Endocrine Factors in Personality by Dr R G Hoskins, Director of Research at Worcester State Hospital and Associate in Research at Harvard Medical School.

N P BREED, M D, *Reporter*

BOSTON PATHOLOGICAL SOCIETY

The stated meeting of the Boston Pathological Society was held in the Pathology Laboratory of the Children's Hospital on Monday evening, January 13, 1936. Dr Monroe J Schlesinger, President of the Society, presided.

The first part of the evening was devoted to an exhibition and discussion of gross and microscopic pathological specimens contributed by members of the society from their laboratories.

Following this, there was an address by Dr J Stewart Rooney on some aspects of legal medicine. Dr Rooney began by giving his viewpoint on the doctor as a witness and mentioned the many pitfalls, as well as interesting experiences, a physician encounters in the courtroom. He described briefly the differences between the Medical Examiner and the Coroner systems. He feels that the former is more satisfactory because a Medical Examiner does

not have so much judicial power as a Coroner does, and therefore, has not the individual right to decide legal questions. Dr Rooney then showed lantern slides which very graphically illustrated the many problems which present themselves in the doctor's study of crime.

Refreshments were served after the meeting and final adjournment was about ten thirty.

NEW ENGLAND DERMATOLOGICAL SOCIETY

The next meeting of the New England Dermatological Society will be held on Wednesday, February 12, at 3 P M, at the Massachusetts General Hospital.
J HARPER BLAISDELL, M D, *Secretary*

THE SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, February 18, at 12 noon. The speaker will be James H Means, M D, Professor of Clinical Medicine, Harvard Medical School, Chief of Medical Services, Massachusetts General Hospital. His subject will be "Remarks on the Use of Thyroid." All physicians are cordially invited to attend the meeting. The usual luncheon will be served.

WORCESTER DISTRICT MEDICAL SOCIETY

WORCESTER STATE HOSPITAL
FEBRUARY 12, 1936

PROGRAM

Dinner 6 30 P M

Business Meeting 8 00 P M

PAPERS

Legal Commitments William A. Bryan, M D, Superintendent, Worcester State Hospital.

The Effect of Duodenal Extracts in Diabetes Mellitus J M Looney, M D, Director, Laboratories Worcester State Hospital, and W E Glass, M D, Chief Physician, Medical and Surgical Service, Worcester State Hospital.

Epilepsy, Bromidism and Brain Tumor Benjamin Simon, M D, Assistant Physician Worcester State Hospital, and Morris Yorshis, M D, Clinical Director, Worcester State Hospital.

TRUDEAU MEDICAL SOCIETY

A whole-day meeting of the Trudeau Medical Society will be held on February 11.

Morning Program—Clinics 9 12

Thoracic Dry Clinic at the Massachusetts General Hospital—Dr Donald King.

Operative Clinic at the Peter Bent Brigham Hospital—Dr Harlan Newton.

Operative Clinic at the Deaconess Hospital—Dr Richard Overholt.

1 P M Luncheon at the Essex County Sanatorium, Middleton, Mass.

- 2 P.M.-4 P.M. Round Table Conference of cases presented by the staff of Essex County Sanatorium
- 6 30 P.M. Dinner tendered to Drs. Max Pinner and Pol N Coryllos—at the Harvard Club Boston.
- 8 15 P.M. Auditorium—Beth Israel Hospital. The speaker will be Dr. Max Pinner, Assistant Editor of the *Review of Tuberculosis* who will talk on "The Diagnostic and Prognostic Significance of Positive and Negative Sputum." The paper will be discussed by Dr. Pol N. Coryllos, Thoracic Surgeon of the Sea View Hospital, New York.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance) Tuesday evening February 11 at 8 15 P.M.

PROGRAM

Presentation of Cases

The Effect of Hypophysectomy and Adrenalectomy upon Experimental Diabetes in the Cat. By Dr. C. N. H. Long, University of Pennsylvania, Philadelphia, Pennsylvania.

Medical students and physicians are cordially invited to attend.

MARSHALL N. FULTON, M.D. Secretary

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held Friday, February 14, in the Auditorium of the Beth Israel Hospital, Boston, at 8 00 P.M.

PROGRAM

Speaker: Dr. L. Emmett Holt, Associate Professor of Pediatrics, Johns Hopkins Medical School. Subject: Significance of Fats in Nutrition. Chairman: Dr. Elmer Barron, Professor of Pediatrics, Tufts College Medical School.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY FEBRUARY 10 1936

Tuesday, February 11—

- 9-10 A.M. Boston Dispensary, 5 Bennet Street, Boston. Recognition of the Early Psychoses. Their Differentiation from Neuroses. Dr. A. Warren Stearns.
- 10 P.M. Pediatric Ward Visit. Massachusetts Eye and Ear Infirmary.
- 8 15 P.M. Harvard Medical Society. Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance).
- 8 15 P.M. The Trudeau Society. Auditorium of the Beth Israel Hospital, Boston.

Wednesday, February 12—

- 9 10 A.M. Boston Dispensary, 5 Bennet Street, Boston. Mistakes Made in the Diagnosis and Treatment of Syphilis. Dr. Francis Thurmon.
- 112 A.M. Clinical Pathological Conference. Children's Hospital.
- 2 P.M. New England Dermatological Society. Massachusetts General Hospital.

Thursday, February 13—

- 8 30 9 30 A.M. Clinic. Surgical and Orthopedic Staffs of Children's Hospital at the Children's Hospital.
- 9 10 A.M. Boston Dispensary, 5 Bennet Street, Boston. Social Service Case Presentation. Miss Edith Canterbury.
- 2 30 P.M. Medical Clinic at the Peter Bent Brigham Hospital.

Friday, February 14—

- 9 10 A.M. Boston Dispensary, 5 Bennet Street, Boston. Pituitary Studies. Dr. Saul Hertz.
- 13 A.M. Massachusetts General Hospital. Clinical Meeting of the Staff of the Children's Medical Service. Ether Dome.
- 8 P.M. William Harvey Society. Auditorium of Beth Israel Hospital, Boston.

Saturday, February 15—

- 9 10 A.M. Boston Dispensary, 5 Bennet Street, Boston. Presentation of Ward Cases. Dr. H. C. Gordinier.
- 10 12. Staff rounds at the Peter Bent Brigham Hospital.

Sunday, February 16—

- 4 P.M. Free Public Lecture. Harvard Medical School, Building D, Longwood Avenue. The Prospect of Keeping a Good Heart. Dr. W. H. Robey.

Open to the medical profession.

Open to Fellows of the Massachusetts Medical Society.

February 6—Faulkner Hospital Clinical Meeting at 5 P.M.

February 11—Harvard Medical Society. See notice elsewhere on this page.

February 11—The Trudeau Society. See page 274.

February 12—New England Dermatological Society. See page 274.

February 13—Medical Clinic, Peter Bent Brigham Hospital. See page 274.

February 14—William Harvey Society. See notice elsewhere on this page.

February 15—The South End Medical Club. See page 274.

February 24—Springfield Medical Association, 8 30 P.M. at the rooms of the Springfield Academy of Medicine. 10 Maple Street.

February 24 to May 16—International Medical Postgraduate Courses in Berlin. See page 1211 issue of December 13, 1935.

March 2-6—The American College of Physicians. See page 81, issue of January 7.

April 20-24—A Postgraduate Institute in Philadelphia. See page 224, issue of January 21.

June 15-19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory, Baltimore, Md.

September 1935—First International Conference on Fever Therapy. See page 1325 issue of December 9, 1935.

October 19-23—Clinical Congress of the American College of Surgeons. See page 180 issue of January 22.

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

February 12—Wednesday. Addison Gilbert Hospital, Gloucester. Clinic 8 P.M. Dinner 7 P.M. Speaker and subject to be announced later.

March 4—Wednesday. Lynn Hospital. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr. Timothy Leary. Subject: Arteriosclerosis.

April 1—Wednesday. Essex Sanatorium, Middleton. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr. Richard H. Overholt of the Leary Clinic. Subject: Chest Surgery.

May 7—Thursday. Censors Meeting.

May 13—Wednesday. Annual Meeting. Salem Country Club. Dinner at 7 P.M. Speaker: Dr. Paul White. Subject to be announced later.

R. E. STONE, M.D. Secretary

22 Lothrop Boulevard, Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings are held on the second Tuesday of March and May at the Weldon Hotel, Greenfield at 11 A.M.

CHARLES MOLINE, M.D. Secretary

Sunderland

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings to be held at the Bear Hill Golf Club, Stoneham, at 12 15 P M.
March 11, May 6

K L MACLACHLAN, M D, Secretary
1 Bellevue Avenue Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

February 25—Massachusetts Memorial Hospitals at 8 P M. Papers by the staff

March 31—Hotel Kenmore, at 8 P M. Dr Benedict F Boland—Cauterization of the Cervix Uteri Using Various Electrical Methods' Illustrated with lantern slides

May—Annual Meeting (Place, date and subject to be announced)

The censors meet for the examination of candidates May 7, 1936, November 5, 1936

FRANK S CRUICKSHANK, M.D., Secretary
1236 Beacon Street, Brookline

PLYMOUTH DISTRICT MEDICAL SOCIETY

March 19—Plymouth County Sanatorium, South Hanson

April 16—Brockton Hospital

May 21—Lakeville State Sanatorium

G A. MOORE, M D, Secretary
167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

March 18—Meeting at the Boston Medical Library "The Laboratory and Clinical Story of Fatigue" Dr Arlie V Bock and Dr David B Dill Discussion Dr Donald J MacPherson and Dr Augustus Thorndike, Jr

April 29—Annual Meeting at the Boston Medical Library "The Treatment of Septicaemia" Dr Champ Lyons "The Pleurality of Scarlatinal Streptococcus Toxin," Dr Sanford B Hooker Discussion Dr Hans Zinsser

The medical profession is cordially invited to attend all of these meetings

ROBERT L DeNORMANDIE, M.D., President,
CHARLES C LUND, M.D. Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

February 12—See page 274

March 11—Wednesday evening Memorial Hospital Worcester, Mass Dinner and scientific program Subjects of program to be announced later

April 28—Wednesday evening Hahnemann Hospital Worcester Mass Dinner and scientific program Subjects of program to be announced later

May 13—Wednesday afternoon and evening Annual Meeting of Society Time, place and details of program to be announced in an April issue of the Journal.

ERWIN C MILLER, M D, Secretary
27 Elm Street Worcester

BOOKS RECEIVED FOR REVIEW

Infant Nutrition A Textbook of Infant Feeding for Students and Practitioners of Medicine William McKim Marriott Second Edition 431 pp St Louis The C V Mosby Company \$4 40

Diseases of Women Harry Sturgeon Crossen and Robert James Crossen Eighth Edition, Entirely Revised and Reset 999 pp St Louis The C V Mosby Company \$10 00

Immunology Noble Pierce Sherwood 608 pp St Louis The C V Mosby Company \$6 00

The Medical Record Visiting List or Physicians' Diary for 1936 Revised Baltimore William Wood & Company Price \$1 75 to \$2 50, according to size

High Blood Pressure and Its Common Sequelae Hugh O Gunewardene 172 pp Baltimore William Wood & Company \$3 00

Aids to Medicine James L Livingstone Fifth Edition 422 pp Baltimore William Wood & Company \$1 50

A Doctor's Odyssey A sentimental record of Le Roy Crummer physician, author bibliophile, artist in living 1872-1934 A. Gaylord Beaman 340 pp Baltimore The Johns Hopkins Press \$2 50

For and Against Doctors Robert Hutchison and G M Wauchope 168 pp Baltimore William Wood & Company \$2 00

Fundamentals of Biochemistry in Relation to Human Physiology T R Parsons Fifth Edition 453 pp Baltimore William Wood & Company \$3 00

The Modern Treatment of Burns and Scalds Philip H Mitchiner 64 pp Baltimore William Wood & Company \$2 00

A Practical Handbook of Midwifery and Gynecology for Students and Practitioners W F T Haultain and Clifford Kennedy Second Edition 356 pp Baltimore William Wood & Company \$5 25

Röntgenology The Borderlands of the Normal and Early Pathological in the Skiagram Alban Kohler Second English Edition revised by the Author 681 pp Baltimore William Wood & Company \$14 00

The National Formulary Prepared by the Committee on National Formulary by authority of the American Pharmaceutical Association Sixth Edition 556 pp Washington American Pharmaceutical Association

Studies from The Rockefeller Institute for Medical Research Reprints Volume 95 595 pp New York The Rockefeller Institute for Medical Research

Transactions of the American Association of Genito-Urinary Surgeons Volume XXVIII 428 pp Saint Paul and Minneapolis The Bruce Publishing Company

The Next Hundred Years The Unfinished Business of Science C C Furnas 434 pp Baltimore The Williams & Wilkins Company \$3 00

The Foot Norman C Lake 330 pp Baltimore William Wood & Company \$4 50

The Hair and Scalp A Clinical Study Agnes Savill 288 pp Baltimore William Wood & Company \$5 00

Post Mortems and Morbid Anatomy Theodore Shennan Third Edition 716 pp Baltimore William Wood & Company \$9 00

Manson's Tropical Diseases A Manual of the Diseases of Warm Climates Edited by Philip H. Manson Bahr Tenth Edition, Revised 1003 pp Baltimore William Wood & Company \$11 00

Glandular Physiology and Therapy A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical Association 528 pp Chicago American Medical Association \$2 50

The Commonwealth Fund Seventeenth Annual Report For the year ending September 30, 1935 89 pp New York The Commonwealth Fund

The New England Journal of Medicine

VOLUME 214

FEBRUARY 13, 1936

NUMBER 7

TOTAL THYROIDECTOMY FOR HEART DISEASE*

Experiences With Twenty One Patients at
The Massachusetts General Hospital

BY RICHARD J. CLARK, M.D.,† JAMES H. MEANS, M.D.† AND HOWARD B. SPRAGUE, M.D.†

I Introduction

WHEN a new form of therapeutics is invented and seems to rest on sound theoretical considerations and is backed up by encouraging results in the hands of the inventors it is very desirable that it be given adequate and careful trial by other professional groups.

The proposal, by Blumgart, Levine and Berlin in 1933, of total ablation of the normal thyroid for the relief of heart disease seemed to us to rest on a reasonable theoretical basis. We also had the opportunity, very early in the history of this form of treatment, to examine the patients at the Beth Israel Hospital who had been subjected to the operation in question and were very favorably impressed with their seeming improvement.

The theory underlying this new practice was elemental in its simplicity. If the heart has so much work to do that it becomes inadequate give it less to do and perhaps it will again become adequate. Or in the case of angina pectoris, if the coronaries are not capacious enough to allow the blood the myocardium's metabolism requires to pass with ease, decrease the myocardium's oxygen requirement and the coronaries may then become relatively adequate. In both cases it is an adjustment of demand for function to supply of function, that is to say, functional capacity on the one hand of the heart muscle as a pump, on the other of the coronaries as passageways.

There was also considerable past experience which lent support to these theories. Patients with myxedema have long been known to develop angina pectoris occasionally when given thyroid. Thyrotoxic patients with congestive heart failure have regained cardiac compensation when their thyrotoxicosis has been abolished. One is justified in relating these phenomena to shifts in the level of metabolism.

Previously, detailed studies of the heart in

forty eight myxedema patients had been made at this clinic. We showed that while cardiac enlargement was frequently present, decreasing under thyroid medication, and while electrocardiographic changes were always present there were no patients with signs or symptoms of congestive failure attributable to the "myxedema heart".

For these various reasons it was decided in 1933 to make a trial of the therapeutic method of Blumgart, Levine and Berlin at the Massachusetts General Hospital. We considered that our approach should be primarily from the viewpoint of clinical rather than laboratory investigation. We wished to determine for ourselves the practicability and usefulness of the method for the treatment of cardiac patients in a large general hospital without unduly elaborate special service set-ups or without special technicians or nurses working on the problem, and without special added expense.

We shall first report our findings and then attempt to evaluate them.

II Patients Studied

This report is based on a study of twenty one patients operated on between July 1933 and May 1935. The three patients operated on in 1935 are now dead. The last patient to be operated on who is still surviving, was done in August, 1934 and has been followed for fourteen months. Therefore all patients have been observed for a sufficient period of time to make a reasonable evaluation of results. An etiological summary of the cases is presented in table I.

TABLE I

21 Cases.	15 Ward Patients	6 Private Patients
19 Cases of Congestive Failure		
12 Rheumatic Heart Disease		
4 Rheumatic and Hypertensive Heart Disease		
2 Hypertensive Heart Disease		
1 Syphilitic Heart Disease		
2 Cases of Angina Pectoris		
1 Pure Angina.		
1 Hypertensive Heart Disease with Angina and Failure.		
10 Males.	11 Females.	
Ages 27 to 67	Average 42½ years.	

From the Thyroid and Cardiac Clinics of the Massachusetts General Hospital.

†Clark, Richard J.—Assistant in Medicine, Massachusetts General Hospital. Means, James H.—Professor of Clinical Medicine, Harvard University Medical School. Sprague, Howard B.—Assistant Physician, Massachusetts General Hospital. For records and addresses of authors see "This Week's Issue" page 328.

Obviously this report is chiefly one of results in congestive failure. The paucity of angina cases comes from no prejudice against the procedure for them, but simply from the fact that the angina patients seen here have either had inadequate medical treatment, or have been too seriously sick for operation, or have been given alcohol nerve injections by preference.

This report includes no patient with thyrotoxicosis. In all instances the ablated thyroid gland was normal histologically.

III Methods of Procedure

Patients seen in the Out Patient Department whom it was felt might benefit from total thyroidectomy have been sent into the medical service for further study. There, after complete workup, they have been seen by members of the cardiac and thyroid clinics, and of the surgical service who have given their opinions as to the feasibility of operation.

On the day of operation, the patients have been transferred to the surgical service. The operations have been performed by one of three surgeons, Dr Arthur W Allen, Dr Edward D Churchill or Dr Richard H Miller. The patients have in some cases been discharged directly from the surgical ward, and in other cases have returned to the medical ward for further convalescence before discharge. In all instances the medical men have followed the patients in the surgical wards, and every effort for cooperation between the two services has been made.

Following discharge from the hospital, patients have been followed at regular intervals by one of us (R J C) in the metabolism laboratory. He has had the constant assistance of various members of the thyroid and cardiac clinics.

Six of the patients reported in this series are private ones operated on in the Baker Memorial or Phillips House. They have been selected and followed in much the same way as the ward patients, except that the follow-ups have been made by their own physicians. We are indebted to Dr P D White, Dr H B Sprague and Dr John Cass for permission to include their patients in this report.

The evaluation of results presented here has been made following considerable deliberation. It takes into account the opinions of members of the patient's family in some cases, in some cases that of the family physician or the patient's private consultant, but finally it represents the opinion of the writers who have seen these cases through their course. Criticism of selection and evaluation of results have also been checked over, on the basis of case summaries, by members of another hospital clinic carrying on the same work. The agreement as to classification of patients has been surprisingly close.

IV Selection of Cases

The proper selection of cases for total thyroidectomy presents perhaps the greatest and the most important problem of all. In the early months we tried to be guided largely by the previous short experience of those in the pioneer clinics. That we have made several errors in judgment will be apparent on inspection of the data. We have continued to learn from our own experience and from that of others. On the basis of this experience at the present time we would list the following as cases in which operation is definitely contraindicated:

- 1 Patients that have not been given the benefit of entirely adequate medical treatment over a sufficient period of time for full evaluation of its results.
- 2 Patients showing a rapid progression in spite of adequate medical care. A case such as No 1 (see below) with gross breaks in compensation at yearly intervals may be considered as slowly progressive. Cases such as No 17 and No 21 with second breaks in compensation within three months of the first in spite of rest and adequate care are too rapidly progressive. Cases of syphilitic heart disease as No 7 are per se too rapid in their downward course.
- 3 Patients with such severe heart disease that they are unable to establish and maintain compensation on digitalis and bed rest. This eliminates cases with persistent ascites or hydrothorax as No 6.
- 4 Patients with high grade mitral stenosis or other mechanical obstruction giving rise to high venous pressure sustained after compensation has been restored.
- 5 Patients with a low preoperative basal metabolism. Generally minus fifteen is considered to be the borderline, but as may be seen in case No 16, an angina with a good result, the preoperative level was minus seventeen.
- 6 Patients with chronic pulmonary disease of any type. The possibility of pulmonary infarction or thrombosis in cardiac patients as a cause for rapid failure in spite of adequate treatment has recently been emphasized⁵, and when it has been suspected should certainly contraindicate operation. See case No 21.
- 7 Patients with severe nephritis — low P S P test or high N P N.
- 8 Patients with malignant or severe hypertension, especially if associated with generalized arteriosclerosis. See cases No 9 and No 11.
- 9 Patients with active rheumatic infection, bacterial endocarditis, or other concomitant infection.

- 10 Patients with recent coronary thrombosis, within six months
- 11 Patients with status angiosus

Intractable heart disease, incapacitating the patient or making him too uncomfortable in spite of adequately and fully prescribed care not eliminated by one of the above contraindications, may be considered to constitute an indication for operation.

It has been our experience that the distressing symptoms of precordial ache, paroxysmal dyspnea and palpitation have been the symptoms most readily relieved. The fatigue and weakness of the cardiac rarely seem relieved and perhaps the fatigue is even greater in the hypothyroid state. "I am no longer conscious of my heart's beating," or words to that effect is often said by patients after the operation.

V The Operation and Complications

The operative technique of total thyroidectomy has been described fully elsewhere. It should be emphasized that this procedure is a distinctly major one, requiring special training and skill, and a precise knowledge of the anatomy of the field. To be successful all thyroid tissue must be ablated and injury of the recurrent laryngeal nerves and accidental removal of parathyroid tissue must be carefully guarded against.

In our series the duration of the operation has varied from one hour up to two hours and forty minutes, with an average time of two hours and ten minutes for completion.

Anesthesia. In the first case of the series regional ether anesthesia was used successfully. All subsequent operations were started under local anesthesia (cervical nerve block and local infiltration). In one case supplementary ether and in another supplementary gas was required because of marked restlessness. Considerable judgment and care have proved to be necessary in the selection of the type and amount of preoperative medication, and this must be varied with every case. These patients do not withstand large amounts of sedation and it has been pointed out that it is not wise to have them too drowsy. We have found it advisable to test out the patients for drug idiosyncrasy several days before operation. The average amount of sedation used has been three grains of amylal or a similar drug at bed time, the same repeated two hours before operation with morphia one sixth grain on call to the operating room. Cases No 8 and No 12 may be cited as examples of oversedation. In case No 8 scopolamine was used without previous test dose and the excitement caused by it necessitated further morphia and ether, probably contributing to the fatal outcome.

Operative Deaths. There have been three op-

erative deaths in this series. Two of these cases No 8 and No 12 may have resulted from oversedation and in case No 8 quite likely from the added factor of supplementary ether. The third death, case No 9, arose from the operation having been done on a patient who was too seriously sick to withstand the procedure and who should not, we now realize, have been selected for this form of treatment. (See below.)

Nerve Injury. We have been fortunate in having only one nerve injury, the right recurrent laryngeal being cut in the second patient of the series. It might be added that this was the first total thyroid ablation by the surgeon involved.

Hypoparathyroidism. There have been no cases of frank tetany following operation. There have been three persistent cases of hypoparathyroidism (No 3, No 5 and No 19) and two transient cases (No 1 and No 13). None have shown more than subjective symptoms and positive Chvostek signs, and all have been readily controlled by calcium given orally.

TABLE 2

21 Operations	
Average Duration	2 hours 10 minutes
Operative Deaths	3
Nerve Injury	1
Hypoparathyroidism	5 cases
Transient	2
Persistent	3

VI Postoperative Management and Complications

The majority of the patients have left the hospital from two to three weeks after the operation. At the time of discharge the metabolism has usually shown a drop of ten to fifteen points. Instructions are given to lead a quiet chair and bed life for the following two weeks after which time a reexamination is made at the clinic and gradually increasing activity is permitted if the metabolism has shown a satisfactory drop. The rapidity of fall in the basal metabolism has been extremely variable. Usually one month after operation the rate has been in the minus twenties, but without the patients showing signs of definite myxedema.

It may be said that there seems to be considerable discrepancy between the patient's appearance and his basal metabolism test. Roughly a level of between minus twenty and minus thirty has seemed to be the optimum range for maintenance, but some have shown definite myxedema signs at minus twenty, while others have maintained a level of minus thirty without marked signs.

In some cases signs and symptoms of myxedema requiring thyroid for the patient's com-

fort have appeared within two months, and in other cases have not appeared for five to eight months. Metabolic rate readings have ranged from minus eighteen to minus thirty-seven at the time thyroid was started. All of the patients surviving a period of six months have required some thyroid, excepting case No 3 which has shown thyroid regeneration and case No 6 where over the survival period of two years a rate of minus thirty was maintained without untoward myxedema symptoms. In all instances thyroid has been started on the basis of symptoms such as marked swelling of the eyes with lachrimation, extreme coldness, or undue somnolence, rather than on the basis of the metabolic rate. It has been the aim to keep the metabolism as low as compatible with comfort.

Very small dosage of thyroid has often sufficed. A quarter grain dose of thyroid every other day has frequently been sufficient to bring about a distinct change in the appearance and feeling of these people. In some cases one quarter grain daily has been required, but rarely more.

Digitalis dosage at first has been maintained as before operation, but in a number of the cases tolerance appears to have been decreased with the lowering of the metabolic rate and it has been necessary to cut the regular allowance in half. Several mild cases of digitalis intoxication appeared.

Menorrhagia, thought to be associated with the hypothyroidism, has appeared in two patients of the series, and has required x-ray therapy.

The majority of the males have been impotent following the operation.

In one case, a patient with hypertrophic arthritis and poor peripheral circulation, joint pains were more severe following operation and attacks of intermittent claudication occurred.

In several cases abdominal distention was a troublesome feature, but increase in thyroid usually brought relief from this.

Auricular fibrillation was present in fifteen cases before operation, but in only two did it cease following operation. In one of these, paroxysms of fibrillation have occurred since and have been quite troublesome.

Mental slowing has been present to a certain extent in about half of the cases.

Regular follow-up at one to three month intervals has been necessary. In some cases the patients have leveled off well on fixed rations of thyroid and digitalis after the first few months. In others frequent readjustment of dosage has been found necessary and it has been with some difficulty that the middle course between that of severe cardiac symptoms and

troublesome myxedema symptoms has been followed. (See case No 15)

VII Results

The evaluation of results in a given case is most difficult. The inherent uncertainty of prognosis in the cardiac patient must always be kept in mind. Against the benefits in certain cardiac symptoms must be balanced the undesirable effects of myxedema. Again a patient may show decrease in one cardiac symptom, but if assigned to an increased life of uncomfortable invalidism the operation is hardly to be considered worth while.

We have classified the patients in two ways. First we have grouped them under one of the following classifications:

- A No recurrence of signs or symptoms. Activity increased. Excellent result.
- B Symptoms less severe with increased activity. Moderately improved.
- C Symptoms less severe without increased activity. Slightly improved.
- D No improvement. Poor result.

Secondly, we have tried to determine whether all factors considered, the operation was worth while.

Table 3 presents a comprehensive survey of the patients studied with the classification made under "Results" and "Operation Worth While." A Summary of these results in the total group is presented in table 4.

TABLE 4			
Summary of Results		Total Group of 21 Cases	
A	1 case	Worth While	
B	3 cases		
C	5 cases	Yes	5 23 8%
D	12 cases	No	16 76 2%
(1 case of thyroid regeneration)			

There are eight cases which in retrospect and which in view of our present knowledge we would not consider suitable for operation for the reasons given below:

- Case No 2 Heart disease too severe. Patient developed ascites and hydrothorax on bed rest and digitalis. Done as a last resort.
- Case No 6 Heart disease too severe. Patient had a persistent ascites in spite of bed rest and digitalis.
- Case No 7 Heart disease too rapidly progressive. Syphilitic heart disease.
- Case No 9 Severe hypertension and generalized arteriosclerosis. Patient was too sick for operation.
- Case No 11 Heart disease too severe with marked hypertension.

TABLE 3

Serial No.	Sex	Age	Diagnosis	Date of Operation	Anesthesia	Nerve Injury	Hypothyroidism	Date of Death	Poorly Selected Cases	Result	Operation Worth While	Notes
1	F	35	RHD and HHD	7/13/33	Ether	0	SLT 2 wks	7/17/35	—	B	Yes	Died of acute infection. † Bacterial Endocarditis.
2.	F	48	RHD	8/8/33	Local	X	0	11/2/33	X	D	No	Disease too severe
3	F	30	RHD	8/16/33	Local	0	Mild Perm	—	—	D	No	Thyroid Regeneration 16 mos
4	F	34	RHD	9/1/33	Local	0	Mild 10 mos.	1/18/35	—	C	No	Died of Bronchopneumonia.
5	M	52	HHD and Angina	9/27/33	Local	0	0	12/11/33	D	No	No	Died of Pulmonary Infarction.
6	F	43	RHD	11/7/33	Local	0	0	10/25/35	X	D	No	Too severe Persistent Ascites
7	M	50	SHD	11/8/33	Local	0	0	11/24/33	X	D	No	Disease too rapid and severe.
8	M	43	RHD	11/8/33	Local and Ether	0	0	Op	—	D	No	Death probably from Over sedation. Ether
9	M	54	HHD	11/9/33	Local	0	0	Op	X	D	No	Too sick for operation
10	M	60	HHD	11/10/33	Local	0	0	6/28/35	—	C	Yes	Myxedema troublesome Died of Cerebral Hem
11	F	47	RHD and HHD	11/18/33	Local and Gas	0	0	7/20/35	X	D	No	Disease too severe B P 250/120
12	M	33	RHD	2/16/34	Local	0	0	Op	—	D	No	Op death. Over sedation
13	F	39	RHD	2/20/34	Local	0	SLT 1 wk.	—	—	B	Yes	Excellent for 18 mos Now in failure.
14	M	34	RHD	4/4/34	Local	0	0	—	—	A	Yes	Continues very well.
15	F	42	RHD	5/18/34	Local	0	0	—	—	D	No	Living chair and bed life
16	M	67	Angina	6/19/34	Local	0	0	—	—	B	Yes	Physician Now practicing
17	F	45	RHD and HHD	6/20/34	Local	0	0	8/19/35	X	C	No	Disease too rapid and severe
18	M	36	RHD	8/10/34	Local	0	0	—	X	C	No	Living chair and bed life.
19	F	33	RHD and HHD	1/18/35	Local	0	Mild Perm	3/13/35	—	D	No	Died of Bronchopneumonia.
20.	M	28	RHD	1/28/35	Local	0	0	9/18/35	—	C	No	Died of Acute Pulmonary Edema.
21	F	27	RHD	5/13/35	Local	0	0	10/30/35	X	D	No	Disease too rapid and severe.

LEGENDS

RHD—Rheumatic Heart Disease
 HHD—Hypertensive
 SHD—Syphilitic
 OP—Operative Death
 SLT—Slight
 Perm.—Permanent

Case No 17 Heart disease too rapidly progressive
Case No 18 Heart disease too severe and too rapidly progressive
Case No 21 Heart disease too rapidly progressive Previous pulmonary infarction

Assuming that in any future operations we would not select patients of the above type, it seems worth while to see what their elimination from the present series does to our figures This calculation is presented in table 5,

TABLE 5

SUMMARY OF RESULTS IN 13 WELL SELECTED CASES

Group A	1 case	Worth While		
Group B	3 cases			
Group C	3 cases		Yes	5 38 5%
Group D	6 cases		No	8 61 5%

Assuming that with a larger series and greater experience, perfection in operative technique and handling might be attained, it may be fair to examine the results eliminating from the above the one case of failure of total thyroid ablation (No 3), and the two cases of operative death which probably arose from unwise sedation (No 8 and No 12)

TABLE 6

SUMMARY OF RESULTS IN 10 WELL SELECTED AND WELL MANAGED CASES

Group A	1 case	Worth While		
Group B	3 cases			
Group C	3 cases		Yes	5 50%
Group D	3 cases		No	5 50%

The present series is not of sufficient size to make significant comparison of results in special types of heart disease or in specific valve lesions Regarding angina pectoris, we have only two patients, one doing well and one doing poorly In the two cases of straight hypertensive heart disease with failure, one was poorly selected and did poorly, the other was classed as a C result but seemed to be worth while Of the four rheumatics complicated by hypertension, two were poorly chosen, one was a B result and definitely worth while, and one was a D result and not worth while Of the twelve straight rheumatics, four were poorly chosen, one was an A result one was a B result, two were C results and four were D results, two of this group were considered worth while

VIII Case Summaries

For the sake of brevity in a rather lengthy report, details of past history, family history, and laboratory findings are not included in the following summaries where not germane to the

subject in question In all cases N P N's and renal function were determined to be normal preoperatively In no case was evidence of active infection such as elevated white count or sedimentation rate present All cases were checked with chest plates and failed to show any pulmonary disease or unusual mediastinal shadows There were no cases with any concomitant chronic disease not mentioned In no case did the pathological examination show evidence of thyroid hyperplasia When thyroid dosage is mentioned, U S P Thyroid (Aimour's) is understood in each case

CASE 1 H C No 329747 F Aged thirty five Native Housewife

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, aortic regurgitation, auricular fibrillation, hypertension, congestive failure

History The patient entered the medical service June 7, 1933 Eleven years previously she was told that she had a heart murmur, but up to that time there had been no history of rheumatic infection or heart trouble Six years before she had been in bed for four months with migratory joint pains, fever, and "water about the heart" Since that time there had been marked fatigue, dyspnea on exertion, orthopnea requiring four to five pillows, palpitation, localized precordial pains, and a constant cough During the four winters previous to entry, she had suffered breaks in compensation with painful liver, nausea and gross edema, each attack becoming progressively more severe During the winter prior to entry she was in bed for four months and for the following three months, up to the time of entry, was restricted to a bed and chair life without any activity She was having cardiac asthma two to three nights a week She had received careful medical care with full digitalization and maintenance

Physical Examination The patient showed moderate cyanosis The heart was distinctly enlarged to the left, grossly irregular in action, and showed apical systolic and middiastolic murmurs, also a basal diastolic murmur to the left of the sternum The blood pressure was 170/90 The lungs were clear The liver was enlarged and tender The ankles showed slight edema.

B M R level was zero

Rationale for Operation This patient had been suffering from mild, progressive heart failure for six years and had been totally incapacitated for seven months on medical treatment without prospect for improvement It was hoped that operation might bring increased comfort and activity

Operation July 13, 1933 Anesthesia Ether Complications Positive Chvostek and Trousseau were present for two weeks, but controlled by calcium given orally, operative recovery was otherwise normal

Postoperative Course For practically two years following operation the patient was very much improved There were no gross breaks in compensation There was but little dyspnea on exertion, patient slept on one or two pillows, there was no edema, no cardiac asthma, and almost no precordial pain Palpitation was noted only on going upstairs She was able to help with the housework and get the night meal for the family Her B M R after the first month ranged about minus twenty After the sixth month thyroid was given in amounts varying from one quarter to one eighth grain daily, because of increasing fatigue, coldness and lacrimation

tion. The patient was able to concentrate less well than previously found difficulty in mathematical calculations and to a slight extent with her memory. During February March and April 1935 she had severe menorrhagia requiring hospitalization. No evidence of pelvic tumor could be found and x-ray treatment was given with cessation of flow. About the first of July she reentered the hospital with an unexplained fever a palpable spleen and liver and a few petechial spots. Blood cultures were negative. July 17 she died with the questionable diagnosis of subacute bacterial endocarditis. No autopsy was obtained.

Result This patient represents a very good result with a definitely improved cardiac state up to the time of her death from acute infection two years after operation. From her mild myxedema she had some slight mental impairment and the probable complication of menorrhagia, in spite of which the operation was very much worth while to her.

Comment This proves to have been a well selected case. While the patient had severe heart disease it was slowly progressive over a period of a number of years, and signs of failure were well controlled by digitalis and diuretics.

CASE 2 D P No 306061 F Aged forty-eight Italian Housewife.

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, aortic stenosis and regurgitation, auricular fibrillation congestive failure.

History This patient entered the hospital June 9, 1933 for the second time with congestive heart failure. There was no past history of chorea or rheumatism. For twenty-one years she had noted weakness, dyspnea and mild edema of the ankles off and on. For four years palpitation, cough, epigastric pain and precordial distress had been troublesome. Six months previously she was admitted to the hospital for gross congestive failure with abdominal and chest fluid which was relieved by digitalis and salyrgan. Following discharge in spite of maintained digitalization and bed rest, she was required to lead a chair and bed existence and again developed gross signs of failure.

Physical Examination There was marked orthopnea and cyanosis. The heart was grossly enlarged to the left, fibrillating and showed mitral and aortic systolic and diastolic murmurs. The blood pressure was 100/80. There was a right hydrothorax extending to the angle of the scapula. The liver was felt six cm. below the costal margin. The abdomen showed a fluid wave and shifting dullness. The sacrum and legs were edematous.

B M R level was plus one

Rationale for Operation This patient's optimal state appeared to be one of congestive failure and the outlook for improvement appeared hopeless. It was felt that it would be fair to offer her the possible advantage of total thyroidectomy. On salyrgan the patient lost fifteen pounds of edema fluid and operation was determined on.

Operation August 8 1933 Anesthesia Local. Complications The right recurrent laryngeal nerve was cut resulting in paralysis of the right cord. There were no signs of tetany.

Postoperative Course The patient was discharged August 23 1933. During September and October she seemed slightly improved, having less dyspnea and palpitation and very little edema. However she continued to lead a chair and bed life. November 1

1933 the B M R. was minus twenty six. December 14 the patient reentered the hospital because of increasing ascites edema and orthopnea of six weeks duration. The following morning she died.

Result For two months after operation there appeared to be very slight improvement, but it would be difficult to say that this resulted from operation rather than from the prolonged absolute bed rest and diuretics under observation. In spite of the operation gross failure shortly set in again and proved fatal.

Comment This was one of the first cases to be done and at that time we did not appreciate the fact as we do now that cases having such low cardiac reserve as to develop ascites or hydrothorax on rest and digitalis are too hopeless to be benefited by operation. This patient should never have been operated on.

CASE 3. H P No 330660 F Aged thirty Italian Housewife

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, auricular fibrillation congestive failure.

History This patient entered the hospital July 20 1933. Six years before she had been in bed three months with rheumatic fever and was then told that she had a bad heart. Four years before there was a recurrence of rheumatism followed by onset of progressive dyspnea and palpitation. Eight months before entry edema of legs set in and became massive. For two months the patient was confined to her bed. For one week there had been orthopnea requiring the patient to sit up straight. She had been on digitalis for several months.

Physical Examination There was marked cyanosis. Neck veins were distended with the patient sitting up straight. The heart was grossly enlarged showing apical systolic and mid-diastolic murmurs. Rhythm was grossly irregular with an apical rate of one hundred and sixty and a pulse of ninety. There were moist rales at both lung bases and the liver was felt six cm. below the costal margin and distinctly tender. There was a small amount of abdominal fluid. The legs and sacrum showed gross pitting edema. Salyrgan and Southey tubes were required for the elimination of excess fluid.

B M R Unfortunately only one rate was obtained and this on the morning of operation after sedation the previous night. It was minus sixteen. (Subsequent events suggest true rate was higher.)

Rationale for Operation It was considered that with conditions as they were the prognosis in this case was very poor and little could be offered other than the possible benefit from total thyroidectomy. **Operation** August 15 1933 Anesthesia Local. Complications Positive Chvostek and Trousseau appeared the day following operation and calcium by mouth has been required since. There was no frank tetany.

Postoperative Course Three weeks after operation the B M R. was minus twenty-one. Pulse had become regular. The patient was up and about the ward with very much less dyspnea and palpitation and there was no edema. For about five months there seemed to be some improvement with less dyspnea, palpitation and orthopnea. Then there was a gradual recurrence of edema and swelling of the abdomen. July 1 1934 she reentered the hospital in gross congestive failure with pitting edema and ascites requiring paracentesis. Her B M R. at that time was minus twenty-nine although there were no signs or symptoms of myxedema. Following this

- Case No 17 Heart disease too rapidly progressive
- Case No 18 Heart disease too severe and too rapidly progressive
- Case No 21 Heart disease too rapidly progressive Previous pulmonary infarction

Assuming that in any future operations we would not select patients of the above type, it seems worth while to see what their elimination from the present series does to our figures This calculation is presented in table 5,

TABLE 5

SUMMARY OF RESULTS IN 13 WELL SELECTED CASES

Group A	1 case	Worth While		
Group B	3 cases			
Group C	3 cases	Yes	5	38.5%
Group D	6 cases	No	8	61.5%

Assuming that with a larger series and greater experience, perfection in operative technique and handling might be attained, it may be fair to examine the results eliminating from the above the one case of failure of total thyroid ablation (No 3), and the two cases of operative death which probably arose from unwise sedation (No 8 and No 12)

TABLE 6

SUMMARY OF RESULTS IN 10 WELL SELECTED AND WELL MANAGED CASES

Group A	1 case	Worth While		
Group B	3 cases			
Group C	3 cases	Yes	5	50%
Group D	3 cases	No	5	50%

The present series is not of sufficient size to make significant comparison of results in special types of heart disease or in specific valve lesions Regarding angina pectoris, we have only two patients one doing well and one doing poorly In the two cases of straight hypertensive heart disease with failure, one was poorly selected and did poorly, the other was classed as a C result but seemed to be worth while Of the four rheumatics complicated by hypertension, two were poorly chosen, one was a B result and definitely worth while, and one was a D result and not worth while Of the twelve straight rheumatics, four were poorly chosen, one was an A result, one was a B result, two were C results and four were D results, two of this group were considered worth while

VIII Case Summaries

For the sake of brevity in a rather lengthy report, details of past history, family history, and laboratory findings are not included in the following summaries where not germane to the

subject in question In all cases N renal function were determined to preoperatively In no case was evic tive infection such as elevated whi sedimentation rate present All checked with chest plates and fai any pulmonary disease or unusual shadows There were no cases w comitant chronic disease not menti case did the pathological examinati dence of thyroid hyperplasia W dosage is mentioned, U S P T moui's) is understood in each cas

CASE 1 H C No 329747 F A Native Housewife

Diagnoses Rheumatic heart disease, sis and regurgitation, aortic regurgite fibrillation, hypertension, congestive

History The patient entered the n June 7, 1933 Eleven years previousl that she had a heart murmur, but u there had been no history of rheu or heart trouble Six years before sl bed for four months with migratory ver, and "water about the heart" S there had been marked fatigue, dyspr orthopnea requiring four to five pill localized precordial pains, and a c During the four winters previous to suffered breaks in compensation wit nausea and gross edema, each attac gressively more severe During the entry she was in bed for four mont following three months, up to the tin restricted to a bed and chair life wit ty She was having cardiac asthn, nights a week She had received care with full digitalization and me

Physical Examination The patien ate cyanosis The heart was disti the left, grossly irregular in act apical systolic and middiastolic basal diastolic murmur to the lef The blood pressure was 170/90 clear The liver was enlarged ankles showed slight edema.

B M, R level was zero

Rationale for Operation This r fering from mild, progressive years and had been totally in months on medical treatment improvement It was hoped bring increased comfort an

Operation July 13, 1933 plications Positive Chvc present for two weeks, given orally, operative r mal

Postoperative Course following operation th proved There were tion There was bu tinent slept on one edema, no cardiac pain Palpitation stairs She was and get the night mea after the first month ran After the sixth month thyroia varying from one quarter to one e because of increasing fatigue, coldness

before operation. Possibly her life was prolonged. From the scientific point of view the operation produced definite cardiac benefit. Viewing the situation as a whole we do not consider the procedure to have been worth while for this patient.

CASE 5 F G No 251759 M. Aged fifty-two Irish. Unemployed.

Diagnoses Hypertensive and coronary heart disease, angina pectoris auricular fibrillation congestive heart failure

History This patient entered the hospital September 6 1933 for the seventh time because of heart trouble. He had been partially disabled for ten years and almost totally so for five years with dyspnea, palpitation orthopnea and intermittent edema. For three years he had suffered attacks of crushing precordial pain radiating down the left arm coming with any exertion, and relieved by nitroglycerine.

Physical Examination There was moderate cyanosis and respiratory distress. The heart was grossly enlarged sounds of poor quality and a basal systolic murmur was present rhythm was totally irregular. The blood pressure was 190/130. There was marked arteriosclerosis. There were rales at the lung bases. The sacrum and legs showed a moderate edema.

B M R. level was plus twenty five

Rationale for Operation Since this patient suffered from congestive failure which he was able to clear on bed rest, as well as from angina pectoris which was incapacitating it was felt that total thyroidectomy should offer some benefit especially in view of the elevated metabolism. The operation was done primarily for angina.

Operation September 27 1933 Anesthesia Local Complications None.

Postoperative Course Following the operation this patient rested in the hospital for a month and was then discharged to a convalescent home. There leading a quiet life, the number of attacks increased although no signs of congestive failure appeared. He died suddenly on December 11 1933 two and a half months after operation of pulmonary thrombosis and infarction, as revealed by autopsy. There was also found to be marked coronary atherosclerosis and localized areas of fibrosis of the myocardium.

Result In this patient's relatively short postoperative course, we see no improvement in the angina, but on the contrary his anginal attacks became more frequent in number. There was no return of congestive failure in the two and one-half months postoperative course.

Comment The presence of pulmonary thrombosis probably in part explains the unsatisfactory course with this patient.

CASE 6 S R. No. 287519 F Aged forty-three Irish. Housewife.

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation ? tricuspid stenosis auricular fibrillation congestive failure, ? portal obstruction.

History October 16 1933 this patient was admitted to the hospital for the twelfth time in six years with congestive heart failure. From the ages of twelve to twenty-five she had frequent attacks of joint pain. For six years prior to this entry there had been dyspnea, palpitation and edema. For three years there had been orthopnea requiring three or four pillows at night cardiac asthma occurred almost weekly and activity was limited to walking from one room to another. During this time ascites set in, requiring abdominal taps about every eight

days with removal of six to eight quarts of fluid.

Physical Examination There was moderate cyanosis. Neck veins were distended. The heart was grossly enlarged fibrillating and showed apical systolic and diastolic murmurs. The blood pressure was 160/90. There was fluid in the left chest and rales at the lung bases. The abdomen was distended with fluid. The liver was palpable twelve cm. below the costal margin. The legs showed a marked pitting edema.

B M R level was minus five

Rationale for Operation Regarding diagnosis the question was raised whether this case represented simply rheumatic heart disease with a possible cardiac cirrhosis or some other type of portal obstruction giving rise to the marked ascites. It was felt that on theoretical grounds, with the lessened necessary blood flow going with a lowered metabolic rate the ascites might be relieved. Furthermore it was believed that increased circulatory failure might be prevented. Without previous experience in this type of case it was decided with consent of the patient, to proceed with total thyroidectomy on a purely theoretical and experimental basis.

Operation November 7 1933 Anesthesia Local Complications None.

Postoperative Course For the first nine months postoperatively the interval between abdominal taps was cut down to about once in two weeks but following that, they were again required almost weekly. Other signs and symptoms were little if any improved although asthma did not occur for the first nine months and was of rare occurrence thereafter. Several chest taps in addition to the abdominal taps were required. The B M R remained about minus thirty but the patient showed no untoward myxedema symptoms. October 25 1935 two days after her final tap the patient grew increasingly weak and died, the exact cause of death being uncertain. No autopsy was obtained.

Result The operation in this case brought about no worth while benefit.

Comment This case illustrates the futility of the procedure in cases of long standing, intractable, severe congestive failure, and in cases with persistent ascites. This patient should not have been operated on.

CASE 7 J D B M No. 11473 M Aged fifty Native. Coal Dealer

Diagnoses Syphilitic aortitis aortic regurgitation congestive failure.

History This patient entered the hospital October 9 1933. For six months he had presented rapidly progressive signs and symptoms of congestive failure with dyspnea and cough. For two months he had remained in bed with increasing edema in spite of digitalis. At the age of twenty he had had a chancre.

Physical Examination There was moderate cyanosis and engorgement of the neck veins. The heart was grossly enlarged showing a very loud aortic diastolic murmur. Blood pressure was 170/50. There were a few rales at the lung bases. The liver was felt six cm. below the costal margin. There was a moderate amount of abdominal fluid. The sacrum and extremities showed marked edema.

B M R not done. Hinton Strongly positive.

Rationale for Operation Because of failure to improve after a month of hospitalization it was felt that thyroidectomy as a last resort was justifiable with a hope of decreasing the congestive failure in spite of the ultimate poor prognosis.

Operation November 8, 1934 *Anesthesia* Local
Complications None

Postoperative Course There was not any apparent benefit or effect from the operation November 24, 1934, sixteen days later the patient died at home

Result No benefit from operation

Comment This again was one of the early cases operated on as a last resort and we have learned that this does not pay We have also come to feel that the operation is not worth while in cases of syphilitic heart disease because of the rapidly progressive nature of the lesion

CASE 8 H K No 332819 M Aged forty two
Hebrew Junk collector

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, auricular fibrillation

History This patient entered the hospital October 20, 1933 For eight years there had been increasing dyspnea on exertion For four years there had been marked dyspnea, palpitation, orthopnea, and the patient had been unable to work For two years there had been increasing edema. For three months the patient had led a chair and bed life Digitalization had been maintained in the Out-Patient Department for eight years

Physical Examination There was moderate orthopnea, marked cyanosis and the neck veins were distended The heart was grossly enlarged to the left, fibrillating and showed apical systolic and diastolic murmurs The blood pressure was 124/80 There were moist râles at the lung bases The liver was palpable at the umbilicus and tender There was pitting edema of the sacrum and legs

B M R level was plus five

On bed rest and diuretics the edema disappeared

Rationale for Operation In view of the chronically crippled condition of the patient, in spite of adequate medical care, it was felt that thyroidectomy offered the only chance for improvement

Operation November 8, 1933 *Anesthesia* Morphine one sixth grain s.c. at 7 00 A.M. Morphine one sixth grain, atropine one one-hundredth grain and scopolamine one one hundred and fiftieth grain s.c. at 8 25 A.M. Operation started with novocaine one per cent infiltration at 9 25 A.M. Because of restlessness and excitement, morphine one sixth grain was given at 10 25 A.M. and the remainder of the operation completed under drop ether

Postoperative Course The patient did well for twelve hours and at that time the blood pressure dropped, temperature rose, lungs became filled with moisture and the patient died

Result Operative death

Comment Since the time of operating on this patient we have learned that these cardiacs sustain large amounts of sedation poorly We have also learned that it is wise to test out reaction to proposed medication in advance of the day of operation Excitement, possibly from scopolamine, necessitating additional morphine and ether, quite likely led to the termination in this case

CASE 9 H K B M No 11774 Aged fifty four
Native Architect

Diagnoses Hypertensive heart disease, generalized arteriosclerosis, auricular fibrillation

History This patient was admitted to the hospital November 4, 1933 For five months he had a noted fluttering and pounding of his heart, and for three months there had been dyspnea on any exertion and slight swelling of the feet at night. For ten years there had been a known hypertension Recently he had been very nervous and was rapidly losing ground

Physical Examination The heart was markedly enlarged with sounds of poor quality, harsh systolic murmur in the aortic area and fairly loud blowing apical systolic murmur Blood pressure 220/140 Lungs showed occasional râles at bases Legs showed a slight pitting edema

B M R was plus twenty seven (Patient very nervous and true rate hard to obtain)

Rationale for Operation This patient was unable to work, nervous, discouraged and having some evidence of disorientation The operation was done with the hope of delaying his cardiac failure

Operation November 9, 1933 *Anesthesia* Local *Complications* There was Cheyne-Stokes respiration during the operation The patient did not recover from a state of stupor and died a few hours later

Result Operative death

Autopsy showed very advanced arteriosclerosis with beading of the cerebral vessels in addition to hypertensive heart disease

Comment The high degree of hypertension and the marked generalized and cerebral arteriosclerosis would in view of later knowledge be considered contraindications to operation

CASE 10 S C No 319239 M Aged sixty
Russian Hebrew Unemployed.

Diagnoses Hypertensive heart disease, congestive failure, auricular fibrillation

History This patient entered the hospital for the second time, November 2, 1933 Twenty five years before he was seen in the Out Patient Department complaining of palpitation, and at that time showed cardiac enlargement with a total irregularity and pulse deficit Since then he had been followed, because of increasing dyspnea and palpitation Fifteen months prior to the present entry he was sent to the medical wards because of increasing heart failure with orthopnea, pulmonary congestion, engorged liver and slight edema On bed rest, continued digitals and diuretics he improved After leaving the house his course was again one of increasing disability, with persistent moderate signs of congestion Intermittent, localized sharp precordial pains appeared For six months he had been confined to a chair and bed life, because of severe dyspnea and orthopnea requiring four pillows and palpitation

Physical Examination The heart was moderately enlarged, no murmurs were heard, the pulmonary second sound was accentuated, and rhythm was grossly irregular Blood pressure was 210/110 The lungs showed moist râles at the bases The liver was felt four cm below the costal margin. There was no edema

B M R level was plus three

Rationale for Operation This patient was totally incapacitated on full digitalization and showed signs of progressive cardiac failure It was believed that he could be given greater activity with retardation of terminal failure by the operation

Operation November 10, 1933 *Anesthesia* Local *Complications* None Uneventful recovery

Postoperative Course For about fourteen months following operation this patient seemed slightly improved. His activity was increased to the point of walking one quarter to one half mile in a day. Orthopnea disappeared and he slept well on two pillows. There was no palpitation. Dyspnea became distinctly less. There was practically no edema. Pre-cordial aches were almost entirely relieved. On the other hand he felt generally weak and became tired very easily. It was fatigue rather than dyspnea which limited his activity. Because of marked puffiness about the eyes lacerimation cold and increasing fatigue one quarter grain of thyrold daily was started during the second postoperative month and was continued thereafter with the B M R. ranging between minus fifteen and minus twenty. Digitalis one and one-half and three grains were continued on alternate days.

During the winter of 1934 and 1935 the patient minded the cold far more than previously. Old hypetrophic arthritis gave increasing pain. Peripheral circulation became very poor and attacks of intermittent claudication set in. During the spring the patient grew generally somewhat weaker more dyspneic and was forced to lead a very quiet life. In June 1935 he had a cerebral hemorrhage from which he never recovered dying on June 28, 1935.

Result This patient's cardiac status was definitely improved by operation and impending gross failure was warded off but the side effects of the myx edema were distinctly troublesome and he was all in all a rather miserable patient.

CASE 11. G. K. B. M. No. 11859 F Aged forty seven. Native Housewife

Diagnosis Rheumatic and hypertensive heart disease, mitral stenosis auricular fibrillation congestive failure.

History This patient entered the hospital November 12, 1933. For five years there has been marked dyspnea and palpitation on exertion and for four years she was able to do little housework because of this. For two years there had also been swelling of the ankles at night and orthopnea. During the previous year there had been five severe attacks of paroxysmal dyspnea palpitation cough and frothy sputum each requiring three to four weeks in bed. The patient had been resistant to digitalis and had required four and one-half grains a day constantly to control the apex rate.

Physical Examination There was moderate respiratory distress and cyanosis. The heart was grossly enlarged totally irregular and showed an apical diastolic murmur. Blood pressure was 250/120. There were moist rales at the lung bases. The liver was palpable six cm below the costal margin. There was moderate edema of the legs.

B M R level was plus seventeen.

Rationale for Operation This patient was laid up frequently with tachycardia (auricular fibrillation and orthopnea) and was losing ground steadily in spite of adequate medical care.

Operation November 18 1933. Anesthesia Local. Complications None.

Postoperative Course The immediate effect of operation was one of striking benefit. The heart became slow palpitation disappeared and the patient was able to lie flat without discomfort. There was a great deal of psychic trauma from the operation under a local anesthetic and she was troubled with bad dreams for months afterward on returning home. Dyspnea on exertion some edema headache and abdominal distention continued to incapacitate her for any activity other than walking about her room.

Attacks of paroxysmal dyspnea recurred. She again required three to four pillows at night. She was taking three grains of digitalis a day and one half grain of thyrold every other day was required for myxedema symptoms after the second month.

In March, 1935 (sixteen months after operation) the patient's local doctor felt that she was too myxedematous and not doing well, so raised her thyrold to one grain daily (no B M R. was taken) and at the same time increased her digitalis to four and one-half grains daily. Following this some of the puffiness of her face and ankles decreased. Gradually signs and symptoms of failure increased with cardiac asthma occurring almost nightly. Nausea set in and all digitalis was omitted for a week. May 7 1935 the patient reentered the hospital in congestive failure. At this time her B M R. was plus seven. During an eighteen day rest in the hospital off thyrold her rate fell to a level of about minus fifteen. Digitalization was reestablished on one and one-half and three grains daily. Symptoms were somewhat improved.

After returning home the patient was again confined largely to a chair and bed life with moderate congestive failure. July 20 1935 twenty months after operation she suddenly developed acute pulmonary edema and died within a few hours.

Result There was little if any benefit from the operation in this case and it was certainly not worth while.

Comment This again is a case of very severe heart disease with marked hypertension which should not be selected for operation today.

CASE 12. L. H. No. 263901 M Aged thirty three Hebrew Unemployed.

Diagnosis Rheumatic heart disease mitral stenosis and regurgitation aortic regurgitation auricular fibrillation congestive failure.

History This patient was admitted to the medical service January 24 1934. At the age of thirteen he was in bed for eight months with rheumatic fever. For ten years there had been some increasing dyspnea on exertion. For five years palpitation had become increasingly troublesome. In the previous three years there had been three attacks of congestive failure with cough, orthopnea and liver pain, the last setting in three weeks before entry. Between attacks he had been able to walk only a few blocks without exhaustion.

Physical Examination There was moderate cyanosis and neck veins were pulsating. The heart was grossly enlarged to the left, fibrillating and showed mitral aortic and diastolic murmurs also an aortic diastolic. The blood pressure was 145/90. There were rales at both lung bases. The liver was palpable and tender eight cm. below the costal margin.

B M R level was plus eleven.

Rationale for Operation In view of repeated breaks in compensation without massive edema responding well to bed rest and digitalis but with an obviously low reserve, it was believed that operation should be of marked benefit in this case.

Operation February 16 1934. Anesthesia Lu-minal three grains at bed time pentobarbital three grains at 7:00 A.M. pantopon one third grain s.c. at 7:30 A.M., pantopon one third grain s.c. at 8:00 A.M., pantopon one third grain s.c. at 8:30 A.M. operation started at 8:50 A.M. Novocaine one per cent cervical block and infiltration. The thyrold was easily removed in toto. No parathyroids removed. No nerve injury. The patient's condition remained good during the operation.

Postoperative Course The patient's condition re-

mained fairly good up to 4 10 P M when he suddenly became cyanotic with irregular, gasping respiration, pulse of one hundred and blood pressure 140/80. He became unconscious, in spite of oxygen therapy, respirations grew weaker and more irregular, blood pressure dropped to 80/40. At 3 35 A.M. the following morning, some sixteen hours following operation he died in apparent respiratory failure.

Result Operative death. No autopsy.

Comment It is possible that a cerebral embolus to the respiratory center may have been the cause of death in this case. Again, as in case 8, we note that a large amount of sedation was given which we have since learned these people tolerate poorly.

CASE 13 E J P P H No 32923 F Aged thirty-nine Native Housewife

Diagnoses Rheumatic heart disease, mitral stenosis, auricular fibrillation

History This patient entered the hospital February 12, 1934. Fifteen years before she developed a cough which had continued since, and shortly thereafter dyspnea on exertion set in and grew progressively more marked. During the previous six years palpitation had been severe and constant. For one year there had been frequent localized heartache. Hemoptysis had occurred on four occasions in the previous six years. For three years there had been fullness in the abdomen and on one occasion definite congestive failure requiring ten weeks' rest in bed. Digitalization had been maintained for several years.

Physical Examination The heart showed marked enlargement to the right. There was a long, loud apical mid diastolic murmur. The rhythm was totally irregular. The lungs were clear. The abdomen was distended with the liver palpable five cm below the costal margin and slightly tender. There was very slight pitting edema of the lower shins.

B M R level was minus nine.

Rationale for Operation Because of marked discomfort and slowly progressive cardiac invalidism in spite of careful medical attention it was felt that total thyroidectomy should be tried.

Operation February 20, 1934. Anesthesia. Local Complications. The patient developed a positive Chvostek of a few days' duration only. No cord injury or frank tetany.

Postoperative Course Two months after operation dyspnea, cough, precordial ache and palpitation had distinctly improved. The B M R was minus twenty-six, the face and eyes had become markedly puffy, and thyroid one half and one quarter of a grain on alternate days was given. For fifteen months after operation the favorable progress continued, she was able to manage her house, walk one-quarter to one-half mile a day, be more active and feel better than in years. A B M R in May, 1935 was minus sixteen. From June to September, 1935 the patient was moderately active with housework, but unable to walk outside because of increasing dyspnea and epigastric fullness. In October, 1935 she again entered a state of gross congestive failure with frothy sputum and edema of the legs. At present she is showing improvement on bed rest and diuretics.

Result This patient has been distinctly improved and benefited by the operation. She and her family considered the result miraculous.

CASE 14 S M No 335831 M Aged thirty-four Native Unemployed (Former shoe worker)

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, aortic stenosis and regurgitation, auricular fibrillation, congestive failure.

History This patient entered the medical service March 14, 1934. At the age of seven he had had chorea and at twelve, severe tonsillitis, there was no history of rheumatism. He was well up to five years before entry when he gradually developed dyspnea on exertion which had continued and become progressive. Three years before he developed a sense of fullness in the abdomen and marked palpitation. He entered a local hospital where he remained for two weeks being digitalized and receiving diuretics. The fullness in the abdomen subsided, but the palpitation continued. For two and a half years prior to entry he had been unable to work because of severe dyspnea and palpitation on walking even one block on the level. During this time he had cardiac asthma on four occasions. He slept on two pillows. He never had edema of the extremities. He was able to be up and about the house. He was taking digitalis one and a half and three grains on alternate days.

Physical Examination The heart showed marked generalized enlargement, with apical systolic and diastolic murmurs, also basal systolic and diastolic murmurs with a systolic thrill, rhythm was grossly irregular with a rate of seventy. Blood pressure was 115/50. The lungs were clear. The liver edge was just palpable but nontender. There was no edema.

B M R level was plus six.

Rationale for Operation This patient had been quite incapacitated for any activity for two and a half years because of dyspnea and palpitation without gross edema. It was believed that operation would increase his general comfort and activity, and might permit a return to work.

Operation April 4, 1934. Anesthesia. Local Complications. None. Uneventful operative recovery.

Postoperative Course Since operation, now eighteen months ago, this patient has done very well. Within six weeks he was able to walk a half mile without any palpitation and almost no dyspnea. He now walks two miles a day, has no palpitation, and has only slight dyspnea going up hill or over stairs. He takes care of the furnace and helps with housework. He is looking for a job, but has yet not found one. He sleeps well on one pillow. He has had no cardiac asthma. There are no signs of congestive failure. Two months after operation with a B M R of minus twenty-one he was started on one quarter grain of thyroid every other day because of lethargy and sleepiness. He has continued on this dosage maintaining a rate about minus twenty-five without untoward myxedema symptoms. He is taking one pill of digitalis daily. His only present complaint is easy fatigability.

Result This patient represents a very good result. His presenting symptoms have been almost entirely dissipated. He should be able to work when he finds a job which does not demand too strenuous activity.

CASE 15 S D No 336686 F Aged forty-two. Russian Hebrew Housewife

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, aortic stenosis and regurgitation, auricular fibrillation, congestive failure.

History This patient entered the hospital for the first time April 23, 1934. Thirty years previously, at the age of twelve, she had rheumatic fever and was in bed for three months. Twelve years before she noted onset of palpitation and dyspnea which had continued and progressed since. Six years be-

fore she was forced to give up work in a restaurant because of severe dyspnea. Nine months prior to entry cardiac asthma first occurred and had been present almost nightly since. During this period the patient required three to four pillows for rest and palpitation and dyspnea were so marked that activity was limited to a chair and bed life. She had been fully digitalized.

Physical Examination. The patient was sitting upright in bed with difficult breathing. The neck veins were engorged. The heart was enlarged to the left showed double mitral and aortic murmurs and was totally irregular with an apical rate of ninety. The liver was not enlarged. There was no edema.

B M R level was plus eleven.

Rationale for Operation. It was believed that operation alone might offer further relief to this patient. Because symptoms of left sided failure predominated without gross edema, it was felt that she should be a favorable subject and while her activity might not be greatly increased she should be made far more comfortable.

Operation. May 18 1934. Anesthesia Local. Complications None.

Postoperative Course. This patient illustrates well some of the difficulties of postoperative management. For the first two months there was some symptomatic improvement, but no increase in activity. B M R fell to minus nine. The rhythm had returned to normal. During July severe attacks of palpitation occurred associated with choking sensations, presumably paroxysmal fibrillation. Dyspnea became as severe as before operation. B M R rose to minus two and there were no signs or symptoms of myxedema. Catamenia was three weeks overdue and the question of possible pregnancy arose. An Aschheim Zondek test was negative. In early August the B M R dropped to minus twenty-eight and mild signs of myxedema appeared, but the patient's general state was as poor as before operation.

August 31 1934 the patient was readmitted to the house because of paroxysms of palpitation nocturnal dyspnea and several spells of syncope. She had taken one and a half grains of digitalis daily since the operation as before. Electrocardiogram showed sinoauricular block with A V nodal escape beats digitalis T waves and rate of sixty-five. It was felt that digitalis intoxication was in part responsible for her difficulties and this was omitted for a week and then resumed in one and a half grain doses daily. Because of marked appearances of myxedema (in spite of B M R only minus twenty-two) thyroid one quarter grain daily was started. In September she was still confined to a chair and bed life. A normal catamenia occurred. Because of a pulse of fifty-five to sixty digitalis was omitted every third day. Thyroid was continued. In October conditions were much the same. In early November the patient appeared somewhat improved and was able to be up about the house about half the time. The pulse was down to fifty and the electrocardiogram showed digitalis T waves so digitalis was reduced to one and a half grains every other day. The B M R was only minus ten and the patient did not appear myxedematous so thyroid was omitted. In the middle of November the patient had two severe attacks of palpitation dyspnea and choking sensations. The B M R was minus twenty-two and the patient's face was quite puffy. Pulse was fifty-six and regular quinidine was tried to eliminate the paroxysms of fibrillation but after six grains marked intoxication occurred and the drug was omitted. In mid December the patient reported that there had been no further attacks of palpitation but that dyspnea had grown progressively more severe on the slightest exertion since thy-

roid had been omitted the month before and that abdominal distention had become more troublesome. The B M R reading was minus seventeen but clinically it appeared to be in the minus thirties. With a pulse of sixty and no signs of congestive failure we felt that the severe dyspnea weakness and abdominal distention were most likely myxedema rather than cardiac symptoms. A seven foot chest plate at this time showed no change in the size or shape of the heart since operation. (We were wondering if she might show a change to the picture of a myxedema heart.) Thyroid one quarter grain daily was resumed. At the end of December the patient was much improved in every way having much less dyspnea and distention and no other untoward symptoms. B M R was minus seventeen.

From January until about the middle of May 1935 she seemed improved being able to help with the housework having no palpitation and very little dyspnea on the level. During this period her metabolism was about minus eighteen, on one quarter grain of thyroid daily with a pulse of sixty to seventy on digitalis one and a half grains every other day.

From the end of May 1935 up to the time of writing, October 1935 sixteen months after operation the patient has again failed having some increase in dyspnea with walking on the level palpitation when active or quiet, orthopnea requiring three to four pillows and has been again forced back to a chair and bed life. In June she had a very profuse period with excessive flowing for nine days. She was readmitted to the hospital for observation. At this time the B M R had risen to minus four (having been only minus twelve in May) and thyroid was omitted. Surgical consultants could find no evidence of pelvic tumor and a course of x-ray over the uterus was given. There has been no menstrual flow since. In August the B M R was minus nine off thyroid but since abdominal distention and general weakness had increased it was felt wise to resume thyroid one quarter grain every other day. In September the B M R was minus thirteen, weakness and distention were decreased, but dyspnea was not improved and several mild attacks of cardiac asthma had occurred.

Result. This patient's course has been one of ups and downs and complications. We do not feel that the operation has been worth while.

CASE 16 W R. B. M. No. 14214 M. Aged sixty seven. Canadian Physician.

Diagnosis. Angina pectoris coronary heart disease.

History. This patient entered the hospital June 4 1934. Two years prior to entry he began to notice a pressure pain below the right clavicle appearing on exertion. For the six months before entry he had suffered very severe crushing precordial pains radiating down the left arm coming on walking or any marked exertion and always promptly relieved by nitroglycerine. The various purine drugs were of no value in preventing attacks. There were never any symptoms of congestive failure.

Physical Examination. The heart was at the upper limits of normal size. The sounds were of good quality and there were no murmurs. The lungs were clear. There was no edema. Blood pressure was 118/70.

B M R level was minus seventeen. The electrocardiogram was normal.

Rationale for Operation. The patient was very anxious for the operation and the degree of disability from angina appeared sufficient for its recommendation in spite of the low basal metabolic rate.

Operation June 19, 1934 Anesthesia Local Complications None

Postoperative Course July 20, 1934, one month after operation, the B M R was minus thirty one. August 24, 1934 the rate was minus thirty seven and there was some puffiness of the eyes, thyroid one quarter grain daily was started. In November he started doing some light work and reported that he had had no true angina since operation, but slight soreness over the precordium on exertion. When seen in September 1935, fifteen months after operation, he appeared to be very well, reporting only a little substernal aching on smoking or on walking any distance, but this was promptly relieved by nitroglycerine. His B M R was minus seventeen, but recently he had been taking one grain of thyroid daily, as on this he felt better, although substernal oppression and aching had increased with this dosage. He was advised to reduce this to one half grain daily. He had been able to carry on with his office practice steadily except for a three weeks' vacation.

Result This patient has shown almost complete relief of his anginal symptoms and represents a very satisfactory result.

CASE 17 M S No 335249 F Aged 45 Colored Housewife

Diagnoses Rheumatic and hypertensive heart disease, aortic stenosis, mitral regurgitation, congestive failure

History This patient entered the medical service May 16, 1934 for the second time in congestive failure. There was no past history of rheumatic infection. Fifteen months before she had had a large hemoptysis and then learned for the first time that she had heart trouble. Following that time there was progressive dyspnea and palpitation on exertion, and a constant cough. For six months there had been localized precordial aches and pain over the region of the liver, and during the same period she had slept poorly with three pillows. Three months before February, 1934, she had remained for three weeks on the medical ward with mild congestive failure and was digitalized. Following discharge, in spite of continued bed rest and digitalis, she shortly developed more dyspnea, constant liver pain, nausea, edema of legs and cardiac asthma occurring every other night. She had done no work for fifteen months and had been a chair and bed invalid for six months.

Physical Examination There was a moderate degree of jaundice. The heart showed marked enlargement with apical and basal systolic murmurs and thrills. The pulse was ninety and regular. The blood pressure was 180/124. The lungs showed moist râles at both bases. The liver was enlarged, edge palpable ten cm below the costal margin and definitely tender. There was a small amount of abdominal fluid present. The legs and feet showed pitting edema.

B M R level was plus twelve

Rationale for Operation Because of progressive cardiac failure, producing marked discomfort and total incapacity, in spite of rest and digitalis, it was felt that total thyroidectomy alone might offer relief.

Operation June 10, 1934 Anesthesia Local Complications None

Postoperative Course Following operation for about eight months this patient did well. She was up and about the house all day, got one of the meals, and walked as much as half a mile. She had moderate dyspnea only on going over stairs. She slept well on two pillows. Cardiac asthma ceased except

for two slight attacks associated with respiratory infection. The chronic cough ceased. There was no longer any palpitation, precordial ache, liver pain or edema. Examination showed few râles persisting at the lung bases. Enlargement of liver persisted but the tenderness disappeared. Seven months after operation the B M R fell to minus thirty five, previous levels having been about twenty six. Because of some increasing fatigue, very poor appetite and marked puffiness of the face, thyroid one quarter grain every other day was started. One month later B M R was minus twenty-four and the patient was feeling generally much improved. Nine months following operation cardiac asthma, dyspnea, palpitation and edema returned in increasing degree until ten months after operation the patient was chiefly confined to bed. Digitalis and thyroid was continued as before, B M R's ranging from minus twenty to minus thirty. On August 19, 1935, fourteen months after operation, the patient died in gross congestive failure at another hospital. No autopsy was obtained.

Result For nine months this patient showed some moderate but distinct improvement. She then again grew progressively worse and died in gross failure at the end of fourteen months. We do not consider this result worth while.

Comment The rapid recurrence of the second attack of gross failure, within three months of the first, with the patient remaining practically at bed rest on digitalis, suggests a severity of heart disease and a rapidity of failure which should have been considered a contraindication to operation.

CASE 18 W M No 337153 M Aged thirty six Unemployed

Diagnoses Rheumatic heart disease mitral stenosis and regurgitation, auricular fibrillation, congestive failure

History This patient entered the hospital for the second time in congestive failure July 10, 1934. There was no past history of rheumatic infection. Two years before, following a hernia operation, he first noticed increasing dyspnea, palpitation and cough. One year before he had a hemoptysis. Following that there was orthopnea requiring three pillows at night, increasing attacks of cardiac asthma coming three or four nights a week, and numerous smaller hemoptyses. Two months before, he entered the hospital for ten days' treatment. Full digitalization produced slight improvement, but shortly after discharge symptoms all became more severe with marked liver pain, nausea, vomiting and the onset of jaundice. He had been unable to work for two years and had led a bed and chair life for six months.

Physical Examination There was a marked degree of jaundice, orthopnea and cyanosis. The heart was grossly enlarged with apical systolic and diastolic murmurs, rhythm grossly irregular, rate eighty. The liver was felt five cm below the costal margin and markedly tender. There were râles at both lung bases. There was no edema of the legs. Blood pressure was 120/70.

B M R level was minus four

Rationale for Operation On full digitalization and bed rest we had seen this patient grow progressively worse over a period of two months. He was totally incapacitated and very uncomfortable from his severe cardiac asthma. It was felt that operation alone might offer him some relief.

Operation August 10, 1934 Anesthesia Local Complications None

Postoperative Course Since operation now four ten months ago the patient has remained somewhat more comfortable than before but has been able to increase his activity very little. He has spent about half of the time in bed, and only on rare occasions has been able to walk out to the street. Dyspnea and palpitation have continued to be severe on any but the slightest exertion. Cardiac asthma, which had caused great discomfort several nights a week for about a year prior to operation has completely ceased except for several attacks associated with severe respiratory infection. While the B. M. R. fell to minus twenty-seven one month after operation no marked signs of myxedema appeared until the fifth month when the rate was minus thirty five. Uncomfortable myxedema symptoms have been controlled on one quarter grain of thyroid every other day. In the fifth month symptoms of digitalis intoxication appeared on one and a half grains daily and since then the patient has been carried on five one and a half grain pills a week.

Result The patient feels that the operation has been worth while for the simple reason that cardiac asthma has ceased however he has shown no improvement otherwise and is still a cripple. Operation has doubtless prolonged his life but to what avail? In a situation of this type we cannot feel from our point of view that the procedure has been justifiable.

Comment The comment of the previous case (No 17) likewise applies here. Because of too rapid progression and too severe heart disease this patient should not have been considered favorable for operation.

CASE 19 B. R. No 337309 F Aged thirty three. Syrian Sitcher

Diagnoses Rheumatic heart disease mitral stenosis and regurgitation aortic stenosis and regurgitation, congestive failure hypertension.

History This patient entered the hospital for the second time December 17 1934. Twenty years before she had had acute rheumatic fever. For one and a half years she had noticed increasing fatigue on exertion. Nine months previously she first had several spells of paroxysmal nocturnal dyspnea. These were followed by some increasing dyspnea and palpitation and two to three pillows were required at night. She was kept in bed for one month and digitalized. Following this, weakness and palpitation made it impossible for her to work. In May 1934 seven months before the second admission she entered the hospital for study. While there total thyroidectomy was decided on but the patient developed mumps and was discharged to return at a later date. Following another two weeks in bed at home she gradually started increasing her activity but on doing housework she had a return of palpitation and dyspnea, and had several more attacks of nocturnal dyspnea. Symptoms continued about the same up to the time of entry and she was able to be up and about but not able to carry on any work.

Physical Examination The patient was lying on two pillows in no distress. The neck veins were slightly full and pulsating. The heart was grossly enlarged to the left with sounds of poor quality. There were aortic and mitral diastolic and systolic murmurs. Blood pressure was 184/80. The lungs were clear. The liver was not felt and there was no edema.

B. M. R. level was plus twenty five

Rationale for Operation Because of slowly progressive and incapacitating cardiac symptoms in this patient under careful medical management, it seemed wise to give her the benefit of operation. The lack of any gross congestion or rapid progression seemed favorable factors, as did the consistently high B. M. R. (It was not felt that she had any thyrotoxicosis as was later proved by histologically normal gland).

Operation January 18 1935 Anesthesia Local

Postoperative Course Three days after operation the patient developed a positive Chvostek and Trousseau requiring calcium by mouth. The operative scar showed moderate drainage and there was some swelling in the neck. The cardiac compensation was satisfactorily maintained. Two and a half weeks following operation the patient suddenly developed what appeared to be pneumonia with some collapse at the left lung base. There were marked cyanosis and respiratory distress requiring an oxygen tent for two days. Following this there continued to be signs of congestion at the lung bases, the patient had to sleep on three to four pillows. There were marked general weakness and some edema of the sacrum and legs. On March 13 about two months following operation further signs of consolidation appeared in the left lung the temperature and pulse rose and the patient died in collapse.

Autopsy, Limited to the chest. There was no evidence of thyroid or parathyroid tissue found in the neck. The left lung showed a small area of atelectasis in the lower lobe and there was scattered pneumonic consolidation through both lungs there was no evidence of embolus. The heart was markedly enlarged weighing 7.5 grams. The aortic valve showed thickening and nodularity. The mitral valve showed no marked abnormality although there was slight thickening of the free margins. There was evidence of chronic myocarditis with small areas of fibrosis and a few small areas of round cell infiltration. The coronary vessels were normal.

Result Because of postoperative pulmonary complications this patient was never out of bed following her operation. Doubtless aggravated by the infection, her cardiac decompensation increased.

Comment This patient should have done well, but for uncertain reasons, complications arose and she never left the hospital.

CASE 20 H. R. No 340719 M Aged twenty-eight. Native. Unemployed.

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, aortic stenosis and regurgitation, congestive failure.

History This patient first entered the hospital October 16 1934. At the age of eleven seventeen years before he had acute rheumatic fever and for the following seven years was troubled by joint pains off and on. Following an appendectomy three years before entry he developed a severe cough with the raising of some bloody sputum and had never since been normally strong. A year and a half before entry he first experienced difficulty in breathing while at work and shortly after started having paroxysms of nocturnal dyspnea. Nine months before entry he suffered a sudden attack of dyspnea, crushing localized precordial pain and hemoptysis. He was taken to a local hospital where he was digitalized. Following this there were localized precordial pain, coming in paroxysms not related to exertion and not relieved by nitroglycerine marked dyspnea with hurrying on the level or go-

ing over stairs, almost constant palpitation, and a constant productive cough. He required about three pillows at night. At the time of entry he had been unable to do any work for over six months, could not go over stairs and could only walk about one quarter mile on the level.

After a period of three and a half weeks' study in the hospital, during which time total thyroidectomy was decided upon, the patient developed an acute respiratory infection and was sent home to return for operation at a later date.

January 22, 1935 the patient was readmitted. For about six weeks he had been somewhat more symptom free than before his first entry, but ten days prior to entry he had another hemoptysis and attack of severe dyspnea requiring a hypodermic and local hospitalization. After four or five days of bed rest he was again improved.

Physical Examination There was no cyanosis. The neck veins showed moderate pulsation. The heart was grossly enlarged to the left with sounds of poor quality, mitral and aortic systolic and diastolic murmurs were present. The blood pressure was 154/46. The lungs were clear, the liver edge was not felt, and there was no edema.

B M R level was minus six.

Rationale for Operation Because of symptoms largely of left sided failure without edema, it was felt that this patient should do well after thyroidectomy. He had received adequate medical care and in spite of this remained incapacitated.

Operation January 28, 1935. Anesthesia Local. The day following the operation the patient developed a small collapse at the right base which cleared promptly. There were no other complications.

Postoperative Course February 9, 1935 the patient left the hospital. Within one month his B M R dropped to minus eighteen and he gradually began to increase his activities without discomfort. He was enabled to go over stairs and within two months could walk three or four miles a day without dyspnea. He had no paroxysmal dyspnea, almost no palpitation, and only occasional mild precordial ache. At the end of three months he had a B M R of minus twenty-nine and appeared quite myxedematous, one quarter grain of thyroid every other day was started. At this time he seemed practically symptom free, slept well on one pillow and was going out trout fishing. In the fifth month he noted a distinct increase in lethargy, he was not able to concentrate or think so well as before, yet the B M R had risen to minus eighteen. He noticed a distinct increase in dyspnea on any exertion, and was requiring three to four pillows at night. An other episode of severe precordial pain, severe dyspnea and hemoptysis requiring hypodermic and local hospitalization occurred. From that time on all of his cardiac symptoms were as severe as before operation and he had the added symptoms of marked mental dullness, drowsiness, irritability and abdominal distention in spite of a B M R of minus twenty. Suddenly, about seven and a half months after his operation, the patient was seized by another severe attack of precordial pain, dyspnea and hemoptysis, and died within one hour of admission to his local hospital in spite of venesection and morphine. No autopsy was obtained.

Result For a period of three to four months following operation, this patient appeared to be remarkably improved. Then, however, symptoms returned and the patient was quite miserable, finally dying with acute pulmonary edema seven and a half months after operation. While the operation may have afforded some temporary benefit, we do not feel that it was worth while.

Comment The possibility of pulmonary thrombosis as a complicating factor in the case is to be considered as a possible explanation for the rather rapid downhill course.

CASE 21 L. H. B. M. No 8126 F. Aged twenty-seven.

Diagnoses Rheumatic heart disease, mitral stenosis and regurgitation, paroxysmal auricular fibrillation, congestive failure.

History The patient entered the Baker Memorial Hospital May 2, 1935 for the fifth time because of heart failure. At the ages of twelve, fourteen, and seventeen she had had attacks of acute rheumatic fever. November 1932, March 1933, and October 1933 she had been admitted because of severe attacks of paroxysmal auricular fibrillation. June 1933 the patient was in the hospital for acute appendicitis with operation successfully done under spinal anesthesia. Signs and symptoms of definite congestive failure first appeared nine months before the present entry when increasing dyspnea and edema of the legs was noted at night, and palpitation became quite constant. Eight months before entry a chronic cough set in. Four months before entry she remained in bed for six weeks and under full digitalization edema disappeared. While in bed at this time sudden pain developed in the right side of the chest and the patient coughed up several clots of blood. On resuming moderate activity edema gradually returned and increased until three weeks before entry she was again forced back to bed. For nine months she had required three to four pillows at night.

Physical Examination The patient was sitting up straight in bed. The heart was grossly enlarged to the left with apical systolic and diastolic murmurs, rhythm grossly irregular. Blood pressure was 150/80. The lungs showed slight dullness at bases (Small amount of fluid by x ray). The liver was felt three to four cm below the costal margin. There was moderate sacral edema.

B M R level was plus fourteen.

Rationale for Operation It was felt that this patient who was able to maintain compensation at bed rest, but for whom even slight activity was too much, should be a favorable case for operation, since she was young, had no complicating factors and a plus B M R.

Operation May 13, 1935. Anesthesia Local. Complications None.

Postoperative Course At the time of discharge, three weeks after operation, B M R was minus three, heart consciousness and orthopnea were largely relieved. Two weeks after leaving the hospital the patient again began to develop edema requiring three more weeks in bed and salyrgan. For another two weeks she started to move about slowly, but again became edematous. Following that she was confined to bed with massive anasarca which could not be controlled by salyrgan up to the time of her death October 30, 1935, five and a half months after operation. About two months after operation marked coldness, swelling of eyes and lacrimation set in, making the patient uncomfortable. First one quarter grain of thyroid was given every other day, then daily and finally after about three months the dosage was raised to one half grain daily because of continued general discomfort from myxedema. B M R's were not done, but at the lowest, metabolism was judged to be about minus thirty. During the months following operation hemoptysis associated with severe chest pain occurred on several occasions.

Result The patient showed no benefit from operation and continued a rapid downhill course

Comment This patient almost certainly had pulmonary infarction which was likely in large degree responsible for her rapid downhill course. Again she showed a rapidity of progression in the nine months prior to operation similar to that of cases 17 and 18 which should have made the procedure seem inadvisable.

DISCUSSION

In the treatment of hopeless, progressive cardiac disease the physician grasps at any therapy which may offer relief to his patient. Such therapy, however, must offer more than the prolongation of life for a few weeks or months of distressful existence. Our experience with total ablation of the thyroid gland in the treatment of congestive heart failure seems to show that a certain prolongation of life was all that we had accomplished in some cases. In others, however, striking symptomatic benefit was obtained.

The trial of the procedure was designed to give us a point of view concerning this therapy as it could be developed in a general hospital for it is doubtful if any method of treatment can become of far reaching application that cannot be administered in any well integrated hospital.

It is in the problem of the selection of cases and the unpredictability of results in the individual case that the great obstacle to the recommendation of the operation lies. The list of contraindications to the operation has been given and attention to this in our clinic has finally resulted in a classification of cardiac patients in which all but a very small group are considered unsuitable for the procedure. It is extremely difficult to select a patient who on the one hand is not too sick to be benefited by operation, or on the other hand so relatively well that the physician may entertain fears lest the operation which he recommends may leave his patient worse than before. He must realize that, generally speaking, failure to relieve the patient by operation results in leaving on the physician's hands not only a cardiac problem, but also one of avoiding the discomforts peculiar to myxedema. Theoretically it should be easy by means of a small dose of thyroid, to avoid the symptoms of myxedema. In actual practice, however, it has been our experience that even when the metabolic rate is maintained at levels where gross manifestations of myxedema are absent, there may yet remain certain unpleasant symptoms fairly attributable to the low metabolic rate. Even here nice adjustment of thyroid dosage may overcome the difficulties.

It is significant that while we have not abandoned this procedure, with the large number of cardiac patients seen on the wards in the past

six months, in no case have we felt sufficiently confident to recommend the operation.

Our results in congestive failure indicate that in cases well selected and managed, worth while results may be expected in about half. With this in view, in a suitable case, it is for the physician and for the patient to decide whether a procedure of this magnitude, carrying with it certain discomforts and certain risks, is worth while for a temporary improvement in the course of an inevitably fatal disease. This is a point where individual philosophy must enter the picture.

Concerning the results in angina pectoris our series does not warrant the drawing of conclusions. In one of the two cases the effect of total thyroidectomy has been definitely beneficial. In our clinic intractable angina pectoris is more frequently treated by paravertebral alcohol injection than by thyroidectomy.

Recent figures from the Beth Israel Hospital, Boston, where the greatest amount of this work has been done, based on patients operated upon from one and a half to three years ago show the following results which are somewhat more favorable than ours:

TABLE 7

	Congestive Failure	Angina Pectoris
Great Improvement	13 (35%)	18 (50%)
Moderate Improvement	10 (29%)	6 (17%)
Slight Improvement	7 (21%)	7 (19%)
No Significant Improvement	5 (15%)	5 (14%)
Total	34 Cases	36 Cases

In addition to the cases listed above there were six operative deaths. We may reasonably assume that the cases showing "Great and Moderate Improvement" were worth while. This gives 64 per cent in the congestive failure cases and 67 per cent in the angina cases. Were the six operative deaths included in this table under "No Improvement" as in our table 4 the net results would be slightly lower.

From the Peter Bent Brigham Hospital, Boston, the other hospital in which this work was started, we are given the following results based

TABLE 8

CONGESTIVE FAILURE 25 CASES	
Great Improvement	6
Moderate Improvement	5
Slight Improvement	2
No Improvement	12 (2 operative deaths)
ANGINA PECTORIS 29 CASES	
Great Improvement	11
Moderate Improvement	10
Slight Improvement	4
No Improvement	4 (2 operative deaths)

on cases operated upon from three years up to one year ago⁶. During the past year only three total thyroidectomies for heart disease have been done.

Three of the above cases were classified under both angina and congestive failure. These figures include the early cases operated on which were desperately sick and later realized to have had too severe heart disease to have been properly chosen for operation. In this series a case was considered a good result if physiological cardiac improvement occurred, as the case of a patient with angina having daily pain before operation and none for two weeks after operation but dying at the end of that time with a coronary occlusion, yet, as in this case, the patient might be classified as not showing a worth while result when the case is considered as a whole.

If further investigations permit more precise recognition of the criteria for the selection of cases and can give the profession a greater assurance of favorable results than it has at present, then certainly this form of treatment may be considered worth while.

CONCLUSIONS

1 We are reporting the results of total ablation of the thyroid gland in twenty-one cardiac patients operated on at the Massachusetts General Hospital between July, 1933 and May 1935. Nineteen patients had congestive failure and two had angina pectoris. Our conclusions are, therefore, based almost wholly on our experience with congestive failure.

2 Fifteen patients are now dead. In about one-fourth of the entire series the operation was considered worth while, in three-fourths it was not.

3 The relatively poor results in our series depend to a considerable degree upon the dif-

ficulty in selection of cases and in the fact that too severe cases were originally chosen. The contraindications to operation are numerous, but in cases well selected and handled, worth while results were secured, at least temporarily, in fifty per cent.

4 There is a small group of patients with cardiac failure in whom medical therapy is ineffective in controlling the progressive loss of cardiac reserve for whom total thyroidectomy offers an even chance of worth while improvement.

5 Avoidance of the grosser manifestations of myxedema we have not found difficult. Small daily rations of thyroid usually accomplish this purpose. In some cases, however, at a metabolic level above that of complete myxedema, low rate symptoms have been troublesome.

6 It is our belief that the procedure must be further studied before its usefulness in the treatment of heart disease can be fairly evaluated.

We are indebted to Dr H L Blumgart for frequent advice and suggestions in the course of this study.

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MEDICAL AFFAIRS IN CONNECTION WITH THE CALIFORNIA PACIFIC INTERNATIONAL EXPOSITION

Tuesday, May 26, has been designated as California Medical Association Day at the 1936 California Pacific International Exposition, San Diego, which opened February 12 and will continue to September 9.

Approximately 3,000 physicians and their families are expected to visit the world's fair in Balboa Park upon that occasion.

The focal point of the conclave will be the Palace of Medical Science, one of the principal exhibit palaces of the 1936 exposition, where extensive displays will be sponsored by the leading medical societies and manufacturers of pharmaceutical supplies.

A program appropriate to the day is being arranged by an exposition committee of the San Diego County Medical Society, with Dr Lyell C Kinney,

1831 Fourth Avenue, San Diego, acting as chairman. Direct cooperation is being lent by Dr Ben F Eager, Medico-Dental Building, San Diego, president, and Dr W C Crabtree, Medico-Dental Building, San Diego, secretary of the San Diego county society.

A medical exhibit in the Palace of Medical Science will be sponsored by the San Diego County Medical Society with the cooperation of the California Medical Association and the American Medical Association. Dr W H Geistweit, Jr., of San Diego, has been named director of medical exhibits to arrange details of this exhibit.

It is predicted that the medical exhibits at the 1936 exposition will be the most extensive yet displayed. The whole Palace of Medical Science will be devoted solely to exhibits treating on the prevention and treatment of disease, and it will form one of the important features of this world's fair which is dedicated to mankind's progress in all realms of science, art and industry.

NEW ENGLAND SURGICAL SOCIETY

THE CONTRIBUTION OF THE COMMUNITY HOSPITAL
TO BETTER MEDICAL SERVICE*

BY PEER P. JOHNSON, M.D.†

WHEN we compare the limited field of medicine of the "horse and buggy" days with the great progress of the present the question arises as to whether the application of our art has kept up with its development. In the opinion of many it has not. Perhaps one of the most serious criticisms is that economic factors prevent a large proportion of our population from receiving suitable medical care. Other criticisms relate to free competition the sliding scale, fee splitting, the "appalling incompetence of the family doctor, too much surgery and the inability of the public to determine the qualifications of the doctor.

As a means of overcoming the economic difficulties, group practice or state medicine financed by taxation or insurance, either voluntary or compulsory, has been suggested. As a solution group medicine may offer interesting possibilities of decreasing slightly the cost of medical care, but one can conceive of its being applicable to only a small number of communities. Even so, the quality of its service would naturally depend on the type of individuals making up the group. The incompetent would still be incompetent, the fee-splitter would still be a fee splitter and group competition would merely be substituted for that of the individual.

State medicine would undoubtedly provide medical care at a lower cost, but it is hard to understand by what magic it would improve the quality. Nothing in the experience of the countries which have adopted this form of medical practice suggests that a higher type of service is given. With the great amount of free service provided by doctors, hospitals and communities, it is difficult to believe that in New England there is much suffering because of the lack of adequate medical care.

It is unnecessary to elaborate to any degree upon the economic aspect of this subject for it is one which has been discussed in the lay and medical press, as well as in every recent medical meeting. The problem does exist and it behooves us to familiarize ourselves with its details and to give it our sympathetic consideration and cooperation to the end that the best interests of the patient and the doctor may be served.

Whatever solution is evolved, the medical aspects of the problem should be under the con-

trol of physicians and absolutely free from the domination of politics or of any organization operating for profit.

Most of the criticism emanates from economists, sociologists and committees investigating the cost of medical care and this latter group seems to be made up of men who have but little professional contact with the so called low income group. There is, on the other hand, no great evidence that the public itself is particularly dissatisfied with the quality of the service which it receives. An enlightened public can demand through its legislature as it does not in Massachusetts that only properly qualified physicians shall be permitted to take examinations for licensure, that those desiring to specialize shall give evidence of fitness and suitable training, and, further, if it so desires, that some form of examinations be held at reasonable intervals to test their competency and their right to continue in practice. These are matters over which the medical profession itself has no control. Even attempts on the part of our medical societies to discipline their members who are guilty of unethical practices raised the cry of oppression at the hands of organized medicine. Any attempts on our part to elevate the standards meet with immediate opposition. To relieve our profession of a source of serious and just criticism, some method is needed by which the fee-splitter, the man who operates for the fee alone and the hopelessly incompetent can be eliminated.

While we may not yet have a satisfactory solution for the economic situation, there is still much that we, and the hospitals with which we are connected can do to improve the quality of both medical and surgical practice.

At present the general practitioner finds himself between the devil and the deep blue sea. By some he is told that he should be able to diagnose and care for from eighty to ninety per cent of all illness, while by others that his incapacity is so great that he must give way to a new order. It is true that our changing economic life has placed him at a great disadvantage, and it is equally true that many of the newer diagnostic measures may be beyond his power to perform. The value and importance of these measures can certainly be understood by him and the indications for their application recognized. As with most of us, the mistakes which he makes are not so much due to his failure to make use of this bewildering array of diagnostic aids as to his failure to take careful

*President. Address delivered at the Annual Meeting of the New England Surgical Society at Manchester, N. H. September 7, 1935.

†Johnson, Peer P.—Chief of Surgical Service, Dev. by Hospital. For record and address of author see "This Week's Issue," page 279.

histories and make careful examinations and carefully coordinate his findings. The tendency of the day is to rush for the diagnosis to the x-ray and the laboratory, aids which in a goodly percentage of cases should be merely confirmatory and supplementary.

I believe that the general practitioner is not so incompetent as his critics claim. I feel sure that he today gives a higher grade of careful, devoted, intelligent and self-sacrificing service than ever before. Whatever his shortcomings, it is obvious that he will still be in demand for long years to come. To what other agency could the acutely ill turn for relief? He should be the first to be consulted. His care may not necessarily, as of old, include the whole family, and it is quite probable that many of his patients will, and often to their disadvantage, consult specialists of their own selection.

In the smaller cities and communities, the hospital should provide him with the facilities for obtaining the various laboratory investigations and specialized assistance in the care of his patients, and this at a reasonable cost. Further, the hospital should provide him, if competent and ethical, with a place where he may treat his private patients. On the other hand, the hospital should limit the doctor to the type of work for which he is fitted by training and experience and should compel him to observe its high standards, so that a patient who enters its doors, whether charity or pay, shall know that he will be in competent hands. It is true that opening the doors of the hospital to larger numbers of doctors will complicate the administrative problem, but the benefits to both the doctor and the patient will far outweigh its disadvantages.

The great need of the physician is the continuance of his medical education in order that he may keep fully abreast of the times, and his failure to accomplish this is undoubtedly the principal cause of criticisms directed against him. As a rule, postgraduate medical education is available only by trips away from home and the expenditure of time which it is difficult to give.* Yet the hospital of his community contains an abundance of clinical material which could be used for teaching purposes. Hospitals have contented themselves with the care of the sick and the training of nurses but, from an educational point of view, have neglected their opportunities to be of service to the profession as a whole. The physician who feels that he cannot go away for postgraduate instruction will benefit as much by spending an hour or two

each week in the hospital of his neighborhood. In this way he will not only get an opportunity to see a greater variety of cases than he would daily meet, but will come in closer contact with his fellow practitioners.

Firmly convinced of the value of this postgraduate teaching, we have, in our hospital, made available to the family doctor all our facilities, including autopsies. Many years ago we instituted a weekly operative clinic, but later changed to a monthly medical and surgical clinic followed by luncheon. That these clinics are considered of value is attested by the fact that there is usually an attendance of some thirty or forty physicians, that luncheon is not the principal inducement is evidenced by the fact that but a small number remain for it. More recently, in addition to the monthly clinic and the regular staff meeting, there has been instituted a weekly ward visit, followed two days later by an operative clinic. Rather than the usual perfunctory ward visit we have tried to make this a ward clinic, at which a small number of instructive cases are considered. Each one of these is turned over to a physician, who is told as briefly as possible the reasons for which the patient sought relief and is supplied with whatever information he desires as to the history, examination and laboratory findings. He is requested to discuss the case from the point of view of diagnosis and treatment, after which the whole group is encouraged to take part in the discussion. At the operative clinic, patients seen in the ward and requiring operation are presented, so that physicians interested may not only have a hand in the diagnosis but also see it verified or disproved, and at their subsequent visits observe the outcome.

Whether or not this employment of clinical instruction is the cause, it is rare indeed for a serious surgical emergency to be received from the hands of the family physician too late for operative relief. The signs of cancer are more early recognized and cases of perforated appendix have become less frequent. So suspicious has the doctor become of acute abdominal pain that only one in three of the patients entering the hospital with a diagnosis of acute appendicitis is such, and requires operation. This is, at least, a much safer course of action than the former one of procrastination.

Such clinics require leadership, time and effort, but the benefits derived are well worth the effort, for unconsciously the standards of the profession and of the hospital will be raised to the profit of the community.

The general practitioner and general surgeon are the offspring of the old family doctor. Their interests are identical. The diagnostic skill of the general practitioner determines in a large measure our surgical results. It is, therefore, our duty as a surgical organization to

*In Massachusetts under the auspices of the Massachusetts Medical Society postgraduate study has been furthered by courses of lectures given throughout the various districts by qualified specialists. The attendance at these lectures indicates that many physicians are anxious to take advantage of the opportunities for further study. The value of this method would be greatly increased if it could be combined with the use of clinical material.

work for the betterment not only of the surgeon but of the general practitioner, of whom Sigerist, in his preface to "The Great Doctors" has fittingly said "Bach and Mozart would be dead for ever, were it not for the living artists who are perpetually reviving their melodies. Pasteur and Koch would have lived in vain but for the everyday practitioners through whose activities their teachings are made effective. It is not so much the great theoreticians upon whom the health of the community depends, as the huge army of family doctors who sneer the ailing from hour to hour.

Surgery should certainly be practiced only by those thoroughly trained in the art. Our first President, Doctor Mixter, in his presidential address, speaking of the surgeon said "It must be strongly emphasized that the surgeon is not born but made. Thorough training of the mind and hand, hospital experience under the control of able masters—these are the absolute essentials and should be insisted on in the future as they have not been in the past.

What Doctor Mixter said nineteen years ago is even more true today. With the further advances in surgery the general surgeon's field of activity has been broadened and he therefore requires an even longer and more thorough period of training. Under our present system this necessary training has been acquired chiefly by the surgeons who practice in the large cities, but, unfortunately, the same high standards do not prevail in the smaller communities. Surgery here is too often done by the occasional operator whose preliminary training, in many cases, has consisted only of one year's internship in some small hospital and possibly some few months of postgraduate study. The surgical material of these communities is divided among so many men who feel qualified to do surgery that no one has an opportunity to acquire the judgment, diagnostic skill, dexterity, speed and confidence that the best interests of his patient demand. In other words there are too many men doing surgery and too few real surgeons. Our present system develops mediocrity in many rather than ability in a few. It is fair to say that where now a dozen or more men do the surgical work of a small hospital, two or three thoroughly trained surgeons with a competent house staff could, to the advantage of the community, do it better. For it is a well recognized truth that as a surgeon's experience increases, not only his mortality but his morbidity rate decreases. But how will he acquire this experience if he is not kept constantly employed?

There are in New England some 300 hospitals. In twelve small hospitals taken at random, there were 14,290 operations done last year. In some of these, treating from 1500 to 3000 patients, the operations were done by fifteen or more operators. In one alone with less than

1500, fourteen men did 300 major operations. And such a proportion is probably the rule rather than the exception in a large number of these institutions. In two of these hospitals studied twenty per cent of the operations were appendectomies, and both hospitals had large surgical staffs. They removed three times as many appendices as another hospital treating the same number of patients but with a surgical staff limited to three. Using these figures on the appendix alone, would it not be logical to consider that decreasing the number of surgeons would decrease the number of unnecessary operations?

Although this organ is a potential source of danger, it is not the cause of every acute belly ache and its needless removal is hardly warranted. In spite of its advances surgery has not reached that stage of perfection where the abdomen can be opened without risk. Except under the most unusual circumstances, I do not feel able to agree with the statement of Dean Lewis that the general practitioner should do his own appendectomies. And as a reason one need only reflect on the difficulties in diagnosing an obscure case of this disease as well as the complex problems with which he must often deal when operating for what at the outset appears to be a typical case of appendicitis.

Another factor of equal importance in preventing the development of the general surgeon is the length of his hospital service. Such services are often for one, two to rarely more than three months. One small hospital in the above list has four members on its surgical staff who serve in rotation through the year of periods of one month. They hardly become acquainted with their patients or get their stride before they pass off the scene. No one can possibly conceive that under such a scheme the patient will get the highest type of care. In hospitals with services of two or three months, the surgeon is left unemployed for the remainder of the year except for such private work as may come his way. If he happens to have a large surgical practice such an arrangement is of no detriment, but it constitutes a serious letdown for the young surgeon. As a result of this his surgical development is definitely retarded to the disadvantage of his community. In practice no other important line of endeavor would one expect to reach a high degree of excellence with such limited opportunities.

In this matter of length of service there seems to be a unanimity of opinion, but little effort is made to alter the situation. The problem has been discussed with many surgeons, and with but one exception all have held the opinion that a much longer period of hospital service, or even better, a continuous service would be the ideal arrangement. All agreed that rapid turnovers

were bad for the patient and that their own judgment and skill were greater at the end than at the beginning of their services. Their opinions might be summed up in that of one surgeon who wrote "I feel that the longer the service the better. I should consider it ideal to have the service continue the year round but with enough men on duty to divide the work without its being an excessive burden on any individual. Personally, I am on a two-months' service. At the end of the two months I feel relatively quite competent. During the ten months off duty I feel that I am getting rusty, with a rust that cannot be readily polished off even by visiting other clinics. As far as physical ability to stand the gaff is concerned, I feel again that a longer period of less strenuous activity is less fatiguing than a short, overburdened one. From what observation I have been able to make, the best surgery is done in hospitals with longer services." From the very nature of things, the accomplishment of this ideal implies the division of surgery among a smaller number of surgeons.

As the surgical standards of the community hospitals are raised, there will be less necessity for patients to go to the large medical centers, often not only a hardship to them and their families, but an increased expense. The peripatetic surgeon, too, except in the rare and more difficult cases, will find himself less needed. His position at best cannot be entirely satisfactory either to himself or to the patient. Unable, owing to the distance from his base, to conduct a period of observation, he often feels compelled to operate when it would be wiser to wait. Under the most favorable circumstances he is obliged to leave the postoperative care to the local physician who may or may not be able to carry the patient through a stormy convalescence.

Because all surgery is done there, the hospital is the only organization which can limit the physician to the field for which by training he is qualified. Its surgical staff should be selected only on the basis of training and ability and in a number sufficient to the surgical needs of the community. Certainly the staff should be small enough to give each man an opportunity to maintain a high degree of excellence.

If the objection to this is that it limits free competition in the surgical field, the answer is that the interest of the patient is paramount.

If a limited number of surgeons can reduce the mortality, morbidity and unnecessary operations, with the resulting economic consequences, no further argument is needed. There is no justification for allowing everyone, who so desires, to do surgery. The amount of surgery is of necessity limited, and if, by confining the field to a few well-trained men, the results are better, the personal desires of the many must be sacrificed. Probably the one factor which, more than anything else, keeps the highly trained young surgeon in the big city is the knowledge that he will be unable to find a field in the smaller community and will have to content himself with general practice as a means of livelihood, while his surgery becomes a side issue.

It may well be that at some future date, for the best interests of the patient and the hospital, surgery will be limited to a small staff on an adequate salary. These men would give their full time to the hospital and would be relieved of the unpleasant duty of collecting fees from the patient. Under such circumstances the reasons for fee-splitting, unnecessary operations and operations for the fee alone would be removed.

Hospitals have been willing to spend large sums of money for buildings and equipment but too little for human material. Here is an opportunity to make use of that great army of well-trained young doctors who are unemployed and crowding the big cities. They could be utilized as the resident house staff without which no hospital, however small, can really operate at its highest efficiency. This association with young men, fresh from the schools and hospitals, would be of mutual advantage. It would stimulate the older men to keep up-to-date, while it would provide the younger men with many of the practical aspects of our art with which they are still too unfamiliar.

For our small communities the hospital should be the center of medical activity. With well-equipped laboratories, providing service at a reasonable cost, with a well-trained staff under intelligent leadership, with its doors open to the competent and ethical general practitioner for the treatment of his patients, it would provide a satisfactory substitute for group medicine in which the doctor would not lose his individuality, and would answer the public's question of how to obtain a competent physician.

EMOTION AND DIARRHEA*

BY ALBERT J. SULLIVAN, M.D.†

THE purging effect of strong emotion has been recognized for centuries. In this paper the early medical views on simple diarrhea are reviewed, observations from the literature on this psychomotor phenomenon are presented and recent work on the etiological relationship of emotion to certain diarrheas, usually considered organic in origin, is discussed. A plea is made for more thorough investigation of this "no man's land", the field of psychosomatic relationships.

NERVOUS DIARRHEA

Alvarez, in his excellent book on "Nervous Indigestion", considers the ways in which emotion can affect the gastrointestinal tract. He reminds us that references to the purging effect of fear or anxiety may be found as early as 700 B.C. when Sennacherib, in describing his battle with two young kings of Elam, noted that, "Like young captured birds they lost courage. With their urine they defiled their chariots and let fall their excrements." In Genesis 43:30 we read that, "Joseph made haste for his bowels did yearn upon his brother, and he sought where to weep." In Caxton's edition of Aesop's Fables is found, "The wolf shate thyrce for the grete fere that he had." So well known is the direct association of strong emotion and defecation that many references to it can be found in folklore and in various profane authors both classic and modern.

The scientific interest of the medical profession in this phenomenon seems to have appeared at a much later date. Sydenham¹ in his *Epistolarly Dissertation* in 1682 wrote "Hysteria on the stomach will create continued vomiting on the bowels, diarrhea." The effect of the psyche on the colon seems to have concerned Van Swieten² for among other cases he cites this one: "I have seen a man who had taken a sufficiently nauseating draught, not only shudder and be nauseated, but also be frequently purged when he merely saw the cup in which he had taken the medicine." In the medical literature of the nineteenth century there are many references to the effect of mental states on the bowels particularly the purging effects of placebos and bread pills when they were considered by the patients to be cathartics. Tuke³ cites two interesting examples of the effect of the imagination

on the intestinal canal and adds his own amusing comment:

"In the 'Bibliothèque choisie de Médecine' is a good example of the effect produced by the Imagination, during sleep upon the action of the intestines. The daughter of the Hanoverian Consul aged 18, having to take a rhubarb purge on the following day which she especially disliked, dreamed that she had taken the hated dose. Grieved by her imaginary rhubarb she awoke, and the bowels acted freely five or six times. Precisely similar is a case which I give on the same authority (Demangeon) that of a monk for whom some purgative had been prepared, to be taken on the following day. He dreamed that he swallowed the medicine, the consequence of which was that he was aroused by the necessity of attending to the calls of nature and was copiously purged eight times. All must admit that any medical man who would engage to insure the same operations from imaginary as from real rhubarb or senna would enjoy a fashionable purgative practice."

About the middle of the nineteenth century the relationship between emotion and diarrhea received general recognition by the medical profession and nervous diarrhea became an accepted diagnosis. Habershon⁴, in 1857 listed ten causes of diarrhea, the ninth in the list being "Marked agitation or fright." John Chapman⁵ in 1866 devoted a whole chapter to "Diarrhoea Originated by the Mind." The following paragraph is quoted verbatim from that chapter:

"The following facts I am able to authenticate (1) A woman who has a drunken husband suffers great anxiety when he is away from home especially if late at night, lest anything should happen to him, and particularly lest by a fall or other accident he should receive bodily harm. This anxiety brings on diarrhoea accompanied with trembling pallor, and a peculiar haggardness of countenance.

"(2) A lady who while crossing the Atlantic suffered fearfully from sea sickness and violent diarrhoea during the whole passage has since her marriage been troubled with diarrhoea almost always when she has experienced painful emotions. On almost every occasion when her husband is unkind to her, as he is wont to be, she has a violent attack of diarrhoea."

From the Department of Internal Medicine, Yale University School of Medicine, New Haven, Conn.

Read before the National Society for the Advancement of Gastroenterology, New York, October 3, 1938.

† Dr. Albert J. Sullivan, Assistant Clinical Professor of Medicine, Yale University School of Medicine. For record and address of author see "This Week's Issue," page 324.

"(3) A woman who suffers from diarrhoea whenever her feelings are vehemently excited, even although the excitement may be one of sudden pleasure

"(4) One of my patients, who was reading George Eliot's noble work 'Romola,' assured me that the emotions it excited in her brought on diarrhoeas. In fact, owing to this remarkable transformation of emotions into 'motions', she was obliged to abstain from reading the book for a time

"(5) A lady, one of my patients, when affected by any violent emotion, especially if of a distressing character, is almost immediately attacked with diarrhoea, or vomiting, or both

"(6) A gentleman, one of my patients, already mentioned, always finds himself attacked with diarrhoea after he has experienced any considerable mental excitement. It is well known, moreover, that many soldiers especially young ones, are attacked with diarrhoea when going into action "

Such a remarkable series of cases indicate that Chapman was years ahead of his time in the investigation of psychosomatic relationships. Unfortunately, most of his work was soon forgotten because of his peculiar therapeutic notions. He insisted that not only diarrhea and cholera but also epilepsy, paralysis, uterine affections and seasickness would be cured by the application of his special spinal icebags which was the "only available power of subduing hyperaemia of the automatic nervous centres". Today he might be considered a quack but it is rather interesting that he secured a high percentage of cures in a series of diseases which are frequently psychic or functional by a method which was probably effective because of its strong psychotherapeutic appeal.

Although all this material and much more, was available in the literature, many of the standard medical works of the nineteenth century and even later dates make no mention of nervous diarrhea. Neither Bennett's "Clinical Lectures" nor Ziemssen's 16 volume "Cyclopaedia of the Practice of Medicine" mention the subject. On the other hand, Trousseau, the great French clinician, devotes much space to the discussion of this form of diarrhea. He says, "It was necessary, Gentlemen, that I should enter into these details, because nervous diarrhoea is one of the most frequent forms of the affection, and is at the same time one of those in which the physician can be most useful, when he knows how to recognize it "

Toward the end of the nineteenth century, the concept of nervous diarrhea began to be widely recognized. In the first (1892) edition of Osler's "Practice of Medicine" we find the following discussion

"It is by no means clear how mental states act upon the bowels, and yet it is an old and trustworthy observation which everyday experience confirms that the mental state may profoundly affect the intestinal canal. These influences should not properly be considered under catarrhal processes, as they result simply from increased peristalsis or increased secretion, and are usually described under the heading nervous diarrhoea. In children it frequently follows fright. It is common, too, in adults as a result of emotional disturbances. Constatt mentions a surgeon who always before an important operation had watery diarrhoea. In hysterical women it is seen as an occasional occurrence, due to transient excitement, or as a chronic, protracted diarrhoea which may last for months or even years "

Inasmuch as this discussion concerns only the clinical aspects of the problem, I shall not attempt to review the work of modern investigators such as Cannon and Alvarez to whom we owe so much for their important physiological investigations in this field. An excellent concise review of the literature on psychic influencing of gastrointestinal secretion and motility is given by Alvarez⁸

ORGANIC DIARRHEAS

So far we have considered diarrhea only as a symptom of emotional episodes. None of the group of diarrheas commonly called "organic" have been considered. In the foregoing quotations the close association between cause and effect (the emotion and the diarrhea) has not escaped the physician and the diagnosis of nervous diarrhea was fairly obvious. The diarrhea was short and lasted for the duration of the emotion (usually fear or anxiety). When presented with a case of chronic diarrhea lasting one or more years, the true relationship between cause and effect was blurred and it is easy to see how possible emotional origins were rarely traced. A chronic diarrhea is rarely painless, as long-continued irritation results in other symptoms referable to the colon. It thus takes on the aspect of an "organic" disease. When the physician can find blood pus or mucous casts in the stools and the patient exhibits constitutional signs of organic disease such as fever and leukocytosis, it is almost impossible for the organically-minded physician to realize that an emotional episode may have initiated the "disease" no matter how distant its beginning, or that chronic emotional disturbances may have been responsible for the chronic diarrhea.

Before we consider the early historical references concerning the effect of emotion on so-called "organic" diarrheas it is well to discuss briefly the rough classification of organic diar-

rehearsals as they were described in the middle of the last century. Most diarrheas characterized by bloody stools (whether they occurred in epidemics) were called dysenteries. Epidemics of cholera were seen, even in England. However sporadic cases of diarrhea, especially if sudden in onset, with copious liquid stools and accompanied by fever and vomiting were nearly always diagnosed as cholera. The chronic diarrhea associated with pulmonary tuberculosis was usually recognized as tuberculous enteritis. Mucous colitis had been described under a variety of names. Ulcerative colitis was first described by Wilks in 1869.⁹ This description was amplified by Wilks and Moxon in 1875¹⁰ and by White in 1888.¹¹ However, in the earlier literature undoubted cases of this disease can be found under the name of "simple intermittent dysentery."¹² It is interesting in view of our present idea that the disease is psychic in origin to find that one of the earlier synonyms for the disease was "antrum dysentery."

It is, of course, confusing to find the terms diarrhea, dysentery and cholera used almost synonymously, therefore certain reservations must thus be made in the interpretation of some of the quotations which will be mentioned.

The earliest reference I have been able to find indicating that emotion may initiate an "or game" diarrhea is in Habershon.⁴ In chapter 10, "On Colitis and Dysentery" he reminds the reader that "the depressing effect of night watching, and of witnessing the rapidly fatal termination of the disease, tends also to induce the complaint." Chapman⁶ in his discussion of the causes of cholera writes as follows:

"That fear, fright, and panic are fruitful sources of cholera is attested by a large number of authoritative witnesses. There is an old, and often repeated story of an encounter outside an Eastern city between the plague demon, when about to enter the city, and a citizen who asked what he was going to do there, and who was told by the demon that he was going to kill 3000 people. On his return from the city, the same citizen taxed him with lying, inasmuch as 30,000 had been killed. True, said the demon, but I only killed 3000, fear killed the rest." This story contains a great truth which is recognized by almost every observer of a cholera epidemic. Referring to the last epidemic in Turkey, Mr Harry Leach says, 'Panic undoubtedly increased its intensity in many instances and brought cases of simple diarrhoea into the grip of cholera very speedily indeed.' Drs. Bell and Stokes remark, 'many have been destroyed by fear alone', and Dr Wood says, 'Sudden and strong emotions, often bring on an attack.' Dr Macpherson observes,

"Cholera attacks all who are to be seized, and confidence seems to be of use both in warding off an attack and in struggling through it. The excessive alarms during epidemics are most injurious." Dr Mac Cormack says he can assert from personal experience that "fear alone will produce the disease", and makes the following statement (often made also by others) for which however he gives no authority. 'In the year 1832, a man was unfortunately tempted, by a large sum, to occupy for a certain time a bed in which he was informed a cholera patient had died and although such had not been the case, he nevertheless from pure fear, was in a very short time seized with the symptoms of cholera and died.' Dr Forbes Winslow pithily remarks, "During an attack of cholera, the patient who has the least fear of dying has, *ceteris paribus*, the best chance of living."

Tuke³ gives us several more examples of the emotional origin of 'cholera'.

"The story of the Russian convicts under sentence of death, some of whom were placed in beds falsely said to have been occupied by cholera patients, will occur to the reader. Mr G. Smith reported in the *Lancet* of August 4 1866, the case of a fine hale blacksmith under surgical treatment in King's College Hospital, who carried down the bed on which a cholera patient had died. He sat up until late brooding over what he had done and its probable consequences. He died next morning of cholera. Those, however, who believe that cholera is contagious would not admit that, in this case Fear was more than the exciting cause of the attack.

"When, some years ago, the cholera was prevalent at Newlyn, a fishing village near Penzance intercourse was forbidden between the two places. One day a man entered the shop of a barber in Penzance and was shaved. On leaving, some one, who had recognized him, asked the barber if he knew whom he had been shaving. He replied he did not. 'Why, he's a man from Newlyn!' It was enough. The terrified barber was seized with cholera, and died within twenty-four hours.

"Mr. of Falmouth some years ago had the cholera. When well he went to the Lizard for a change. The woman who opened the door of the house to which he went having heard that he had had the cholera was exceedingly alarmed, and had an attack herself."

MUCOUS COLITIS

The foregoing material has, I believe indicated two things: (1) that hyperactivity of

the gastrointestinal tract as expressed by diarrhea is frequently the result of certain strong emotions and that it has been recognized by laymen and physicians for many years, and (2) that certain physicians have felt for nearly a century that occasionally strong emotion was the precipitating factor in certain cases of diarrhea ordinarily considered "organic"

How have we, as physicians, made use of these two concepts? The first, that of nervous diarrhea, has received general recognition. Most of us, who have had classmates seized with severe diarrhea at examination time or have had comrades in the trenches so affected before going "over the top", have remembered in our practice that there was such a syndrome as nervous diarrhea. All too often, however, it has been a diagnosis by exclusion after we had vainly searched for all other possible causes, or perhaps the correct diagnosis has been presented to us by the patient who insisted that it was "just nerves". Not very often do we search for emotional disturbances in our patient's life as systematically and conscientiously as we do for amebae in his stools.

The second concept, that emotion may be responsible for initiating an "organic" diarrhea, has been almost completely ignored. Let us consider that syndrome which is usually spoken of as mucous colitis. The term is a misnomer, of course, for "mucus" in the stools is not invariably present nor necessarily a prominent feature nor is "colitis" applicable since there is ordinarily no inflammation of the colon. It is not a true diarrheal disease since constipation is, at times, a prominent feature. However, it serves well to illustrate a few points that deserve emphasis.

I will not go into the historical aspects of the disease (which are of interest chiefly because of the thirty-five different names which have been applied to it) other than to state that it had been thoroughly investigated and described by American clinicians long before it received the critical consideration of foreign physicians. It was first described by Mason Good¹³ as "Diarrhoea Tubularis—Tubular Looseness."

In discussing mucous colitis, Osler⁷ writes, "The cases are almost invariably seen in nervous or hysterical women or in men with neurasthenia. Mental emotions and worry of any sort seem particularly apt to bring on an attack. In mucous colitis no benefit can be expected from remedies administered by the mouth. The general nervous condition should receive appropriate treatment."

Since that time many writers have expressed similar opinions. However, the "organicists" die hard. In one of the leading textbooks¹⁴ of medicine of today, we read, "Mucous colitis was formerly regarded as a neurosis, but clinical and pathological observations now justify

the conclusion that it is a form of chronic colitis." Yet the description of the disease continues in these terms: "It frequently, though not invariably, occurs in patients with enteroptosis. Spastic constipation is always an accompaniment, it is far more common among women than men, and the sufferers are often highly neurotic!"

Here is a syndrome suspected for years by medical men, of being emotional in origin yet rarely treated as such. Practically the only thorough case reports are in the psychiatric literature. The articles by medical men are largely attempts to prove a bacterial, an allergic or a deficiency origin of the disease. It is amusing (or rather, tragic) to note how often such a study is prefaced by the remark "in an attempt to place this disease on a scientific basis." Many commendable attempts at the study of this syndrome have stalled at the halfway mark and "neurogenic colopathy" has been added to our terminology. Our old friend "vagus" and "sympatheticotonia" are used to explain the syndrome. Just because emotions make use of the vagal and sympathetic nerve pathways, does a syndrome become "neurogenic" instead of "psychogenic"?

Our insistence on finding an organ (the "soma" as opposed to the "psyche") on which to pin the cause of a syndrome has led us astray before. If we are to be consistent, now that the autonomic nerve centers have been discovered in the diencephalon, we should discard vagotonia and sympatheticotonia and speak of "diencephalonopathy." But if it is discovered that the pituitary gland is the activating agent of these centers we are then back on the trail again, tracking down adrenals, thyroid and gonads. We must not forget the merry chase we have had to find the organ responsible for diabetes.¹⁵ First the kidney was responsible for spilling sugar, then Bernard's sugar puncture gave us a localistic neurogenic concept, then Mehring and Minkowski with extirpation experiments shifted us to the pancreas. Banting and Best reinforced this concept, but soon it was obvious that liver, muscles and other organs were involved. Recent investigations show that a depancreatized animal can live if the pituitary is also removed. Has the trail only led us back to the neurogenic concept of Claude Bernard? Remember that in this disease, also, there have been many who have thought that occasionally the disease was psychogenic.

And to return to our unfortunate patients with mucous colitis, how do they fare? Teeth, tonsils, appendix, and gallbladder are removed as foci of infection. Prostate and tubes are under suspicion. Bacterial flora are subjected to cultivation by a form of intestinal gardening. A belt or even an operation for a mobile cecum or ptosed transverse colon may be advised. Colonic irrigations are not so popular

since we have learned that they may result in a true colitis where only a questionable one existed before. But how frequently do we sit down and talk over with the patient his fears and hopes, his joys and sorrows? The answer is discouraging.

ULCERATIVE COLITIS

Now comes to a disease, nonspecific ulcerative colitis, which until recently has always been considered bacterial in origin. Superficial comparisons of autopsy material from this disease with that from bacillary or amebic dysentery would immediately suggest a bacterial or protozoal etiology. I shall not go in detail into the evidence supporting either of the two leading schools of thought, one believing that the disease is an attenuated dysentery and the other that it is due to a specific diplococcus. Each group can find bacteriological and experimental evidence to support its stand. For therapeutic results you can take your choice for each group reports good results in seventy-five per cent of the cases, one with polyvalent anti-dysenteric serum¹⁶ and the other with antidiplococcus serum.¹⁷ Others have obtained the same results with transfusions¹⁸ or mercurochrome intravenously.¹⁹

Have gastroenterologists always been satisfied that the disease was bacterial in origin? By no means, for other etiological agents have been suggested such as vitamin deficiency or disturbance in calcium metabolism. In 1923 Logan²⁰ came to the conclusion that bacteria were secondary invaders of the walls of the colon. He suggested that changes in the digestive juices of the upper gastrointestinal tract or in the endocrine secretions were responsible for the local lowering of tissue resistance. He said, "It thus seems probable that a general metabolic disturbance is responsible for the trouble." In 1925 Thomas R. Brown²¹ wrote "Is it not possible that the cause of the disease is to be found not in the presence of a definite and specific infective agent but rather in the absence of some protective substance or mechanism of something which normally inhibits the bacterial invasion of the intestinal wall perhaps due to metabolic error, or endocrine disturbances or lack of specific bacteriophage or absence of some normal bactericidal substance in the intestinal mucosa."

To the late Dr Cecil D. Murray²² belongs the credit for demonstrating that this disease may be psychogenic in origin. Interestingly enough this was discovered only because ulcerative colitis was included in a group of disorders in which it was thought desirable to investigate psychogenic factors. Murray writes²³ "The fact that the Constitution Clinic in the Department of Medicine was undertaking a special investigation of the psychological panel

in certain disorders is the only reason why this and other patients were referred to us for psychotherapy. Although this patient was described as 'nervous', she did not complain of mental symptoms and would not have fallen into the group ordinarily referred to the psychiatric clinic." In 1930, Sullivan and Chandler²⁴ added five cases to Murray's twelve and gave a follow-up of one of Murray's cases. In 1935, Sullivan²⁵ added nine more cases and included follow-up studies of the entire group some as long as four and a half years. Jones²⁶ and Daniels²⁷ have added other cases.

These studies show a striking unanimity in the underlying psychogenic factors. Primarily a disease of young adult life, it affects those with definite infantile elements in their emotional make-up who are unable to adjust themselves to the sexual and financial responsibilities of adult life. Nearly always there is a well marked time relationship between emotional crises and the onset of the disease or its recurrences. The patients have many personality traits in common. Psychotherapy is astonishingly successful.

We now have partial answers to some of the problems which have frequently arisen in this disease. Why should it take its toll of youth in its best period, "Frequently the recent bride or the vigorous youth in his college years, or a young husband and provider"?¹⁶ And we hope that an end has been put to such therapeutic nihilism as this²⁴ "The writer has gradually reached the conviction that in the individual case the patient's course is somehow predetermined from the start regardless of therapy. This idea has come from the experience that some patients get well promptly under any form of therapy, whereas others seem totally refractory to all measures."

SUGGESTIONS FOR FUTURE INVESTIGATIONS

In reading the literature on ulcerative colitis I have been struck by the brevity with which the social and psychological background of the patients has been treated. Whole pages of possible emotional conflicts have been indicated by such phrases as, "a widow of 23" or "an unmarried Jewish girl of 29." The study of the patient has ended with such a phrase though the study of the disease would fill volumes. In only one case was enough of the patient included to enable us to say that psychogenic factors may have played a rôle in this instance. Trousseau²⁸ reports a case, "The patient stated that two years ago she was living in Champagne when she was obliged by the pressure of poverty to seek a home elsewhere. Accompanied by her husband and one child, the sole survivor of six she came to Paris to seek a subsistence. In this attempt she failed and in place of obtaining the hoped for relief she got involved in still deeper

misery Her husband fell ill, she, he, and the child had nothing to eat save the ration of bread allowed by public charity" The diarrhea was of two years' duration, therapy was unavailing and the patient died Autopsy showed nothing but superficial ulcerations of the colon

The problem, as I see it, is this Here is a disease which in some instances, at least, is emotional in origin Are we going to continue to dismiss the patient and his problems with a phrase, the result of a few superficial questions? Are we going to neglect emotions in ulcerative colitis as we have in mucous colitis? Is it scientific to study only bacterial flora and immune reactions and mere nonsense to probe into the patient's psyche?

In order to demonstrate what I believe the true investigation of these psychosomatic disorders involves, I find it convenient to borrow illustrations from Crookshank²⁹ and Alexander³⁰ Crookshank has written

"It always seems to me odd in the extreme that doctors, who when students, suffered from frequency of micturition before a viva voce examination, or who when in France, had actual experience of the bowel looseness that occurred before action, should persistently refuse to seek a psychical correlative—not to say an etiological factor—when confronted with a case of functional enuresis or mucous colitis I often wonder that some hard-boiled and orthodox clinician does not describe emotional weeping as a 'new disease', calling it paroxysmal lachrymation, and suggesting treatment by belladonna, astringent local applications, avoidance of sexual excess, tea, tobacco and alcohol, and a salt-free diet with restriction of fluid intake, proceeding, in the event of failure, to early removal of the tear-glands This sounds of course, ludicrous But a good deal of contemporary medicine and surgery seems to me to be on much the same level"

Here, then, is the so-called "scientific" method of studying paroxysmal lachrymation, with chemical estimations of the salt content of the tears, and a correlation of this with the blood chloride level Alexander³⁰ has supplied us with a description of the psychological method of studying such a disorder in the following quotation

"It can easily be shown, however, that even the most common psychomotor processes cannot be satisfactorily described without the precise knowledge of psychic factors As an example, the process of weeping or laughing may be considered, both of which are based on complicated psychomotor reflexes A statement that sad ideas are able to influence the function of

the lacrimal glands is a vague generality the scientific uselessness of which becomes clear from the following imaginary experiment The problem is to establish those conditions under which the physiologic processes of weeping are provoked in different individuals Let it be assumed that to solve this problem a hundred individuals are exposed to a moving picture It will then be observed that by a certain touching scene a certain percentage of the hundred are unable to control their tears and react with the unsuccessful suppression of sobbing, whereas another group are much less touched and a third group remain entirely cold and observe critically the plot without any emotional participation in it It would be, however, entirely false to jump from these differences of reactions to the conclusion that the persons who remained cold are less sentimental in general, because a second experiment will prove that, confronted with another scene on the screen, a great percentage of those who remained undisturbed by the first scene will now react with intensive sobbing and crying If this kind of observation in exposing the experimental individuals to different scenes is patiently followed up, it may be possible to distinguish certain specific situations to which certain groups of individuals react with weeping and the specific sensitiveness of certain individuals to certain situations might even be considered as a characteristic feature of them Experimentation may lead one thus far in this complicated field, but, if one wants to have a deeper insight into the intricate process of weeping, it will be necessary to investigate each individual separately Such an individual psychological study necessarily leads to very complex psychological causal chains In order to establish the specific sensitiveness of the experimental subjects to certain scenes, one must know their past life history, the whole development of their personality, because one will be able to understand the conditions under which an individual cries only from the experiences of his early life The significance is now apparent of my former statement that the psychophysiological process of weeping cannot be described by a general statement that certain sad ideas or impressions are able to influence the function of the lacrimal glands If scientific demands regarding psychomotor processes are to be as strict as those accepted for somatic processes, the psychological side of a psychomotor reaction has to be investigated with the same precision as is usual in studying organic processes"

If, in the foregoing illustrations, we substitute the colon for the tear glands, and diarrhea for weeping we have an idea of how our problem should be attacked. Not for a moment do I believe that psychological studies will provide the answers to all our questions. There is much to be done on the somatic side, the mechanisms involved in the hyperperistalsis, the hypersecretion of mucus and the production of ulceration have still to be solved. There is plenty of scope for those investigators who will continue the work so ably begun by Cannon, Alvarez and Cushing. However, in the care of our patients there is an immediate need for physicians interested in the psychic investigation and treatment of such psychosomatic disorders. In this group are included not only diarrheal diseases but also essential hypertension, Graves' syndrome, gastric and duodenal ulcer and cardiospasm.²¹

CONCLUSION

Material from the literature has been presented to illustrate the close relationship between emotion and diarrhea. An attempt has been made to show that diarrheal disease usually considered organic may be emotional in origin. A plea has been made for the substitution of thorough personality studies of these patients in place of our present "skillful neglect." Perhaps I may be allowed in closing, to express two hopes.

First, that the present generation of physicians may keep in mind what was written by Hawthorne²² in the "Scarlet Letter," "A bodily disease which we often think of as a thing apart and separate, may after all be but a symptom of an illness in the spiritual part of our nature."

Secondly, that the coming generation of physicians will have been so taught in their medical curriculum that they will feel as Mohr²³ does that, "There is no such thing as a purely psychic illness or a purely physical one but only a living event taking place in a living organism which is itself alive only by virtue of the fact

that in it psychic and somatic are united in a unity."

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THE PREVENTION OF DECAY OF TEETH

Science reports that decay of the teeth with attendant toothaches may be prevented if a method developed by Dr. E. P. Brady of the Washington University Dental School is put into successful practice. A dental examination can determine by a chemical test which of the teeth in one's mouth are liable to decay. Silver nitrate, a common drug used generally for germ killing purposes betrays the presence on the tooth enamel of certain faults of formation. It is in these faulty areas that decay is likely to start because there the acids in the

mouth and acid-producing bacteria can penetrate through the enamel to the sensitive dentine beneath. The decay can be prevented by the use of silver nitrate. After it has started its progress can be stopped by use of another chemical called trichloroacetic acid. Dr. Brady said. This substance acts to coagulate the organic material in the tooth and block any further penetration by the acids of decay into the interior of the tooth. Nature has her own way of doing just this under favorable conditions. When decay starts a defense may be made in the form of a barrier of calcium deposit across the path of the penetrating acids.—*Science*

NEW HAMPSHIRE MEDICAL SOCIETY

TREATMENT OF BURNS*

BY GROVER C PENBERTHY, M D †

A REVIEW of the literature which refers to the treatment of burns indicates that the greatest amount of constructive thinking and work along lines of practical therapeutics has been done in the last two decades. It is also apparent that in spite of the advances made in the treatment of burns the general mortality remains high. No definite explanation can be given for this as there are many factors which contribute to the mortality. The care of the burn lesion still remains a serious surgical procedure. The ability of the human body to withstand the severe burn appears to be an individual problem, with the very young and the very old reacting poorly.

Statistics¹ show that about 45 per cent of the lethal burns occurring annually in the United States are in children under six years of age and in this group the outcome is often out of proportion to the severity and extent of the apparent damage done. At the Children's Hospital in Detroit, where 547 cases have been studied over the past twelve years, the greatest number fell in the age group one to three years.

The management of a burn case develops practical and theoretical considerations. Many questions have been raised and it is obvious that there are problems for further research before we can agree on any standard form of treatment especially in the complicated cases.² There are advocates of the continuous saline bath³, the paraffin wax method⁴, the use of gentian violet⁵, which has a decided advantage in minimizing infection, and many others.

In discussing the subject of burns it appears that up to the time that Davidson⁶ brought out the use of tannic acid many of the clinics and physicians had adopted methods of their own and were satisfied with the results obtained. The oils, ointments, and other remedies were used with gauze dressings applied, which usually adhered to the burn area and caused pain and bleeding when removed. The extensive burn was usually given a bad prognosis, and the less severe case became infected, running a protracted course and developed deformities due to contracture.

The work of the late Doctor Edward C Davidson is a contribution to medical science and it is with pride that we in Michigan refer to the results of his laboratory and clinical research.

*From the Surgical Service of the Children's Hospital of Detroit, Michigan.
Read at the Annual Meeting of the New Hampshire Medical Society at Manchester May 8 1935.

†Penberthy Grover C—Associate Professor of Surgery, Medical School of Wayne University. For record and address of author see "This Week's Issue" page 323.

It was my good fortune to have the opportunity of working with him at the Children's Hospital⁷, where the technic, which will be shown in the movie film, was perfected. His work has also had its effect in stimulating others to perfect methods of technic in the treatment of burns, which will assist in reducing the mortality. The advantages of the tannic acid form of treatment and the results obtained by its use have been emphasized in a number of published reports^{8 9 10 11 12}.

In referring to the use of tannic acid, Wells makes the following statement, "The introduction of tannic acid by Davidson in 1925 has revolutionized and apparently for the first time in history standardized the treatment of diffuse burns."

The early symptoms following a burn are primarily those of shock with a profound disturbance of the circulatory and heat regulating mechanism, and, in all probability, equally serious interference with many other normal functions of the body. The larger the area involved, the greater are the number of nerve endings and neurons irritated, resulting in a greater degree of shock. It has been shown by the experimental work of Davidson that a burn causes a marked depression in blood chlorides^{13 14} that the toxemia accompanying a burn is due to a toxic agent which originates at the site of the burn, that the absorption of this agent is responsible for the constitutional reaction, that the local destruction of tissue gives rise to a proteid substance with the subsequent formation of a proteose, and, finally, that the latter is the toxic element in burns.

Vogt¹⁵ and later Vaccarezza¹⁶ observed that when parabiosis was established between two animals and one was burned the other showed evidence of toxemia. It was further demonstrated that toxic symptoms did not develop in the unburned animal when it was separated from the burned animal within twelve hours, but that both animals finally died of toxemia when left united.

Pfeiffer¹⁷ isolated toxic cleavage products of protein decomposition from burned skin. Robertson and Boyd¹⁸ demonstrated the toxicity of the products of protein autolysis of burned tissue. They further showed that the toxin circulated in the blood stream and upon this was based their clinical work of exsanguination transfusion.

The clinical⁶ and experimental facts suggest that the rational manner of combating the toxemia would be some form of local treatment.

which would prevent absorption from the site of the burn. This has been attempted in a number of ways. Débridement has deserved a certain amount of popularity but its application is limited by the severity of the procedure.

Tannic acid is a nonnitrogenous amorphous powder readily soluble in water, glycerine and alcohol but insoluble in ether and chloroform. It precipitates proteins alkaloids, some glucosides and the salts of heavy metals. It forms a more or less stable compound with the protein constituents of the body fluids and cells thereby preventing the loss of body fluid at the site of the burn. The astringent effect appears to be limited to the superficial layers of tissue. The precipitated proteins on the surfaces treated, prevent and minimize the absorption of the autolytic products of protein decomposition. In addition, the precipitated proteins provide a protective coating and a mechanical action against sensory and inflammatory irritation. It is used with the idea of precipitating the toxic elements in the burned tissue thereby preventing their absorption. Tannic acid is used as a five per cent aqueous solution freshly prepared and applied to the burned area by a DeVilbiss spray. A burn when exposed to the air is very painful and the earlier it is covered with tannic acid the degree of pain and shock will be greatly diminished.

The treatment of burns is best carried out in the hospital.¹⁰ Patients admitted in shock can be put in a light tent or the heat may be applied in another way by an electrically heated blanket or many hot water bottles placed about the patient. Morphine or codeine should be given freely for the pain. This allows the patient to rest the first night and having had this rest he is better fitted to take the forcing of fluids the following day. One of the most essential features of the management of all burn cases is that of keeping up the fluid balance in the body.⁶ For the more severe burns saline should be given by hypodermoclysis or intravenously with glucose as the needs indicate, in addition blood transfusion and thus repeated as often as indicated.

The local treatment of burns depends to a large extent upon the experience of the surgical staff. The general rule, however, is to wash the acid and alkali burns with water before applying a neutralizing agent and to remove all devitalized superficial tissue, as well as opening and draining the blisters with as little trauma as possible. The patient is then placed in a light tent upon a sterile sheet and the tannic acid spray started by the nurse.

The burned area is sprayed every fifteen minutes for the first four to six hours at which time there is usually a brownish black firm leathery coagulum formed. The time required for this spraying depends upon the depth of

the burn and the reaction of the tissues to the tannic acid. It is our practice to use the tannic acid jelly for burns of the face. The first application of the tannic acid gives the patient relief from pain and as the precipitate increases it becomes black and hard giving a firm protection which is a distinct advantage. As the epithelium regenerates, the coagulum or tannic leathery coat curls up at the edges.

It has been found in our use of the tannic acid in the treatment of burns in children that the mortality has been reduced from 86 per cent to less than 10 per cent. These figures compare very favorably with those reported from other clinics.^{10 11}

The treatment of any burn case becomes an individual problem, but to insure the best end result requires strict adherence to the accepted principles of treatment as proposed by Davidson and others. This treatment in the majority of cases should reduce the mortality and assist in preventing the unfortunate occurrence of many complications.⁹ Prompt application of local treatment,⁹ proper supportive measures follow up care and attention together with early skin grafting, along with the correction of deformities, offers a reasonable hope for success.

SUMMARY

- (a) Burns have carried a high mortality and are best treated in the hospital. The standardization in the treatment of diffuse burns, by the use of tannic acid, has materially reduced the mortality and this contribution to the subject by Doctor Davidson has resulted in the saving of many lives.
- (b) Administrations of a sedative upon admission.
- (c) Washing the chemical burns with water is essential before applying the neutralizing agent.
- (d) Proper first aid followed by early hospitalization and aseptically cleansing the burned area is important.
- (e) The tannic acid method of treatment, combined with the light tent, is effective and helps to simplify the treatment of a condition that can tax the patient, time and resources of the attending physician to the utmost.
- (f) The use of tannic acid lessens the loss of body fluids and the coagulum acts as a protection against infection.
- (g) The forcing of fluids and giving saline solution, either subcutaneously or intravenously and blood transfusion are necessary to carry the patient through the acute period of toxemia.

- (h) Early skin grafting of the third degree lesions will minimize the amount of scarring and deformity. It will also lessen the period of morbidity and disability.
- (i) The severe burn case often requires subsequent plastic surgery to improve the function of an extremity or better the cosmetic result.

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DISCUSSION

PRESIDENT LORD This paper of Dr Penberthy's on the Treatment of Burns with Tannic Acid will be discussed by Dr Walter H Lacey of Keene

DR. WALTER H LACEY *Mr President and Gentlemen of the New Hampshire Medical Society—* This paper constitutes a direct appeal simply put, to give our burn cases better care, especially the severe cases. The earlier you get the burns cleared up, the sooner you can graft, and the sooner you graft, the less the trouble will be, and this shows us the way

It is interesting to note what some of the larger clinics in New England are using at the present time. The Children's Hospital in Boston is using tannic acid spray and contemplating using the tannic acid bath

At the Massachusetts General Hospital the tannic acid bath at 100° F is being used and it is felt that this is an advance in treatment

At the Johns Hopkins and New Haven Hospitals, gentian violet is being used and it is felt that it is more analgesic and keeps the lesions cleaner

At the Presbyterian Hospital in New York, tannic acid compresses are being used.

All of these clinics, like ourselves, are bothered by the first aid treatment of greasy dressings applied outside which makes the initial clean up at the hospital a little harder to do

If we get the public and the nursing profession, as well as the doctors, to appreciate the value of these drying and tanning dressings, as outlined with such justifiable enthusiasm as Dr Penberthy has, our burn cases will suffer less and get well more quickly. I thank you

PRESIDENT LORD I will call upon Dr James W Jameson of Concord for a further discussion of this paper

DR. JAMES W JAMESON I think we owe a debt of gratitude to Dr Penberthy for his excellent paper and for his very instructive illustrations of the tannic acid treatment for burns

Since the work of Dr Davidson on the treatment of burns with tannic acid, a great deal more thought has been given to this condition than ever before, with the result that the mortality in burns has been lowered and probably will be decreased further in the future

The older forms of treatment with carron oil, various powders and ointments and things of that kind, without any regard to asepsis, employed just as a first aid and then continued, have made the mortality of burns very high, due especially to the factors which attend this serious condition

The dressings which have been used in the past have been painful. They have required frequent changes, they have prolonged the period of disability and not only caused loss of time, but very definite economic loss

Dr Penberthy has covered these various factors which are the important ones in burns, first of all, shock, next the loss of body fluids, which someone has estimated that in the course of the first twenty-four hours, a burn covering one sixth of the body will mean a loss of at least seventy per cent of the body fluid, thirdly, the absorption of the toxic products of the burn, and fourthly, the infection

I feel that any form of treatment which will cut down the mortality, and which is simple in its use, is the one which should be used

Gentian violet has been spoken of, and it has appealed to me very strongly for the simple reason that it has a bactericidal action, which, of course, tannic acid does not have

The treatment of the serious burns, that is, the second and third degree burns and those are the ones we are considering, is practically the same in any method which you use. That is, the shock must be combated, the loss of fluids taken care of by hypodermoclysis, and other methods of increasing the fluid intake and the toxic products removed but then—as contrasting between tannic acid and gentian violet, you have one which produces a coagulum without any antiseptic property, and another which produces coagulum with an antiseptic property

I have had no cases in which I have used gentian violet, but I have felt that it was a very satisfactory form of treatment theoretically. I should like to ask Dr Penberthy about that and whether they have compared the treatment of gentian violet and the treatment of tannic acid

The one difficulty which I have had in using tannic acid is in those cases where infection occurs somewhere in the middle of the tanned area, and fluctuation or tenderness cannot be found early,

then after a period in which the patient has been running an irregular temperature and has shown signs of sepsis a definite abscess is finally found. This is probably due to improper preparation of the burned area before it is treated and occurs usually in the extensive deep burns.

I think that Dr Penberthy has presented a fine paper to us and it should be of great interest not only to the medical profession but to the lay public, because as has been said the first aid treatment in these cases has oftentimes been the cause of a good deal of difficulty later on.

PRESIDENT LORD This paper is now open for general discussion.

DR. THOMAS W. LUCE I simply wanted to say that I own a book, which I think is a very valuable publication because it was printed and published in Portsmouth in 1803. It was written by Dr Pittman of London, who put out this edition in America. His purpose was to have it go into the homes of people for them to get suggestions and to know how to treat diseases. In this book there is a chapter on burns.

Apparently in that day the preponderance of burns was in old ladies, who sat beside the fire. So he devotes quite a bit of that chapter in telling them that they should wear woolen skirts and not crinoline and that they shouldn't open the door and scream but that they should lie down and roll over. Then he goes on to discuss the treatment of burns. He starts out by saying "Never under any circumstances put grease on the burn" because it does no good but does harm because it prevents the action of other remedies that are beneficial. Now that gentlemen was in 1803 Dr Jamieson has spoken about the old methods but we find this pretty reasonable.

Then continuing in the book, he says that in every household there should be a bottle of brine in which there always were some sliced potatoes, so that the burn could be immediately covered with that solution.

The trouble I have with burns is that practically every burn I have to treat has been treated before I got it with lard and all that sort of thing. I think if that old book could be reprinted at least that chapter on burns, and given to every family it would be very helpful today.

PRESIDENT LORD Is there further discussion on this paper of Dr Penberthy?

DR. HARRY E. MOCK Mr President and Gentleman—I have heard Dr Penberthy give this paper a number of times when he has talked on this subject of burns and I am impressed with the kindness and the sincerity with which he always refers to the work of Dr Davidson. We owe a great deal to Dr Davidson for doing the early research work in tannic acid treatment of burns. But I think the country over, and the profession owes a great deal if not the most, to Dr Penberthy for popularizing the treatment of burns with tannic acid. He is so modest about it himself that you would never know this from him but I don't believe there is any man in the country who has done more toward bringing the mortality rate down and relieving suffering from burns than has Dr Penberthy.

I want to add to the list of hospitals that one of the speakers gave St. Luke's Hospital in Chicago. Tannic acid is used there practically altogether in the treatment of burns.

I would like to emphasize one point, viz., the tent, left at an even temperature by means of an electric light bulb and allowing the patient to lie under this tent completely naked. This adds materially to the ease of caring for these cases.

And one point about the infection. Dr Penberthy simply mentioned one case where they didn't do it over with the tannic acid because it was infected. Often when you get these cases after two or three days at home and then brought into the hospital, they are infected and I would like to have Dr Penberthy emphasize just what they do about putting tannic acid immediately upon such cases.

DR. ROGERS Dr Penberthy mentioned that eighty per cent of his burns were avoidable also that about ninety-nine per cent were in the nonpaying group. You know the condition of the minds of people surrounding a child who has convulsions. Sometimes the child is put into too hot water by the parent.

I feel that as we have contacts with our patients and as we have frequent opportunities to address public gatherings we should speak on these dangers.

DR. ARNOLD S. MANGURIAN Tannic acid treatment is an old fashioned treatment and we do not know it. When I was a young boy I recall burns being treated in this manner. One would gather leaves from the English walnut, or if these could not be obtained leaves from the oak tree. The leaves of the walnut are long wide and thin somewhat resembling those of the rubber plant. The leaves are boiled as one boils spinach cooled and spread over the burns. Both varieties contain a large percentage of tannic acid.

Tannic acid is also used in dyeing rugs. If a good brown color is desired the wool or yarn being dyed is boiled in the solution obtained from the leaves. The concoction derived from the leaves is also used as a hair dye, which gives a nice brown tint to the hair acts as a tonic to the scalp and the roots. This vegetable dye is much better than the acid ones used in cosmetics in many countries.

Even now I have found in my practice many people using old fashioned remedies. I am much interested to find out their ingredients and have come to the conclusion that many of them contain the desired remedy and therefore, am never angry to find a patient using some old-fashioned remedy.

DR. PHILIP H. GREELY Mr President and Fellowes—I would like to add what I believe is a valuable prophylactic hint for the family or anyone of us who happens to come in contact with extremely hot water.

If cold water is dashed on to the injury at once the destructive cooking is checked immediately whereas if the assistant tries to remove clothing valuable time is lost and a bad injury results. As a personal experience helps to impress a valuable suggestion I will say that I have often heard my mother explain that she gave me this treatment when I sat down in a pail of near boiling water and saved me from serious results with a convenient pump and hasty action.

I believe if this could be broadcast into every home many a child might be saved serious injury.

PRESIDENT LORD Time passes very rapidly we can't seem to help it. I think that the evidences of interest in Dr Penberthy's paper have been obvious this morning and I will ask him to say a few words in closing.

DR. GROVER C. PENBERTHY I wish to thank the discussants for their kind remarks. The subject of burns is of interest to all of us and naturally the general practitioner must see more burns than we do in the clinics.

It is very interesting to hear the experiences of the other men. We all have our problems and it is very apparent that we are all thinking along the same lines. It speaks for good medicine. It means

education of the public I think Dr Rogers mentioned the education of the public in the prevention of burns, which is very important. Since the laymen have an understanding of the importance of these matters, it is only a question of time when, perhaps, we can cut the mortality to a figure even lower than it is at present.

The matter that Dr Jameson referred to regarding infection in the middle of the coagulum, I would say is apparent many times. Where the infection manifests itself, that coagulum, of course, should be cut, if not removed, in order to allow surgical drainage. The presence of pus and the absorption constitute a factor which contributes to the exhaustion of the patient. Exhaustion hasn't been mentioned in this paper, but I am sure you all realize that as the effect of the burn goes on, with the loss of body fluids, the patient naturally becomes exhausted. That is one of the reasons for frequent blood transfusions. The removal of the coagulum as shown in the movie is the practice that we carry out. Where there is infection we must remove it.

The book that Dr Luce referred to is very interesting, and when the mention of the brine bath was brought out in the book, it brought to my mind the work of Dr Blair. He is a strong advocate of the brine bath, and for the old, protracted case, that seems to resist all treatment, the brine bath should always be considered, that is, in the late stages of the burn, where the epithelialization is slow. Where the wound is infected, it is our practice to place the patient in the brine bath.

I wish to take this opportunity to thank Dr Mock for his remarks. We all owe a great deal to Dr Davidson, and, as has been mentioned, he stimulated a great many to think of the treatment of burns. It is unfortunate that he should have been taken so early in life.

The time period for the application of tannic acid is, I think, a personal problem. We have cleaned

up wounds coming in twenty-four hours after the accident and applied the tannic acid, and we have been successful. I think the burn that comes in, we will say, forty-eight hours old, and which is infected, should not have tannic acid; it would be a great mistake to apply the tannic acid to this type of burn. I think in that particular type of case, Dr Aldrich's work in the use of gentian violet is the treatment of choice. He told me last night that he had a new dye which he thinks is superior to gentian violet. I would say that the infected case, which comes in late, should not have tannic acid because there is infection present and pus will collect under the coagulum adding to the exhaustion of the patient.

The question of the application of home remedies as mentioned by Dr Mangurian, is also very interesting, and, if we look back on the ideas of some of the people who have gathered a little information here and there, we find that they have used practical therapeutic measures in combating some of the problems.

In an editorial in the *Journal of the American Medical Association* in the November 17, 1934 issue in the correspondence column, a physician in Pittsburgh referred to a paper that was published in the *Medical Review* in Pittsburgh in 1890. He mentioned the fact that tannic acid was used as a 5 per cent solution by soaking the sponge in the solution and squeezing the solution onto the burned area.

If you go into the history of burns and go back into the work of the Chinese hundreds of years ago where they used tea, you will find that they were thinking of the same problem and trying to arrive at some method of treatment which would lower the mortality. That is our responsibility as physicians, to lower the mortality of any condition we may treat.

I wish to thank the Society for giving me this opportunity to present this interesting subject.

THE HEART IN RHEUMATIC FEVER*

BY CLIFFORD L. DERICK, M D †

BEFORE discussing any phase or manifestation of a disease, it would seem wise to pause and consider the disease itself in its entirety. The question may well be raised as to what Rheumatic Fever is. A definition in other than descriptive terms is impossible at the present time. Dr Homer F. Swift, who has spent the past fifteen years in an exhaustive study of this disease, has defined Rheumatic Fever as "A disease of undetermined etiology characterized by fever and a toxic state, and by the presence in certain organs of the body of small disseminated focal lesions of a proliferative type. In acute stages there is also an exudation in and about the joints, and sometimes in the pleurae and pericardium. A further characteristic is the tendency for the febrile and arthritic symptoms to disappear when the patient is given large doses of compounds of salicylic or phenyl cinchoninic acids."

Let us study this definition more in detail.

First, it is a disease of undetermined etiology characterized by fever and a toxic state. The causative agent of rheumatic fever is still unproved though most workers in this field consider it to be some member of the streptococcus family. Although in its more acute stages it runs a febrile course with leucocytosis, sweating, rapid pulse rate and other manifestations commonly associated with an infection, there most probably is not an invasion of the blood stream by the streptococcus. Existing evidence is more in favor of there being a general tissue hypersensitiveness to the streptococcus similar to what is found with the tubercle bacillus in tuberculosis. Following a tonsillitis or other infection, usually of the upper respiratory tract, due to the streptococcus, toxic products of this organism are carried by the blood stream and cause lesions wherever they may lodge. Support for this theory is obtained by the type and severity of response shown by rheumatic individuals when extremely small amounts of killed streptococci or their products are injected either into the tissues or intravenously. A virus has been claimed as the etiological agent

*Read at the Annual Meeting of the Grafton County Medical Society at Hanover N. H. October 12, 1935 and at the Springfield (Mass.) Academy of Medicine September 10, 1935.

†Derick, Clifford L.—Senior Associate in Medicine Peter Bent Brigham Hospital. For record and address of author see This Week's Issue page 328.

by some workers but as yet there is little evidence to substantiate this conception.

Secondly, the definition states "the presence in certain organs of the body of small disseminated focal lesions of a proliferative type". These focal lesions are considered characteristic of rheumatic fever in the same sense as the tubercle is for tuberculosis and the gumma for syphilis. Their nature and composition will be discussed later. These lesions are always in and around blood vessels and are most commonly found in all parts of the heart, the synovia of joints and the subcutaneous tissues where they manifest themselves as subcutaneous nodules. They are found also in the lungs, kidneys, tonsils, serous membranes, and fatty tissue about various abdominal organs. It is most probably true that they occur in any part of the body where there are blood vessels. It is for this reason that nowadays rheumatic fever is considered a general disease and not simply an arthritis with fever. This conception really dates back to 1888 when it was recognized how frequently the heart was involved and left permanently damaged. In other words carditis is as much a part of the disease rheumatic fever as is arthritis. In fact, one may go farther and state that in children, in which age group rheumatic fever is most common, carditis is more frequent than is arthritis. At this age involvement of only one or no joint may be observed. The converse holds true in adults where arthritis is usually outspoken and carditis occurs with less regularity.

Thirdly, in the acute stages there is also an exudation in and about the joints, and sometimes in the pleurae and pericardium. That this statement holds true for the involved joints has been recognized always and needs no further comment. Until recently, the presence of fever and free fluid in the pleural spaces was considered to be tuberculous in origin. It is now known, however, that in children especially this effusion frequently is part of a rheumatic fever infection. This is proved by the failure to demonstrate tubercle bacilli in the fluid, the failure to have tuberculosis manifest itself elsewhere in the body and more especially, by having other evidences of rheumatic fever such as arthritis or carditis appear during the course of the illness.

Fourthly, the tendency for the febrile and arthritic symptoms to disappear when the patient is given large doses of compounds of salicylic or phenyl emchionnic acids. The action of these drugs upon the exudative manifestations of rheumatic fever is almost specific. So much so that many recommend the administration of these drugs as a diagnostic aid. Neither fever nor effusion when due to any other cause, such as tuberculous infection, responds to any comparable degree. The therapeutic use of these drugs will be discussed later.

Thus rheumatic fever as a general disease with protean manifestations is easily visualized. It may have struck some of you as peculiar that up to now I have not used the term acute rheumatic fever. My reason for this is that in most instances rheumatic fever does not run an acute course and terminate with no ill-effects. It is noteworthy that in 1928 the American Heart Association in its publication entitled "Criteria for the Classification and Diagnosis of Heart Disease" omitted the use of the adjective acute.

The disease may run any one of three different courses—

- (a) Monocyclic
- (b) Polycyclic
- (c) Continuous

(a) *Monocyclic*—About twenty five per cent of all cases have a monocyclic course, that is, after an active attack, evidence of the disease disappears and so far as one can judge the patient is cured. This is found to occur much more frequently in adults than in children and there is less likelihood of permanent damage to the heart in this group of cases.

Slide I * This slide shows the story of an attack of rheumatic fever in two men, one thirty three and the other forty seven years of age. In each instance it was the first attack.

It is worth pointing out what observations on these patients are recorded at the Hospital of the Rockefeller Institute in New York City. An attempt is made to fill in the story of joint involvement before admission to the hospital. During the hospital stay observations on temperature, pulse and respiratory rates, white blood cells, conduction time of the heart, condition of joints, administration of drugs, weight, and fluid intake and output are recorded daily or at frequent intervals as shown in these charts.

In the case of this first man, the temperature quickly returned to normal and his joints cleared up. No antirheumatic drugs were used. This patient was kept in the hospital for forty days without further evidence of activity and he has remained free from any recurrence since.

The second patient can hardly be classed as having run a monocyclic course as he had a recurrence of joint activity with a slight elevation of temperature as shown in the chart, in spite of the continued use of salicylates.

Slide II (b) Polycyclic It is much more common—over fifty per cent of all cases—to have the disease run a polycyclic course. That is to have all or most evidences of activity clear and then to have the patient go through another attack very similar in every way to the first. These recurring cycles occur with considerable regularity about every twenty to thirty days in the different patients. It is quite usual to find each succeeding attack

(b) Rhythm Disturbances of cardiac rhythm are not uncommonly met with in rheumatic fever and when present practically always indicate that the heart is involved. The less serious forms of disturbed rhythm are absence of sinus arrhythmia, which is normally found in children, and the presence of extrasystoles. The more serious arrhythmias are heart block, auricular flutter and auricular fibrillation. These latter always indicate serious myocardial damage frequently with an accompanying pericarditis. The nature of most of these irregularities can be detected at the bedside. This, however, is not always true, for at times the evidence of extrasystoles or some degree of heart block is so similar that differentiation can be made out only by means of an electrocardiogram. They will be discussed later under Laboratory Aids.

(c) Venous engorgement and peripheral edema. When other causes of obstruction to the return flow of blood can be ruled out, the presence of engorgement of the neck veins or edema of the lower extremities signifies a very much weakened and inefficient heart. The presence of these signs always means a much damaged myocardium which frequently is further overloaded by the presence of incompetent valves.

(d) Size of heart. Signs of slight cardiac enlargement are frequently present in the acute stages of rheumatic fever and may have no great significance. On the other hand moderate to marked enlargement does have considerable significance and is due either to an accumulation of fluid in the pericardial sac as part of a pericarditis or to hypertrophy and dilatation of the heart itself which means that there is a severely damaged myocardium and probably endocardium as well.

(e) Heart sounds. Useful information can be obtained by listening repeatedly to the heart in rheumatic fever patients. Things to be listened for are the character and intensity of the sounds, whether there is a reduplication or gallop rhythm, the presence or absence of murmurs and the presence or absence of a friction rub.

Heart sounds are diminished in intensity in the presence of pericardial effusion but more frequently the diminution is due to loss of tone and weakness of the heart muscle when this has been widely involved by the rheumatic process.

Reduplication of sounds or gallop rhythm is observed frequently to come and go during an attack of rheumatic fever with carditis but its cause is unknown unless it means that the muscle of one side of the heart is more damaged and weaker than that of the other side.

The continued presence of murmurs is of definite significance though they of themselves are not given at present so much weight as in previous years. This is due to the fact that

murmurs which are easily heard when the heart is rapid may disappear entirely when the rate is slowed and probably when a slight dilatation of one or another chamber of the heart has disappeared. Dr. Henry Christian teaches us not to place too much value as to diagnosis and prognosis of the amount of damage to a valve on any murmur heard during the acute stages of the disease when fever is present. On the other hand murmurs, especially diastolic in time, which are present at a later stage have very definite significance. The valves of the left side of the heart, namely mitral and aortic, are much the most frequently involved.

The presence of a friction rub over the precordium is the most conclusive evidence that the pericardium has been involved. Since these rubs may be of short duration it is important that auscultation be repeated daily, especially in the presence of precordial pain or hyperesthesia which may be the first symptom of pericarditis.

(3) Laboratory evidences of cardiac involvement

The outstanding laboratory aid in determining whether the heart is involved is the electrocardiograph. Its great usefulness lies in the fact that it will pick up and determine the true nature of lesser degrees of heart block which can be made out in no other way. Since the conduction of the cardiac impulse from auricles to ventricles is intimately associated with the heart muscle any changes observed in the conduction system must mean an involvement of the myocardium. The electrocardiograph is of no aid in determining whether the endocardium or pericardium has been invaded.

Heart block as found in rheumatic fever may be of three different degrees:

- (a) Delayed auriculoventricular conduction time
- (b) Dropped beats
- (c) Complete heart block

Slide IX This slide shows a normal electrocardiogram. Note that the time interval between the P and R waves, or auriculoventricular conduction time, is short—less than 0.2 seconds.

Slide X This slide shows delayed auriculoventricular conduction. It is quite common in rheumatic carditis, as in this instance here, to find the conduction time delayed to much longer than 0.2 seconds without failure of any of the impulses to get through to the ventricles. Since block of this degree gives no evidence that can be detected on physical examination, it must be determined by mechanical means.

Slide XI (b) Dropped beats. These occur when the A-V interval is so lengthened that some of the impulses do not get through to the ventricles. When such an impulse fails to get through, the ventricles are still for a longer

time than usual. These pauses or blocked beats can be observed clinically, but as noted previously the only sure way to differentiate them and extrasystoles is by means of an electrocardiogram.

Slide XII (c) Complete heart block. This is the most marked degree of disturbance of the conduction system when no beats get through from the auricles to the ventricles. In this case the ventricles take on their own independent rhythm. Since the rate when originated in the ventricles is a very much slower one, a change from ninety beats or over to the minute to under fifty should make one suspect complete heart block.

The cause of these alterations in the conduction system is supposed to be and probably is due to the presence of Aschoff bodies in or near the conduction bundle of His. Levy of New York has observed alterations of conduction to parallel the administration of salicylates and believes that when conduction is interfered with there is edema in and about Aschoff bodies situated near this bundle. After administration of salicylates, this edema clears similar to a disappearance of fluid in and about the joints thus leaving the conduction system to function normally.

One final question might be asked and that is as to how frequently the heart is involved in rheumatic fever. The best observations in answer to this question are those of Cohn and Swift who studied a series of cases with daily electrocardiograms. Their findings are summarized on this slide.

Slide XIII They divided their cases of rheumatic fever into three groups as follows: (1) first attack, (2) recurring attacks and (3) cardiac or continuous type.

(1) There were seventeen cases in the first group and of these fifteen showed changes in conduction time and sixteen changes in the form of the ventricular complex. Thus nearly all showed evidence of myocardial involvement. In this same group, six showed definite, ten doubtful and one no evidence of endocardial involvement while three patients developed pericarditis.

(2) In their second group with recurring attacks of rheumatic fever they had twelve cases. Of these ten showed delayed conduction and eleven some alteration in the form of the ventricular complex. All but two cases showed evidence of endocardial involvement and one had pericarditis.

(3) In their third or cardiac group, eight patients were studied. All showed alterations in the form of the ventricular complex and all had evidence of endocarditis while three had pericarditis.

When combined into a composite group one sees that ninety five per cent of all patients studied showed some evidence of myocardial involvement. Sixty five per cent showed undoubted evidence of endocardial involvement but this figure is probably too low, as many of the doubtful cases in the first group would likely develop some signs of endocarditis after a period of time. Nineteen per cent of all cases had involvement of the pericardium. Thus one may state that in practically every case of rheumatic fever the heart is involved to a greater or lesser degree. Of course that does not mean that the damage is permanent in all cases with evidence of conduction changes only. On the other hand the danger is sufficiently great to make one realize that every individual who has an attack of rheumatic fever should be suspected of having some cardiac involvement and that treatment should be so directed as to save the heart as much as possible during the acute stages of the disease.

Prognosis as regards the future of the heart in rheumatic fever is very difficult. One may say that the heart is spared frequently from permanent damage during the first attack, seldom during the second attack and probably never after further attacks. In the cardiac or continuous form, all hearts are damaged to a greater or lesser degree.

TREATMENT

The ideal treatment would be, of course, the prevention of rheumatic fever thereby removing the cause of this type of heart disease. As is true of any disease when the cause is unknown, attempts at prevention are more or less empirical. There is much evidence to show that each attack is ushered in by an acute infection usually of the upper respiratory tract. In view of this it was felt that removal of the tonsils and adenoids might prevent the disease. This hope has not been realized as shown by Kaiser working in Rochester, N. Y. After studying large groups of school children both with and without tonsillectomy he has come to the conclusion that the incidence of first attacks of rheumatic fever is slightly less among those who have had their tonsils removed at some previous time but that the removal of tonsils after an attack of rheumatic fever has little or no effect on the incidence of recurrences. Probably the sanest attitude as regards tonsillectomy is not to advise operation unless there is evidence that the tonsils are diseased as shown by recurring attacks of tonsillitis or the persistent presence of enlarged tender submaxillary lymph nodes which drain the tonsillar areas.

In a patient with rheumatic fever the most important form of treatment by far is rest both during and for a considerable time after

the attack The English school is so convinced of the value of rest to spare the heart that they treat rheumatic fever much as we treat tuberculosis in this country That is, they have sanatoria or rest homes where the patient can get rest and good nursing care for a prolonged period of time One who has worked on rheumatic fever over a period of years cannot help but realize how discouraging it is to parents, patients and the physician himself to have to recommend prolonged rest for a child who has no joint pains and who on casual examination appears perfectly normal It is only after the dangers of serious cardiac damage with their consequent permanent handicap are made clear that it is possible to get the cooperation of either parents or patients In New York City a group of special teachers are employed who conduct teaching in the homes for those who have persisting infection and are unable to attend school It is to be hoped that other communities will follow this example

The injudicious use of drugs such as aspirin, and pyramidon is to be discouraged These drugs relieve the joint symptoms, which ordinarily bring the patient to the physician, but most definitely do not cure the disease, or, in fact, have any influence in preventing or curing any involvement of the heart Evidence for this statement is that rheumatic heart disease is more prevalent now than it was before the salicylate era while the incidence of rheumatic fever itself has changed little if at all Hence, the family bottle of aspirin which can be used whenever there is an ache or a pain is a very serious problem Too often a child gets up with malaise, with or without joint pain and after an aspirin tablet feels enough better to be allowed to go to school In these cases it is only when the joints become really acute or, more frequently, when the child has other symptoms such as shortness of breath on exertion that he is brought to the physician Too late then a true picture of what has been going on is discovered Aspirin should never be given to children or young adults except with the knowledge and advice of their physicians

The treatment of the heart after it has started to fail is identical with that for failure from any other cause In addition to rest and taking as much load off as possible, one may try the use of digitalis The benefits of this drug during active phases of the disease except in the

presence of auricular fibrillation are often disappointing However a trial is warranted, since one occasionally sees spectacular slowing of the pulse rate and improvement of the circulation

The question of a change of abode to secure a more suitable climate for patients with rheumatic fever is often raised This is especially true now that it is recognized that rheumatic fever is uncommon in more mild climates such as are found in Florida, Puerto Rico, etc Recently two groups of workers, under Coburn in New York City and Jones in Boston, have sent children with rheumatic fever to some southern place for the winter months While there the children are practically free from upper respiratory infections and their rheumatism is quiescent However, in most instances the disease has become active again as soon as the children are brought home Hence if they are to remain free from active disease they must live permanently in the South This form of treatment is all right as an experiment or for the well-to-do, but is not generally applicable from an economic point of view, chiefly because it would mean moving a large group of the less well-to-do elements of society

In closing one can only hope that, with the large number of workers who are studying rheumatic fever, its cause will soon be found When this has happened its prevention and cure can be approached more sanely

RECENT DEATH

COGSWELL — SAMUEL J COGSWELL, M.D., aged sixty one, medical referee for Rockingham County, died on January 18, 1936, after a week's illness He was stricken with mumps early in the week and pneumonia set in shortly before he died

Dr Cogswell was prominent in fraternal affairs of the Knights of Pythias He was a member of the American Medical Association, the New Hampshire State Medical Society and the Rockingham County Medical Society

Dr Cogswell studied at Bowdoin and was graduated from the University of Vermont in 1897 He had been a practicing physician in New Hampshire since 1902

Dr Cogswell is survived by his widow and two daughters, Miss Maude Cogswell and Mrs Marion Harvell

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., Editor

CASE 22071

PRESENTATION OF CASE

A forty four year old Italian machinist was admitted complaining of a productive cough.

The patient had been perfectly well until six months before entry at which time he developed a slight head cold followed later by a nonproductive cough. At the end of the second week he was sent to a hospital where he remained until his admission here. During his hospital stay the cough remained constant and became productive of about two cups of yellowish sputum daily. For about five days, three months before admission, he had blood tinged sputum but at no time was there gross hemoptysis. For one month the sputum had been quite foul. During the first four months of his illness he had frequent night sweats but there were none thereafter. Six weeks before admission he developed sharp pain in the right axilla which was aggravated by cough and inspiration. The pain persisted for four weeks and then subsided completely. His appetite became capricious and his weight decreased from 168 to 128 pounds. He had frequent frontal and occipital head aches which continued for several days at a time. There were occasional sensations of chilliness and warmth. At times coughing would cause him to vomit.

The past history is noncontributory.

Physical examination showed a well-developed, somewhat emaciated, pallid man. The skin was moist and warm. The mucous membranes were pale and there were many carious teeth. The tonsils were large and ragged. The heart was negative. The blood pressure was 110/80. Flatness was elicited in the right upper chest anteriorly down to the level of about the fifth rib. In this region there were crackling râles, bronchial breathing and pectoriloquy. Posteriorly on the right side there were fine râles impaired resonance and pectoriloquy down to about the fifth rib. There was clubbing of the fingers. The reflexes were symmetrical but hyperactive.

The temperature was 98.2°, the pulse 120. The respirations were 23.

Examination of the urine showed a specific gravity of 1.006 to 1.010 but was otherwise negative. The blood showed a red cell count of 3,400,000, with a hemoglobin of 55 per cent. The white cell count was 8,700, 74 per cent polymorphonuclears. Repeated sputum examinations were negative for tubercle bacilli. The stools were negative. A Hinton test was negative. Intracutaneous tuberculin gave a positive reaction with 1:1000 dilution but with none of the higher dilutions.

X ray examination showed a rather homogeneous dullness involving the entire middle lobe and part of the lower border of the right upper lobe. There were two areas of diminished density close to the upper border of the process.

Throughout the patient's hospital stay his temperature varied irregularly between 98° and 102°. It often continued several days without rising above 99°. His pulse remained elevated at 100 or over. On the eleventh day a bronchoscopy showed congestion and thin green foul pus in the right upper bronchus. He continued to expectorate considerable foul greenish sputum which on one occasion was bloody and contained a few small clots. Another x ray showed a fluid level at the upper edge of the process and extension into the septum between the lower and middle lobes. Examination of the chest showed dullness from the angle of scapula to the tenth rib. Breath sounds were tubular in quality and showed slight diminution in intensity on the right side. Tactile fremitus was not diminished. Amphoric breathing was heard in the region of the right nipple. The heart was neither enlarged nor displaced. A second bronchoscopy showed pus exuding from the right middle lobe bronchus. One month after entry the intercostal bundles between the third and the sixth ribs were excised and one week later the fourth and fifth ribs were resected anteriorly. Four days postoperatively while the surgical dressing was being changed he suddenly began to cough up large amounts of blood. The hemorrhage could not be controlled and he died shortly afterwards.

DIFFERENTIAL DIAGNOSIS

DR. FREDERICK T. LORD: Will you demonstrate the x rays, Dr. Hampton?

DR. HAMPTON: This is an oblique view showing dullness on the right side with an area of rarefaction in the upper portion. Here we see a very definite area of rarefaction in the anterior part of the lung. It seems to have a fluid level. Three or four weeks later an anteroposterior view shows dullness in the region of the middle lobe and the lower portion of the upper lobe. This shadow here is middle lobe and the cavity is in the upper lobe.

DR. LORD: There are no masses?

DR. HAMPTON: No masses or appreciable dis-

placement of the mediastinum that I can be sure of. The heart is over a little toward the right. There is nothing here which could be explained by a consolidated middle lobe and a cavity in the upper lobe on the right side.

DR LORD: The x-ray extends the information in a desirable direction inasmuch as there is no sharply limited shadow but the increased density fades into the neighborhood. The inter-spaces are no more narrowed than one might expect from an encroaching process.

DR HAMPTON: That is the posterior portion of the middle lobe, and up above the anterior margin of the lower lobe. The septum is convex upward and anteriorly, indicating that the upper lobe has been reduced in size, but that could be due to partial destruction of the lobe as well as bronchial occlusion.

DR LORD: The question of a pleural effusion may be raised. The signs are those of consolidation and not of pleural effusion, but encapsulated effusion may, nevertheless, be present. The signs of cavity are ordinarily absent in a disturbance of this sort and it is difficult to explain the presence of amphoric breathing in the region of the right nipple some distance away from the site of the cavity seen in the x-ray.

The symptoms come in sequence, with first a cold six months ago and later cough. We do not know exactly when he had sputum, but not until after the lapse of two weeks. Pain did not come until he had been ill for four and one-half months and the sputum was foul only after five months. Of course abscess is to be thought of, but this evolution of symptoms is unusual. With uncomplicated abscess we expect the complex of symptoms to be complete within a shorter space of time. Abscess is almost constantly peripheral and pain from invasion of the pleura ordinarily comes early in its course. The appearance of individual symptoms in sequence with long intervals between suggests the possibility that the abscess is complicated by something else.

We would like to know the severity of the headache. Cerebral abscess may complicate lung suppuration and the intensity of the headache may have a bearing on this question.

I have already commented on the physical signs, but it is always desirable to consider the possibility of bronchostenosis and atelectasis with which the signs are dullness, diminished or absent breathing, voice, whisper, and tactile fremitus. The signs here are not consistent with bronchial obstruction, the x-ray findings are against it, and we may conclude that here the bronchi, at least the larger bronchi, are probably open.

Clubbing of the fingers may be regarded as consistent with suppuration or malignancy or both. The blood findings with the low color

index are consistent with a secondary anemia, but it would be desirable to have a description of the blood smear. The absence of tubercle bacilli on repeated examination of the sputum is against tuberculosis. But it is desirable to have the sputum examined for such other organisms as streptothrix, actinomyces and blastomyces. A positive skin test with tuberculin is to be expected at this age.

Bronchoscopy should always be considered in the presence of localized lung suppuration. It does not seem necessary, however, to do it in all cases as a routine. It is especially indicated when from the history, the physical signs and the x-ray there is a suspicion of the presence of foreign body or malignancy. It may be of assistance in more accurately localizing a suppurative process for surgical intervention. Here it can hardly be said to have localized the process other than to indicate the presence of pus in the right upper and middle lobe bronchus. A difficulty with respect to localization by this means is that the exudate from an abscess may be aspirated into a neighboring or remote bronchus. Bronchoscopy is of little or no value in the treatment of abscess.

Now with respect to the diagnosis, in spite of the unusual evolution of symptoms, it seems reasonable to conclude that he has a lung abscess. There is nothing to suggest tuberculosis other than that the disease must be considered in all pulmonary lesions. The absence in the x-ray films of subapical mottling and the character of the increased density in the involved region are against tuberculosis and we can, I think, dismiss it as unlikely. The unusual evolution of symptoms makes it necessary to consider another possibility. The x-ray findings are not suggestive of malignant disease of the lung. With lung malignancy the increased density tends to be homogeneous with sharply limited margins and here it is mottled with rather ill-defined margins. Nevertheless, I do not think that the possibility of a hidden malignant disease can be excluded.

With respect to the abscess itself, I can go somewhat farther and say that in view of the long duration, the chances are that it consists of multiple though circumscribed areas of suppuration. The hemorrhage probably came from an eroded vessel. There is also the possibility, rather remote, of a complicating cerebral abscess or malignancy.

DR DONALD S. KING: The thoracic service struggled with this problem. We raised the question that Dr. Lord has raised as to whether the process was lung abscess following a pneumonia process or whether it was an abscess in association with malignancy. Although we did not feel that there was any definite evidence of malignancy, the patient was bronchoscoped in order to rule out such a process. I think that

we have had more so-called postpneumonic abscesses this year than usual, and we assumed that this was a lung abscess following an infectious process.

DR. LORD There is nothing suggestive of a lobar pneumonia in the history.

DR. KING No

DR. FRED This patient was bronchoscoped twice at an interval of fourteen days. Bronchoscopy was done to help in determining whether there was any new growth or abscess and if abscess in what lobe it was confined. No new growth, outcropping or foreign body was seen. At the first bronchoscopy a profuse amount of thin foul pus was seen to come from the right upper lobe. The middle lobe at this first bronchoscopy was absolutely clear. The pathology appeared to be confined from the bronchoscopic standpoint to the right upper lobe, but at the second bronchoscopy pus was seen to come from both the right upper and right middle lobes.

DR. J. H. MEANS I wonder if the long continued story that Dr. Lord felt was atypical for acute lung abscesses might be due to a succession of abscesses. We see that occasionally I remember one patient who had x-rays from another hospital showing abscess on one side and when she came to us she had it on the other side. No doubt she had one that healed up and later had another. That might account for this kind of picture. There is a man with postpneumonic abscess on the ward at the present time. His course is not exactly like this but it is somewhat analogous. The question of cancer is interesting and I suppose it occurred to most of us. However, I should like to ask Dr. Mallory if he would not expect an abscess of this sort due to cancer to be peripheral to the cancer and the bronchoscopist really ought to see the cancer if that was the fundamental lesion here.

DR. TRACY B. MALLORY That is usually the case. I can remember one case however where the abscess had involved the cancer and eaten so much of it away that the bronchoscopist was unable to recognize it. We caught it only histologically and did not recognize it in gross.

CLINICAL DIAGNOSIS

Lung abscess

DR. FREDERICK T. LORD'S DIAGNOSES

Lung abscess

Question of malignant disease

ANATOMIC DIAGNOSES

Chronic pulmonary suppuration and fibrosis with necrosis and cavitation

Bronchiectasis right upper and middle lobes, slight

Pulmonary hemorrhage

Pulmonary emphysema

Operative wound First stage thoracoplasty
Pleuritis, chronic fibrous, bilateral
Arteriosclerosis, cerebral and aortic, slight
Pulmonary osteoarthropathy

PATHOLOGIC DISCUSSION

DR. MALLORY In this patient we found a process in the upper and middle lobes on the right which consisted of a very diffuse fibrosis of the entire lobe with multiple cavities all through it but the cavities appeared to be for the most part out in the pulmonary parenchyma, beyond the limits of the bronchi, so that we had to call them multiple abscesses rather than bronchiectases, although there were a few small bronchiectases. The cavities varied from a centimeter in diameter—there were a number as small as that—up to one three centimeters in diameter which was probably the one in which Dr. Hampton demonstrated a fluid level.

From the histologic point of view there is very little to help us in interpreting this case. It seems to me hopeless to trace the origin of the process. Perhaps the most striking thing was the degree of fibrosis in the regions where you would expect lymphatics, as though there had been a definite fibrosis of lymphatics. We see marked fibrosis of lymphatics in other conditions for instance in silicosis it is quite constant, but it can occur also in infectious processes. I think I would be a little inclined to Dr. King's suggestion that this might have followed a pneumonia although certainly the history does not give us any characteristic story to suggest that.

DR. LORD I have been very loath to accept lobar pneumonia, if that is what you were thinking of.

DR. MALLORY No

DR. LORD Our efforts to incriminate lobar pneumonia have largely failed. The early symptom complex with abscess is seldom that of lobar pneumonia. An origin of abscess in bronchopneumonia cannot be denied, and in a restricted sense this is probably true, putrefactive organisms giving rise to bronchopneumonic processes which break down into abscess.

DR. MALLORY You would regard it as essentially abscess from the start?

DR. LORD Yes, regarding the tissue changes arising in consequence of a special type of infection and the development of abscess therefrom as an independent affection.

DR. MALLORY We do not know at all in these cases how often an infectious process which starts with a single organism such as pneumococcus or streptococcus may be complicated by multiple infections later but we have the analogy of an infarct, for instance, which may develop into an abscess.

The terminal event was a very profuse hemorrhage in the course of which he bled more

into the bronchial tree than he had into the surgical drainage wound. The entire bronchial tree in both lungs was completely plugged with clots of blood and on the left side there was the acute emphysematous dilatation of the alveoli one sees in a drowned man. Death unquestionably was from suffocation. That is a fairly common terminal event in these cases whether or not they are operated on.

CASE 22072

PRESENTATION OF CASE

A forty-five year old white American clerk was admitted complaining of generalized itching of the skin and painful nodules on the fingers.

Twenty-three years ago the patient became ill with painless swollen ankles which were followed by generalized edema. At this time he was admitted to a hospital where he remained for five months, during which period he gradually improved. He was not entirely free from the edema, however, until five months after discharge from the hospital, and it was almost a year before he could return to his work. Following this for about twenty years, except for nocturia of one time, he felt quite well. About two and a half years before entry he began to feel run-down and developed generalized itching and dry skin. He consulted an osteopath who examined his urine and told him that he had a mild diabetes and kidney disease. He was given injections of liver extract for four months "to build up his blood", and also a course of spinal manipulations which relieved his sense of fatigue. The itching was also lessened in intensity. Eleven months prior to admission he again returned to the osteopath for the same reasons he had given previously. He received weekly injections of liver extract thereafter. During this time his nocturia increased three to four times. Two months before coming to the hospital he had burning pain in the middle three fingers of his right hand, and nodules appeared over the skin in this region. Hot soaks relieved the pain but the nodules persisted. Shortly thereafter he developed a tender swelling upon the right elbow which persisted for about a week. He then had successive similar swellings in the region of the right shoulder, left shoulder, left elbow, and ulnar aspect of the left wrist. All these disappeared except the nodule on the wrist which occasionally afforded him some aching pain. Three weeks ago a firm, nontender nodule, about the size of a twenty-five cent piece, appeared on the back of his right elbow. At no time was there any flank joint involvement. His weight had remained constant for three years.

He had scarlet fever at ten years of age.

Physical examination showed a thin pallid man in no acute distress. The patient was ambulatory and cheerful. The skin had a sallow yellow ochre hue. The retinal arterioles were narrowed and shining and there was what appeared to be an organizing hemorrhage in the left retina. The heart was not enlarged. A rough systolic murmur was heard all over the precordium and a prolonged diastolic murmur was audible at the apex. The blood pressure was 165/90. The liver edge was at the costal margin. The prostate was symmetrically enlarged, firm and smooth. The peripheral vessels were firm, nodular and tortuous. There were several cystic swellings about the proximal interphalangeal joints of the right forefinger, some of which were translucent and others opaque.

Examination of the urine showed a specific gravity of 1.008, with a trace of albumin and a green reaction to Benedict's solution without precipitate. The sediment contained an occasional white blood cell and a rare red blood cell and granular cast. The concentration test showed a specific gravity fixation between 1.010 and 1.012. The blood showed a red cell count of 3,800,000, with a hemoglobin of 65 per cent. The white cell count was 12,000, 63 per cent polymorphonuclears. There was no stippling and the platelets appeared to be normal. A Hinton test was negative. The nonprotein nitrogen of the blood was 120 milligrams. The carbon dioxide combining power was 37.8 volumes per cent, the uric acid 4.4 milligrams per cent. The chlorides were equivalent to 107 cubic centimeters N/10 sodium chloride. The serum protein was 4.9 grams per cent. A phenolsulphonephthalein injection showed less than 15 per cent of the dye excreted in one hour. A fasting blood calcium was 10.10 milligrams. The phosphorus was 7.92 milligrams and the phosphatase 9.36 units. A stool examination was negative. An electrocardiogram showed normal rhythm with slightly diphasic but essentially upright T_2 and T_3 . Q_4 and T_4 were negative.

X-ray examination showed masses of homogeneous calcification without trabeculation surrounding the proximal interphalangeal joints of the right second, third and fourth fingers. Similar calcified areas were scattered along the phalanges of these fingers. The cortex of some of the phalanges was thin and moth-eaten in appearance. Both elbows showed similar calcified masses overlying the distal metaphyses of the humeri. The cortex of the radius in the region of the tuberosity and the proximal ends of both humeri showed haziness. There were similar calcified areas about the acromioclavicular joints. These were also present in the soft tissues proximate to the pedal phalanges. The tibiae and fibulae were not remarkable. The

bones of the pelvis showed slight decalcification. The heart contours were at the upper limit of normal and there was a questionable enlargement of the left ventricle. The skull was riddled with small areas of decalcification, one larger area measuring 1.5 by 1 centimeter. In all of the films the large and small vessels showed a marked degree of arteriosclerosis with calcification, some of them definitely of the Monckeberg type. A pyelogram showed the kidneys to be extremely small. They secreted very little of the dye. The jaws showed absence of lamina dura about most of the tooth sockets and the bone was radiolucent and said to have a ground glass appearance. In some regions there was definite thinning of the bone. Very few caries were seen in the teeth.

The patient continued to be remarkably alert and active for the amount of azotemia he showed. One observer noted urinous odor to his breath. At the end of two weeks he developed a severe diarrhea and had several nose bleeds. This continued for about two days. Shortly afterward the serum calcium was found to be 9.13 milligrams, the phosphorus 7.00 and the phosphatase 4.5 Bodansky units. An arterial blood analysis of the acid base components showed an approximate pH of 6.95. The blood showed a red cell count of 2,96, with a hemoglobin of 60 per cent. A few days later under local anesthesia a tibial biopsy was done. Shortly thereafter the patient began complaining of malaise and appeared to be quite apprehensive. Four days postoperatively he was suddenly seized with severe pain between the shoulder blades which later was localized in the left anterior chest and upper abdomen. There was some radiation down the left arm and associated dyspnea and orthopnea. The radial pulse became imperceptible. The blood pressure was 60/50. The heart sounds were poor and a gallop rhythm was heard. There was slight dullness at the left base and a few crackling rales in the same region. The temperature which had previously been normal rose to 99.8°. An electrocardiogram showed a left bundle branch block. T₁ was inverted, T₃ was upright. The P-R interval was 22 seconds. The Q-R-S was 18. The rhythm was slightly irregular, the rate 60. Lead four showed wide excursions and Q₄ was nearly absent. R₄ was plus 30 and T₄ minus 22. His condition remained unchanged and he died five hours later, one month after admission.

DIFFERENTIAL DIAGNOSIS

DR. CHESTER S. KLEFEL.* From this patient's history the physical findings, and the course of the disease, it would appear that there were two main diagnostic problems. (1) The nature of the renal lesion associated with metastatic calcification and calcinosis. (2) The ex-

planation of the episode that caused the patient's death. I shall discuss this case under these two headings.

When a patient presents the clinical features of renal failure and metastatic calcification with or without calcinosis, one considers the following conditions:

- 1 Primary hyperparathyroidism with nephrocalcinosis, or pyelonephritis with urinary calculi.

- 2 Chronic pyelonephritis or chronic glomerulonephritis with secondary hyperparathyroidism (renal rickets—chronic pyelonephritis with contracted kidney).

- 3 Calcinosis and chronic nephritis without evidence of parathyroid hyperplasia.

- 4 Primary bone disease with amyloidosis of the kidney, pyelonephritis or tubular atrophy (multiple myeloma).

I feel reasonably certain that one can exclude the possibility of a multiple myeloma in this case, so that I can take up the discussion of the other conditions at once.

Let us review the salient points in the clinical record. In brief, the patient was a man forty-five years of age who entered the hospital on account of pruritus and painful nodules on the fingers. At the age of ten years he had scarlet fever which may or may not have been accompanied by interstitial and focal glomerulonephritis, however, from the data available, the first indication of a disorder of the kidneys was a generalized edema which lasted for about ten months. He was then twenty-two years of age. Following this experience he remained reasonably well for twenty years, when he developed a feeling of malaise and generalized pruritus with dryness of the skin. Examination of his urine at that time (two and a half years ago) revealed evidences of kidney disease and mild diabetes. There was a temporary remission of his symptoms of fatigue but nocturia increased. Two months before entering the hospital he noticed painful nodules appearing in the skin of the fingers; later there was swelling over the right elbow, then swellings about other joints of his body.

The examination revealed a thin pale man with a sallow yellow skin, retinal arteriolar sclerosis with an organized hemorrhage in the retina, slight hypertension without cardiac enlargement, a rough systolic murmur over the precordium and a diastolic murmur at the apex. There were cystic changes about the proximal interphalangeal joints of the right forefinger.

The laboratory examinations revealed albuminuria, and only occasional leucocytes erythrocytes or casts in the sediment. There was a slight secondary anemia with a moderate leucocytosis. Renal functional studies revealed a loss of concentrating power, nitrogen retention, decreased phenolsulphonephthalein excretion. There was a phosphate retention, a re-

*Associate Physician, Thorndike Laboratory of the Boston City Hospital.

duced CO₂ combining power, a low pH, a slight reduction in the serum proteins, a normal blood calcium and an increased blood phosphatase. X-ray examinations revealed calcification in the subcutaneous tissue about the fingers, elbows, acromioclavicular and toe joints, decalcification of the skull, pelvic bones, phalanges, radii and humeri. There was extensive calcification of the blood vessels, and the kidneys were extremely small without x-ray evidence of stones or calcification.

X-RAY INTERPRETATION

DR AUBREY O HAMPTON There is a large area of calcification behind the lower end of the humerus which extends to the joint and farther upward than you would expect the joint to extend. The bones are decalcified, and here you can make out subperiosteal bone absorption or bone destruction. This is a very unusual finding in any disease excepting those associated with parathyroid abnormalities and we consider it one of the most characteristic findings of parathyroid abnormality. The skull shows fine areas of increased and diminished density which produce a mealy appearance of the bone with obliteration of blood vessel channels, diploe, and all the normal structures, and with perhaps some thickening of the bone.

This plate of the leg shows extensive calcification in the blood vessels. Furthermore, as has been pointed out by Dr Schatzki [I do not think he did the original work], this calcium is arranged in concentric circles so that you can deduce from the x-rays that it is in the media of the artery. This plate of the hand shows further deposits of calcification around the joints and here the calcium is definitely outside of the joint in the anterior aspect of the palmar tissue of the fingers. These bones also show decalcification and some subperiosteal absorption. The blood vessels in the wrists and the fingers are also markedly calcified. There are no cysts in any of the bones. The kidney outlines are very small.

DIFFERENTIAL DIAGNOSIS CONTINUED

DR KEEFER In brief, then we have a man with a chronic progressive renal failure who finally develops signs of calcinosis and calcification in his blood vessels. This picture fits in very well with a few cases that have been described in the past (Hubbard and Wentworth, Fontana, Penedee). That is to say, patients who have had symptoms of chronic renal disease for varying periods of time (several months to nine years) finally develop metastatic calcification and calcinosis with decalcification of the skeleton. It apparently has been a little more common to observe the same picture *without* calcinosis in the presence of chronic renal disease. Now, in view of the fact that patients with chronic nephritis and metastatic calcification may have enlargement of

one or more of the parathyroid glands the interpretation of the sequence of events in these cases has given rise to lively and interesting discussion. There are undoubtedly cases in which the hyperparathyroidism *precedes* the renal failure and metastatic calcification. These are instances of primary hyperparathyroidism with pyelonephritis and urolithiasis or nephrocalcinosis—so ably defined and described by Albright and his associates as Types 1 and 2.

In addition to these cases, there are instances in which the renal failure precedes the signs of skeleton demineralization and metastatic calcification, and there seems to be little question that in some of these cases, at least, there is secondary hypertrophy of the parathyroid glands and evidences of hyperactivity. From the chronological data in the history and clinical course, I believe that the present case belongs in this group, namely, chronic renal insufficiency with secondary hyperparathyroidism and subsequent metastatic calcification and calcinosis.

I should outline the sequence of events as follows: the development of chronic nephritis with renal insufficiency, the retention of phosphates, enlargement of parathyroid glands with increased activity, demineralization of skeleton due to increased parathyroid activity, chronic acidosis and loss of calcium phosphate in the stools, and finally the precipitation of calcium phosphate and perhaps carbonate in the tissues of the skin and internal organs.

There is an isolated case on record of calcinosis, and calcification in the various blood vessels and tissues associated with scleroderma, in which death resulted from renal failure without nephrocalcinosis, hypertrophy of the parathyroid glands or demineralization of the skeleton. In view of the fact that this patient did not have scleroderma or calcinosis before the signs of renal failure, it seems fair to exclude this type of case from consideration.

Now, a word regarding the nature of the renal lesion in the present case. There are three types of renal disease with a prolonged course such as was evident in this patient, chronic diffuse glomerular nephritis, chronic pyelonephritis with contracted kidney and congenital cystic kidneys. The latter condition can be excluded at once on account of the absence of attacks of gross hematuria, or of bilateral masses in the flanks, and by the evidence of small kidneys by pyelogram. The history of the onset of the renal disorder with edema suggests glomerular nephritis rather than pyelonephritis, although it is a little unusual, but by no means unknown, for patients with chronic glomerulonephritis to have such a long course, especially when hypertension and endarteritis obliterans are minimal. I should favor a diagnosis of chronic diffuse glomerulonephritis.

There remains for brief discussion the episode

which caused death. There was a sudden onset of thoracic pain, radiating down the arm with the signs of acute heart failure and peripheral vasomotor collapse, the development of a bundle branch block, dullness and rales at the left base of the lung, and death within five hours. This suggests a coronary occlusion, or a pulmonary embolism. In view of the pain and its distribution the sequence of events and the absence of a definite source for an embolus I should favor a coronary occlusion rather than a pulmonary embolus.

CLINICAL DISCUSSION

DR. FULLER ALBRIGHT. Dr. Keefer has taken the wind entirely out of my sails. He discussed almost everything I had to say.

There is one interesting point, as you look at this complicated picture with those extraordinary calcified masses around the joints, renal insufficiency, decalcification, and so forth you wonder if it is one disease. The fact remains that it is because I know of two other patients who had the same thing, that is long standing renal disease, calcium deposits around the joints, marked demineralization suggesting hyperparathyroidism, and arteriosclerosis of the media of the arteries. The other cases came to autopsy and did show enlargement of all the parathyroid glands and bone changes typical of osteitis fibrosa cystica, not osteomalacia. The disease, therefore, is analogous to renal rickets etc. The only difference is that renal rickets occurs in children and there are changes of the growing cartilage in addition. These changes look like rickets by x ray but turn out not to be rickets under the microscope. The condition is really osteitis fibrosa cystica occurring in growing children.

My diagnosis on this patient before he came to Dr. Mallory's department was the same as Dr. Keefer's and I expected to find four enlarged parathyroid glands.

I would like to say one word about three different types of conditions which may be confused now in everybody's mind. (1) Parathyroid adenoma which leads to hyperparathyroidism, with increased calcium and phosphorus in the urine and hence to renal disease. That is one clear entity which everyone has firmly in mind. (2) The second entity starts with renal disease and leads to phosphorus retention and compensatory hyperparathyroidism. We do not know how it gets there but you also have decalcification of the skeleton in this syndrome. The end result is different from the first but not very much. The one main difference in the second type is enlargement of all four parathyroid glands instead of one adenoma as in the first type. It would be very easy to differentiate the two if it were not for the fact that

there is a third entity. (3) This starts with hyperplasia of all the parathyroids and results in hyperparathyroidism, with increase of calcium and phosphorus in the urine and changes the same as with the first. We have therefore two conditions with four enlarged parathyroids and one condition with one enlarged parathyroid. The two with the four enlarged parathyroids fortunately can be differentiated very easily from each other because where the hyperplasia starts as a primary hyperplasia (it is obviously secondary to something else, but primary as regards the kidney) the histology of the parathyroid tissue is quite different from what it is when the hyperplasia is secondary to renal disease.

It might be worthwhile to theorize a little as to what is the sequence of events that leads to the condition we have before us today. In the first place it unquestionably starts as renal disease—it is only with long standing renal disease over a period of ten or fifteen years that you get the complete picture. The phosphorus retention is probably the next link in the chain. I believe this is the stimulus causing the parathyroid glands to become hyperplastic. Phosphorus retention tends to lead to a low blood calcium and a low blood calcium stimulates the parathyroids to enlarge. That would explain the enlarged parathyroids but would not explain why you get bone disease. Why you get the bone disease I do not know. There are two possible ways. In the first place it may be caused by an increased amount of hormone going directly to the bone and causing bone disease. This explanation is reasonable if one believes that the hormone acts in bone tissue. That is not my personal belief. The other possibility is that the bone disease is entirely due to the marked acidosis you see with this condition. This patient, with a CO_2 combining power of only twenty eight had an extreme acidosis which I hope Dr. Talbott will discuss later. He did a complete electrolyte balance on the patient. We know acidosis will cause changes in the bones of the same nature as those seen in hyperparathyroidism.

DR. JOHN H. TALBOTT. If our assumption is correct that the first and primary condition was chronic nephritis, I think it interesting that the duration of the disease should be as long as it was. Twenty two years ago this patient was hospitalized and treated for chronic nephritis. In the intervening years he had been able to carry on his work in a most satisfactory manner. After admission to this hospital we were able to obtain one sample of arterial blood for analysis of the acid base constituents. There is no rule of thumb whereby in a given patient with a disturbance of the electrolyte balance we can predict the concentration of any one constituent. Hence, we consider the following

to be the irreducible minimum number of determinations to be done to give us an accurate picture of the internal environment of a patient. These determinations are carbon dioxide, chloride concentration, sodium and protein concentration and nonprotein nitrogen.

This patient on examination of his arterial blood had a severe acidosis and the carbon dioxide content of the serum was only twenty-eight volumes per cent or approximately twelve milliequivalents, about half the normal. The chloride concentration in spite of the severe nephritis was normal. The sodium concentration of the serum was only 127 milliequivalents, a decrease of about 12 milliequivalents below the normal. Referring again to the carbonate concentration we remember that this was down about 12 milliequivalents, therefore the principal disturbance was a lowered sodium and carbonate concentration with a normal chloride concentration.

The interesting thing in this patient to me, as far as the disturbances of the acid base equilibrium are concerned, is what we would have done had we seen this patient and made these studies ten or fifteen years ago. It is conceivable that if we had found such a disturbance in a mild degree we might have been able to relieve or prevent the acidosis, which I assume to have been responsible for the long train of symptoms leading up to this particular type of hyperparathyroidism. I am interested in this patient as an example of what might be done regarding the preventive aspect of one of the rare manifestations of the terminal stage of chronic nephritis.

CLINICAL DIAGNOSES

Chronic glomerulonephritis
Coronary thrombosis?
Dissecting aneurysm?
Rheumatic heart disease?
Aortic regurgitation

DR CHESTER S. KEEFER'S DIAGNOSES

Chronic glomerulonephritis
Renal insufficiency
Hypertrophy of the parathyroid glands (secondary hyperparathyroidism)
Demineralization of the skeleton
Metastatic calcification with calcinosis
Calcification of the mitral valve producing the cardiac murmurs
Coronary occlusion

ANATOMIC DIAGNOSES

Chronic glomerulonephritis
Secondary parathyroid hyperplasia, marked
Rheumatic heart disease with calcification of the mitral and aortic valves and with mitral stenosis and aortic regurgitation
Coronary occlusion

Myocardial infarction
Calcification of the coronary arteries and peripheral vessels
Arteriosclerosis, marked aortic
Osteitis fibrosa of the skull
Calcified nodules of the elbow, fingers and shoulder
Hydrothorax, bilateral
Pulmonary edema, bilateral, slight
Ascites, slight

PATHOLOGIC DISCUSSION

DR TRACY B. MALLORY: The autopsy on this man substantiated in practically every detail the clinical diagnosis. We found an extremely atrophic pair of kidneys, weighing only 85 grams. They were granular as well as small, and the cortex was reduced to only 2 mm in width. Microscopically they show an extreme grade of atrophy, some persistent glomerular scars, and foci of dilated hyperplastic tubules. The pelvis are entirely negative and I think it is possible to rule out flatfootedly any question of chronic pyelonephritis. We feel quite sure this is chronic glomerulonephritis.

The next most interesting finding of course concerned the parathyroids themselves. All four of them were very much enlarged and practically popped into view with almost no dissection. The smallest of the glands weighed two grams and the largest nearly five. We estimated the total weight of the four glands as eleven grams. They were interesting in appearance furthermore because they did not look like any parathyroids that we have seen before. On cutting across them they were perfectly homogeneous cream-colored, and so nearly cheesy that I wondered if we might not find necrosis or caseation. They did not have the characteristic orange color that ordinarily enables one to identify parathyroid tissue. On microscopic examination we found a very diffuse hyperplasia with all the cells of the small "chief cell" variety, practically nowhere throughout the four glands have we found any cells with the abundant, highly vacuolated cytoplasm usually described as "water clear" cells. In what we have chosen to call primary hyperplasia with hyperparathyroidism all the cells are of the "water clear" variety so we have here a very sharp histologic difference. It is interesting that with a glycogen stain this patient's glands showed a more intense reaction than any other parathyroid tissue we have examined whereas the primary type of hyperplasia usually shows very little glycogen.

This is a postmortem x-ray of the spine. It shows very prettily the herniation of the intervertebral discs into the bodies of the vertebrae through the softened cortical layer of the vertebral body.

As to the other findings, the vessels throughout the body were of course very extensively calcified. That is particularly true of the larger vessels of the leg which show a typical Monckeberg type of medial calcification. It was also true of the coronary arteries. They show an extreme grade of calcification with atheromatous deposits and marked narrowing of the lumen. We found in the coronary arteries at autopsy a fresh clot and we were unable to decide whether it was ante or postmortem. The right auricle of the heart also contained a fresh looking clot which seemed a little too adherent for postmortem clot but again we could not be sure whether it was ante- or postmortem. The microscopic examination, however, clears up the point completely because there are foci of definite early infarction of the myocardium which we were not able to make out grossly, so the clinical diagnosis was more correct in that respect than our gross autopsy findings. The heart showed also, as was predicted, typical rheumatic valvular disease with both aortic and mitral involvement. The bones showed distinct softening. The skull was thickened, cut very easily, and the diploë was practically indistinguishable from the cortex. Microscopically the changes were indistinguishable from those of true hyperparathyroidism.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston, Mass

"DRUG TO END PAIN IN ANGINA REPORTED"

So ran a headline on the first page of the *New York Times* for the last day of 1935. The Professor of Pharmacology at the University of Maryland had read a paper before the American Association for the Advancement of Science at St. Louis. The drug reported was trichlorethylene.

Trichlorethylene is a highly volatile liquid with a strong, sweet smell, first used as a commercial solvent and varnish, and thus found to produce a curious syndrome in some of the workers who handled it. Among its symptoms were vertigo, nausea and anesthesia of the trigeminal nerve. For some years past it has been used for the relief of trigeminal neuralgia, fifteen to twenty drops being inhaled from a handkerchief until the odor has disappeared, and repeated three or four times a day. Too large or frequent dosage has been thought by some to produce disorientation, acute yellow atrophy of the liver, and even ventricular fibrillation with sudden death. Others, however, have denied its toxicity. There is no question

that trichlorethylene does produce vertigo and it should therefore be inhaled, like amyl nitrite, in the recumbent position.

Because of this vasodilating effect, it is not surprising that trichlorethylene has been found to relieve "fifteen out of twenty cases", although the number of cases of angina to be relieved by any treatment will depend largely upon the diagnostic criteria used. What is surprising in the *New York Times* account is that "one cubic centimeter in crystalline form, inhaled as snuff, was said to relieve attacks in one second".

The excursions of the daily press into the medical and scientific worlds should not be read too critically. Those of us who are free to come home from a medical meeting and decide that there is nothing of significance among the novelties of the day have a freedom which is denied to the news reporters. So many people having learned to read—they must be furnished with reading material. Medical progress is good reading material, but in the daily press it must be sufficiently sensational to compete with the highly dramatized news of the day—political, criminal and social. Hence the tendency to make a complete symphony out of a perfectly good folk-song.

Trichlorethylene will prove, we hope, a useful drug for the purpose here announced. We only wish that by ending the pain of angina we could solve the many problems that underlie it.

The Massachusetts Medical Society

SECTION OF RADIOLOGY AND PHYSIOTHERAPY

The Section of Radiology and Physiotherapy of the Massachusetts Medical Society will meet at Springfield on Monday, June 8, at 2:30 P.M. There has long been a feeling among the workers in these specialized fields that neither the scope nor the limitations of their work were fully understood by the men in general practice. The program of the Section has therefore been planned to facilitate a better understanding along these lines.

"The Limitations of the Roentgen Method of Diagnosis." Why is the negative Graham-Cole test not worth 100 per cent in excluding gall-bladder disease? Why cannot an osteomyelitis be diagnosed in its incipency? Why are some fractures missed by the most careful technique? These and other questions of the sort will be discussed by Dr. Harvey W. Van Allen of Springfield, well known in his specialty for many years.

"What May the General Practitioner Expect of Physiotherapy?" This subject will be considered by Dr. Claude L. Payzant of Boston, Director of Physical Therapy at Quincy City

Hospital Some physiotherapeutic methods are overestimated, others are not so well known as they should be. Dr Payzant will endeavor to evaluate the entire subject with a view to the standpoint of the man in general work.

The subject of Birthmarks is important and interesting to every man who deals with babies. Much progress along this line has been made in recent years much of it seems not to have reached the rank and file of the profession. The modern treatment of these embarrassing and disfiguring lesions will be discussed by Dr J Harper Blaisdell of Boston. Dr Blaisdell was one of the first workers in this section to apply radium in dermatological work. He is a member of the Massachusetts General Hospital Staff and has occupied several teaching positions.

There will of course be discussion open to all, and it is hoped that many members outside the Section will take part.

THE ISSUE WHY DOES MASSACHUSETTS NOT PROTECT ITS CITIZENS?

In the midst of the discussion of House Bill 34 where one observes some lack of restraint, relatively few persons realize what is at stake, or are aware of the issues involved. If one reviews the arguments which have been presented to legislative committees in the past, omitting a multitude of irrelevances they seem to run about as follows. There is a "medical trust", which seeking power for itself rather than the welfare of the people, desires to destroy all medical schools which refuse to do its bidding. This trust controls all the state boards of registration in the United States, even the Massachusetts board, and all the medical schools except a few, which few in the spirit of independence and devotion to freedom, "poor but honest", manage to hold out, especially in Massachusetts, the birthplace and home of liberty.

It would doubtless come as a surprise to the various state boards and to the many influential universities in the United States, both state institutions and those which are privately endowed, to learn that a medical trust controls them all by some malicious subconscious control it must be.

The second argument is that medical education has become so expensive through the efforts of the medical trust, that the poor boy cannot get an education in the schools which the trust controls, and therefore the "independent" schools must continue to give opportunity for these poor boys. The fact that a comparatively well endowed medical school has available each year about forty thousand dollars for students who need financial aid, while the "independent" school has nothing for such purpose, and yet makes approximately the same annual charge

for tuition is regarded as having nothing to do with the case.

These two arguments alone, though protean in form, are the stock in trade of the opponents of the Bill the right of the school to do as it pleases and the right of the poor boy to get a medical education!

There is a false philosophy implicated here, in the first place in emphasizing rights without qualification. Whose rights are involved, merely those of the school and of the poor boy? And why merely because the school wishes to please itself, and because the boy is poor?

The true philosophy begins with the consideration of duties which constitute the cause of rights. A medical school conferring degrees by authorization of the state, and by the requirements of the statute participating in the preparation of candidates for licensure, is no longer a purely private institution it is quasi public with duties commensurate with its function. Its right to do as it pleases is not unqualified, it is restrained in the interest of the public in accordance with its prescribed function. If its function is perverted by commercial interest, the chief temptation, it becomes the duty of the state to correct this perversion and to prevent degradation. The reason why the commercial interest is the chief temptation is because the state, by requiring the medical degree as a prerequisite for earning a living in the practice of medicine, has placed a commercial value on the degree.

That the "poor" student has a right to medical education no one questions. Yet it is not an absolute right but qualified by several considerations. In the first place he may not want it, perhaps someone else has insisted on his studying medicine. In the second place he may not have adequate intelligence for it or he may be gifted, but not in the sphere which would make for success in medicine. Or he may not have enough money to pay for it. Whose obligation is it to see that he gets enough money? If there is detected any obligation to give him a medical education, there goes with it an obligation to give him an education worthy of the name, not a mere pretense. The issue is clouded with sophisms, by misrepresentations, by misunderstood facts, duties, obligations, responsibilities.

Yet the issue should be clear to all. It is the duty of the state to protect the citizens in matters affecting their health and against unqualified practitioners there is especial need. Why does the legislature of Massachusetts refuse to give the citizens of this Commonwealth as much protection against unqualified practitioners as the legislatures of other states give their citizens? Here is the issue, and the question is one which will be asked with increasing insistence until the answer is given. It is the duty of the citizens to find the answer.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

CLARK, RICHARD J A B, M D Harvard University Medical School 1931 Assistant in Medicine, Massachusetts General Hospital Member of Medical Staff, Winchester Hospital Address 205 Beacon Street, Boston, Mass Associated with him are

MEANS, JAMES H A-B, M D Harvard University Medical School 1911 Professor of Clinical Medicine, Harvard University Medical School Address Massachusetts General Hospital, Boston, Mass And

SPRAGUE, HOWARD B A B, M D Harvard University Medical School 1922 Assistant Physician, Massachusetts General Hospital Visiting Physician, House of the Good Samaritan Assistant in Medicine, Harvard University Medical School, Courses for Graduates Address 270 Commonwealth Avenue, Boston, Mass Their subject is Total Thyroidectomy for Heart Disease Experiences with Twenty-One Patients at the Massachusetts General Hospital Page 277

JOHNSON, PEER P A B, M D University of Vermont College of Medicine 1900 F A C S Chief of Surgical Service, Beverly Hospital His subject is The Contribution of the Community Hospital to Better Medical Service Page 295 Address 163 Cabot Street, Beverly, Mass

SULLIVAN, ALBERT J B S, M D Harvard University Medical School 1927 Associate Clinical Professor of Medicine, Yale University School of Medicine Attending Physician, New Haven Hospital and Dispensary His subject is Emotion and Diarrhea Page 299 Address 303 Whitney Avenue, New Haven, Conn

PENBERTHY, GROVER C M D University of Michigan Medical School 1910 F A C S Associate Professor of Surgery, Medical School of Wayne University Non-Resident Lecturer, University of Michigan Medical School Director of General Surgery, Children's Hospital of Michigan Surgeon, Harper Hospital Associate Surgeon, Herman Kiefer Hospital Consulting Surgeon, Receiving Hospital His subject is Treatment of Burns Page 306 Address 1551 Woodward Avenue, Detroit, Mich

DERICK, CLIFFORD L M D C M McGill University Medical School 1918 Associate in Medicine, Harvard University Medical School Senior Associate in Medicine, Peter Bent Brigham Hospital Non-Resident Consultant in Medicine, Burbank Hospital, Fitchburg, Mass His subject is The Heart in Rheumatic Fever Page 310 Address 412 Beacon Street, Boston, Mass

*The Massachusetts Medical Society*SECTION OF OBSTETRICS
AND GYNECOLOGY*

C J KICKHAM, M D, Chairman	R S TITUS, M D, Secretary
524 Commonwealth Ave., Boston, Mass	472 Commonwealth Ave., Boston, Mass

ANALGESIA DURING LABOR

Definite progress has been made in the study and use of analgesics during labor within the past two or three years. The work, published in 1934 by Dr Irving and his associates and dealing with various types of obstetrical analgesia, was very complete in that it gave an excellent comparison of various combinations of drugs which may be used to alleviate pain during labor. Since the publication of this material, there has been a general increase in the use of the barbiturates, chiefly in the form of pentobarbital or nembutal. There has also been much discussion even to the claim that obstetrical analgesia increases maternal mortality. This has not been true at the Boston Lying-in Hospital, since the maternal mortality for 1934 and 1935 has been lower than previously. Practically all the patients were given pentobarbital during labor over this period. It must be remembered that here doctors specializing in obstetrics are ordering the medication and that certain necessary measures for safety are always available.

The purpose of this article is to impress upon the general practitioner certain points to be remembered when administering pentobarbital or nembutal for the purpose of amnesia during labor. In the first place these patients must never be left alone, even for a single second. They are not responsible and may fall out of bed, or in some way injure themselves. Some patients become very restless and measures must be taken to control them. Naturally, therefore, we feel that these drugs should not be used in the home or in any hospital which is not equipped to handle such a case.

The barbiturates, I believe, increase the incidence of vomiting and mucus. To be sure, this does not happen in every case, but when it does occur the general anesthesia given at the end must be administered by a very competent anesthetist. If not, the patient may aspirate mucus or vomitus which may prove disastrous. This is an extremely important point, and when excessive mucus occurs, in spite of atropine, general anesthesia had best be eliminated. The amount of vomiting is often in relation to how recently

*A series of short selected articles by members of the Section is being published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

the patient has eaten and if this is considered when ordering the drug it would seem advisable to give it rectally rather than orally. In cases that enter labor vomiting, I believe it best not to give it at all.

As was pointed out in Irving's work, more babies have to be resuscitated than when no analgesia is used. These babies often have a moderate amount of mucus, and the obstetrician must always be prepared to remove the mucus. It can usually be done by the use of a simple catheter. This is very necessary in order that there be a clean airway before the usual methods of resuscitation are tried.

In spite of the occasional presence of such complications, this form of obstetrical analgesia can be used with safety provided the usual precautions are taken. There is no question that the use of these drugs has decreased the unnecessary use of forceps and manual dilatation. The writer believes that practically all the obstetricians familiar with this drug will agree to this.

Purposely, only the more important complications have been mentioned and, for more detailed information, the writer would advise reading the article written by Irving in 1914 and published in *Surgery, Gynecology and Obstetrics*.

MISCELLANY

THE APPOINTMENT OF DR. M. J. ROSENAU

Dr. Milton J. Rosenau who retired last February as professor of preventive medicine and hygiene in the Harvard Medical School and professor of epidemiology in the School of Public Health, has been appointed director of a new Division of Public Health, established as a part of the Medical School of the University of North Carolina. The purpose of organizing the department is to train students to be health officers. The department was founded by the University with the cooperation of the North Carolina State Board of Health.—*Science*.

MAINE NEWS

At the Thayer Hospital in Waterville a semi-annual review of mortalities has been instituted and adds much to the value of the staff meetings. These mortalities are critically analyzed from the point of view of mistakes in diagnosis, errors of judgment, technical errors and the diseased condition of the patient. Critical reviews and follow up are held on all cases which are discharged from the hospital with unsatisfactory results. These frank analyses of cases have stimulated much interest among the medical men in surrounding towns and result in a large and enthusiastic attendance at the Thayer Hospital staff meetings held fortnightly on the second and fourth Thursdays of each month.

ANDROSCOGGIN COUNTY MEDICAL ASSOCIATION

At the last meeting of this association it was frankly admitted that doctors in general are not well enough acquainted with the very important and nationally discussed topic of State or Socialized Medicine. It was suggested that in order that the profession become more familiar with the subject and able to discuss it more intelligently someone who has had the time to study and who knows the proposition from the doctor's point of view should be asked to present it. We were fortunate in securing the cooperation of Professor Brooks Quimby of Bates College who readily agreed with the suggestion.

This permitted us to prepare the following program for our first meeting of 1936 which was held in the Municipal Court Room City Building Lewiston on Thursday January 16 1936 at 8:30 P.M. Subject A formal debate by four members of the Bates Varsity Debating Squad on "Resolved That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense."

All members of the profession were cordially invited to attend and take part in the general discussion after the debate.

R. A. BELIVEAU M.D. Secretary

CUMBERLAND COUNTY MEDICAL ASSOCIATION

At the annual meeting of the Cumberland County Medical Association in Portland, Maine, on December 19 1935 Dr. Shields Warren of Boston read an extremely interesting paper on "Pathology of Malignant Diseases with Relation to Treatment."

KENNEBEC COUNTY MEDICAL ASSOCIATION

At the annual meeting of the Kennebec County Medical Association held in Augusta on December 19 1935 Dr. Augustus Riley of Boston read a paper illustrated with lantern slides on the subject "Pain in Relation to the Kidneys." This paper was interestingly received and actively discussed.

EDWARD H. RISLEY M.D.

THE APPOINTMENT OF SIR FREDERICK HOPKINS

Sir Frederick Gowland Hopkins, British Nobel prize winner in medicine one of the world's leading biochemists and a pioneer in the field of vitamin research, has been appointed to the Harvard faculty for the academic year beginning next September. He is now the Sir William Dunn Professor of Biochemistry at the University of Cambridge and has been Professor of Biochemistry there since 1914.

At Harvard he will deliver a series of three lectures in the Medical School, as the Edward K. Dunham annual lecturer. The Dunham foundation was established in 1923 for the promotion of the medical sciences, through a gift of \$50,000 from Mary Dows Dunham in memory of her husband a graduate of the Harvard Medical School in 1886. Holders of the lectureships are drawn chiefly from among

the leaders of foreign medical research and are selected by a committee of Harvard departmental chairmen. The foundation was designed to promote understanding between students and investigators here and abroad.

In 1906, Sir Frederick, working with W. Fletcher, laid the foundation of present knowledge of the chemistry of muscular contraction by his researches into lactic acid production in muscle. In the same year he published preliminary reports of experiments involving "pure diets," which proved the existence of essential amino acids, and of those accessory factors in foods which were afterwards to be known as vitamins. The full results of his vitamin work were published in 1912.

One of his later contributions, made in 1921, was the isolation from living tissues of the sulphur containing dipeptide glutathione, and the proving of its great importance for the oxidations in living cells.

He has also done outstanding work in animal pigmentation. He was awarded the Nobel prize in 1929.

AN HONOR TO DR. KARL BOWMAN

On January 30, 1936, a farewell dinner was given at the Hotel Brunswick to Dr. Karl Bowman, formerly chief medical officer of the Boston Psychopathic Hospital, who has left Boston to take up his new position as Director of the Bellevue Psychopathic Hospital in New York.

About one hundred persons representing his friends and associates attended the dinner.

Dr. C. Macfie Campbell acted as toastmaster. Entertainment in the form of an original dramatic sketch was furnished by some members of the Boston Psychopathic Hospital Staff, including Drs. S. H. Epstein, G. B. Pearson, J. H. DeShon, H. Hirning, R. Schwab, H. C. Solomon, R. H. Guthrie, F. L. Wells and Frances Hannett.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1935 AND SEVEN YEAR AVERAGE

MONTH ENDING FEBRUARY 1, 1936

Diseases	1936				Average cases reported for week corresponding to Feb 1 for past seven years	1935			
	Week ending Jan 11	Week ending Jan 18	Week ending Jan 25	Week ending Feb 1		Week ending Jan 12	Week ending Jan 19	Week ending Jan 26	Week ending Feb 2
Chickenpox	287	177	145	138	114	317	162	147	166
Conjunctivitis Infectious	4	3	5	3	—	—	—	1	—
Diphtheria	4	5	2	3	18	4	11	3	7
Dysentery Bacillary	1	—	—	3	—	1	3	1	1
Encephalitis Epidemic	—	—	—	—	—	—	—	—	1
German Measles	87	93	119	127	11	5	6	7	11
Influenza	1	18	18	3	157	239	96	42	80
Measles	87	68	87	71	165	429	529	419	558
Meningococcus Meningitis	1	1	3	3	1	—	1	—	—
Mumps	116	132	115	92	75	52	47	29	77
Paratyphoid Fever	—	—	—	—	—	—	—	—	1
Pneumonia (Broncho)	56	31	41	24	56	70	56	24	51
Pneumonia (Lobar)	31	65	53	44	61	98	73	38	37
Scarlet Fever	78	59	63	56	83	61	65	46	46
Streptococcus Sore Throat	1	4	3	3	2	—	9	5	7
Trachoma	—	—	—	1	—	—	—	1	—
Trichinosis	—	1	—	—	—	1	1	—	—
Tuberculosis (Pul)	24	18	16	21	25	32	21	22	24
Tuberculosis (O F)	3	1	—	2	3	2	2	2	1
Typhoid Fever	3	1	—	—	—	3	—	2	—
Undulant Fever	1	—	1	3	—	1	1	2	—
Whooping Cough	78	58	74	49	74	82	94	59	88
Gonorrhea	31	31	35	19	46	25	34	35	57
Syphilis	47	44	40	55	44	45	46	55	61

Remarks: No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

JANUARY 1936

DIPHTHERIA CASES REPORTED FROM CITIES AND TOWNS OVER 10 000 POPULATION

How Does Your Community Stand?

City or Town	1935 Population*	1929	1930	1931	1932	1933	1934	1935	1935 Case Rate†
Massachusetts	4 350 910	4 955	3 322	2 381	1 811	1 041	629	396	9.1
Chicopee	41 952	40	21	20	8	3	7	32	76.3
Lowell	100 114	65	21	26	38	71	76	50	49.9
Peabody	22 082	21	24	57‡	19	12	8	10	45.3
Fairhaven	17 005	13	16	11	11	5	1	3	27.3
Chelsea	42 673	55	56	42	44	16	14	11	25.8
Fall River	117 414	129	117	100	41	34	29	28	23.8
New Bedford	110 022	228	160	118	78	73	27	24	21.8
Danvers	13 884	20	18	4	5	5‡	2	3	21.6
Somerville	100 773	124	109	119	64	63	54	21	20.8
Revere	35 319	51	99	38	9	11	15	7	19.3
Taunton	37 431	3	5	33	14	16	3	7	18.7
Adams	12 858	10	17	11	6	1	0	2	15.6
Natick	14 394	2	3	3	0	0	1	2	13.9
Boston	317 713	1 104	882	701	540	207	114	113	13.8
Southbridge	15 786	9	2	0	5	0	3	2	12.7
Winthrop	17 001	7	1	4	3	4	1	2	11.8
Northbridge	10 577	35	14	1	1	2	1	1	9.5
Swampscott	10 480	11	6	5	5	1	0	1	9.5
Athol	10 751	1	1	0	16	5	2	1	9.3
Framingham	22 651	6	3	0	3	0	4	2	8.8
Everett	47 228	106	63	103	47	15	4	4	8.5
Watertown	35 827	35	77	23	13	9	4	3	8.4
Gloucester	24 164	14	2	3	1	3	6	2	8.3
Webster	13 837	13	1	0	2	0	0	1	7.2
Wakefield	16 494	29	10	2	2	5	4	1	6.1
Arlington	38 539	18	23	8	19	9	10	2	5.2
Woburn	19 695	33	9	9	7	3	2	1	5.1
Waltham	40 557	13	4	4	15	4	3	2	4.9
Medford	61 444	87	47	64	39	41	20	3	4.9
Worcester	190 471	125	213	117	103	54	23	9	4.7
Weymouth	21 748	12	5	8	7	14	2	1	4.6
Leominster	21 894	2	3	0	13	0	0	1	4.6
North Adams	22 085	1	2	1	0	3	0	1	4.5
Melrose	24 256	10	10	8	14	0	2	1	4.1
Haverhill	49 516	57	72	6	18	12	3	2	4.0
Brookline	50 319	5	16	9	7	1	1	2	4.0
Belmont	24 831	11	6	11	6	2	3	1	4.0
Beverly	25 571	18	44	7	3	1	6	1	3.9
Malden	57 277	91	24	62	22	11	12	2	3.5
Brockton	62 407	25	73	48	11	15	1	2	3.2
Salem	43 472	220	133	60	52	18	5	1	3.1
Pittsfield	47 516	54	8	2	2	2	3	1	2.1
Cambridge	118 075	144	91	53	69	50	14	2	1.7
Newton	66 144	8	3	1	6	13	2	1	1.5
Quincy	76 909	17	7	10	26	25	13	1	1.3
Springfield	149 642	268	133	39	17	9	3	2	1.3
Lawrence	86 785	31	16	13	3	3	4	1	1.2
Lynn	100 909	195	191	106	57	28	32	0	0.0
Holyoke	56 139	36	5	3	2	3	0	0	0.0
Fitchburg	41 700	64	16	10	11	2	3	0	0.0

rank and file of the medical profession in the practice of preventive medicine. He was mindful of the significance and importance of a clean water and milk supply and did everything to encourage high standards in these vital essentials to everyday life. He championed strongly the extension of the Tuberculosis Clinics on a city-wide basis, so that there might be made available facilities for the very early recognition of the disease.

His genial nature, his warm smile, and his fine character endeared him to us all, and we join with his army of friends in expressing deep sympathy to his family and grateful appreciation of his unselfish services to the City of Boston.

NOTICES

ANNOUNCEMENT OF THE FRANCIS AMORY SEPTENNIAL PRIZE OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES UNDER THE WILL OF FRANCIS AMORY

In compliance with the requirements of a gift under the will of the late Francis Amory of Beverly, Massachusetts, the American Academy of Arts and Sciences announces the offer of a septennial prize for outstanding work with reference to the alleviation or cure of diseases affecting the human genital organs, to be known as the Francis Amory Septennial Prize. The gift provides a fund, the income of which may be awarded for conspicuously meritorious contributions to the field of knowledge "during the said septennial period preceding any award thereof, through experiment, study or otherwise in the diseases of the human sexual generative organs in general." The prize may be awarded to any individual or individuals for work of "extraordinary or exceptional merit" in this field.

In case there is work of a quality to warrant it, the first award will be made in 1940. The total amount of the award will exceed ten thousand dollars, and may be given in one or more awards. It rests solely within the discretion of the Academy whether an award shall be made at the end of any given seven-year period, and also whether on any occasion the prize shall be awarded to more than a single individual.

While there will be no formal nominations, and no formal essays or treatises will be required, the Committee invites suggestions, which should be made to the Amory Fund Committee, care of the American Academy of Arts and Sciences, 28 Newbury Street, Boston, Massachusetts, U S A.

THE JOURNAL CLUB OF THE DEPARTMENT OF OBSTETRICS, HARVARD MEDICAL SCHOOL

The monthly meeting of the Journal Club of the Department of Obstetrics, Harvard Medical School, will be held on February 20, 1936, at 8 15 P M at the Boston Lying In Hospital.

Dr Judson Smith will review papers on the treatment of habitual and threatened miscarriages together with recent work on the physiology of corpus luteum.

The pathological aspects of miscarriages and abortions will also be presented.

Professor Hisaw of the Harvard University will discuss the work on the physiology of the corpus luteum.

ARTHUR T HERTIG, M D, *Chairman*

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P M on Thursday, February 20, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr Henry A Christian, Physician in Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students.

REMOVAL

WARREN D RUSTON, M D, announces the removal of his office to 29 Commonwealth Avenue, Boston.

NOTICES OF MEETINGS

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, February 25, at 8 15 P M.

PROGRAM

- Presentation of Cases
Spontaneous Hypoglycemia By Dr Russell M Wilder, Mayo Clinic, Rochester, Minnesota
Medical students and physicians are cordially invited to attend.

MARSHALL N FULTON, M D, *Secretary*

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at the Memorial Hospital, Worcester, Mass (Knowles Hall, Nurses' Home), Monday, February 24, 1936, at 8 00 P M.

PROGRAM

- Effects of Contagious and Infectious Diseases on the Heart
A General Statement of Main Topic Dr O H Stansfield
B Late Results of Contagious and Infectious Diseases on the Heart Dr E H Haloran
- Acute Benign Pericarditis Dr F B Carr
- Coronary Symptoms in Pernicious Anemia Dr J J Dumphy

All members of the New England Heart Association and interested physicians are invited to attend.
JAMES M FAULKNER, M D, *Secretary*

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The 308th meeting of the New England Ophthalmological Society will be held on Tuesday, February 18, at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston.

9 00 A.M.—Clinic and Operating Room
11 30 A.M.—Neuro-Ophthalmological Conference.
Applicant for Membership

8 00 P.M.

Simple Technique for Plotting Diplopia Dr. Willam D. Rowland.

Paper

History of Ophthalmology as a Specialty in New England. Dr. Allen Greenwood

MASSACHUSETTS MEMORIAL HOSPITALS

There will be a meeting of the Surgical Section in the Ladies Aid Room, Talbot Memorial, 8. East Concord Street, Boston on Friday February 14 at 12 noon.

Papers will be presented by Dr. Charles Sziklas and Dr. David B. Stearns

Milo C. Green M.D., Secretary

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The regular meeting of the New England Physical Therapy Society will be held at the Hotel Kenmore Boston on Wednesday evening February 19 at 8 o'clock

PROGRAM

Elementary Physics of Galvanism. L. L. Campbell, Ph.D., Professor of Physics Emeritus Simmons College

Clinical Uses of the Galvanic Current

Iontophoresis. Gynecological Conditions. Frederick H. Morse M.D. Pioneer in Electrotherapy Nerve Conditions. H. Houston Merritt, M.D., Associate in Neurology Harvard Medical School. Some Common Conditions in General Practice.

Claude L. Paysant, M.D., Chief, Department of Physical Therapy Quincy Hospital.

The Council will meet at 6 P.M.

Members and guests will meet for dinner at 6 30 in the Empire Room at the Kenmore.

All members of the medical profession are cordially invited to attend.

William D. McFee, M.D., Secretary

41 Bay State Road Boston.

BOSTON MEDICAL HISTORY CLUB

8 Fenway Boston

Monday February 17 at 8 15 P.M., at the Boston Medical Library

Domenico Cotugno—His Description of the Cerebrospinal Fluid. Henry R. Viets, M.D.

A Belated Eulogy to John H. Watson, M.D. Reginald Fitz, M.D.

BENJAMIN SPECTOR, M.D. Secretary

A JOINT MEETING TO DISCUSS A COMMUNITY PLAN FOR MEDICAL CARE

The Boston Council of Social Agencies the Boston Health League and the Hospital Council of Boston have issued invitations to a meeting in Sprague Hall Boston Medical Library 8 Fenway on Monday February 17 at four o'clock.

Ross Garrett, Co-Ordinator for the Medical Eco-

nomic Security Council in operation in Washington D. C. will explain the plan which includes hospital insurance maintains a Service Bureau to assist in the payment of professional fees attempts to determine the ability of the patient to pay and regulates the distribution of the burden of free care among all hospitals

Since this plan, which is sponsored by the Council of Social Agencies in Washington is being watched with great interest in other parts of the country we are fortunate in having this opportunity of discussing it with Mr. Garrett. It is hoped that staff and board members of organizations interested in this subject will be present.

Mr. Garrett's visit is made possible through the cooperation of the Massachusetts Medical Society the Massachusetts Dental Society and the Hospital Council of Boston.

This Problem Concerns Everyone.

THE NEW YORK HARVEY SOCIETY

The fifth lecture of the Harvey Society will be given at the New York Academy of Medicine on February 20 by Dr. John F. Fulton, Sterling Professor of Physiology Yale University School of Medicine on The Interrelation of Cerebrum and Cerebellum in the Regulation of Somatic and Automatic Functions.—Science.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY FEBRUARY 17 1936

Monday February 17—

4 P.M. Joint Meeting to Discuss a Community Plan for Medical Care. Boston Medical Library 8 Fenway, Boston

8 15 P.M. Boston Medical History Club at the Boston Medical Library 8 Fenway Boston

Tuesday February 18—

9 10 A.M. Boston Dispensary 25 Bennet Street Boston. X-Ray Demonstration Dr. Alice Lathin

9 A.M. 11 30 A.M. and 8 P.M. New England Ophthalmological Society Massachusetts Eye and Ear Infirmary 145 Charles Street, Boston.

12 M. South End Medical Club Office of the Boston Tuberculosis Association 651 Columbus Avenue Boston.

2 30 P.M. Pediatric Ward Visit. Massachusetts Eye and Ear Infirmary

Wednesday February 19—

9 10 A.M. Boston Dispensary 25 Bennet Street, Boston Auscultation of the Abdomen Dr. Neil Stevens.

11 3 M. Clinico-Pathological Conference. Children's Hospital

8 P.M. New England Physical Therapy Society Hotel Kenmore Boston.

Thursday February 20—

8 30 9 30 A.M. Clinic, Surgical Staff of the Peter Bent Brigham Hospital, at the Peter Bent Brigham Hospital.

9 10 A.M. Boston Dispensary 25 Bennet Street Boston. Heart Clinic. Dr. Samuel H. Proger

3 30 P.M. Medical Clinic at the Peter Bent Brigham Hospital.

Friday February 21—

9 10 A.M. Boston Dispensary 25 Bennet Street Boston Some Aspects of Clinical Endocrinology (With Motion Pictures.) Dr. Lewis M. Hurxthal.

Sunday February 22—

4 P.M. Free Public Lecture Harvard Medical School, Building D Longwood Avenue The Role of the White Blood Cells in Health and Disease Dr. Henry Jackson Jr.

Open to the medical profession.

Open to Fellows of the Massachusetts Medical Society

February 14—William Harvey Society Auditorium, Beth Israel Hospital, Boston, at 8 P M.

February 14—Massachusetts Memorial Hospitals Surgical Section See page 339

February 17—A Joint Meeting to Discuss a Community Plan for Medical Care See page 339

February 17—Boston Medical History Club See page 339

February 18—The South End Medical Club Office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, at 12 noon

February 18—New England Ophthalmological Society See page 338

February 19—New England Physical Therapy Society See page 339

February 20—Medical Clinic Peter Bent Brigham Hospital See page 338

February 20—New York Harvey Society See page 339

February 20—The Journal Club of the Department of Obstetrics, Harvard Medical School. See page 338

February 24—New England Heart Association See page 338

February 24—Springfield Medical Association, 830 P M. at the rooms of the Springfield Academy of Medicine, 20 Maple Street

February 24 to May 16—International Medical Postgraduate Courses in Berlin. See page 1211, issue of December 12, 1935

February 25—Harvard Medical Society See page 338

March 2 6—The American College of Physicians See page 91, issue of January 9

April 20 24—A Postgraduate Institute in Philadelphia. See page 224, issue of January 30

June 15 19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory, Baltimore, Md

September, 1936—First International Conference on Fever Therapy See page 1325, issue of December 26, 1935

October 19 23—Clinical Congress of the American College of Surgeons See page 180, issue of January 23

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

March 4—Wednesday Lynn Hospital, Clinic 5 P M Dinner 7 P M Speaker Dr Timothy Leary Subject Arteriosclerosis

April 1—Wednesday Essex Sanatorium, Middleton Clinic 5 P M Dinner 7 P M Speaker Dr Richard H. Overholt of the Lahey Clinic Subject Chest Surgery

May 7—Thursday Censors' Meeting

May 13—Wednesday Annual Meeting Salem Country Club Dinner at 7 P M. Speaker Dr Paul White Subject to be announced later

R E STONE, M.D., Secretary

88 Lothrop Boulevard, Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings are held on the second Tuesdays of March and May at the Weldon Hotel Greenfield at 11 A.M.

CHARLES MOLINE, M.D., Secretary

Sunderland

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings to be held at the Bear Hill Golf Club, Stoneham, at 12 15 P M.

March 11, May 6

K L MACLACHLAN, M.D., Secretary
1 Bellevue Avenue, Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

February 25—Massachusetts Memorial Hospitals at 8 P M Papers by the staff

March 31—Hotel Kenmore, at 8 P M Dr Benedict F Boland—Cauterization of the Cervix Uteri Using Various Electrical Methods Illustrated with lantern slides

May—Annual Meeting (Place, date and subject to be announced)

The censors meet for the examination of candidates May 7, 1936 November 5 1936

FRANK S CRUICKSHANK, M.D., Secretary

1236 Beacon Street, Brookline

PLYMOUTH DISTRICT MEDICAL SOCIETY

March 19—Plymouth County Sanatorium South Han-
son

April 16—Brockton Hospital

May 21—Lakeville State Sanatorium

G A MOORE, M.D. Secretary
167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

March 18—Meeting at the Boston Medical Library The Laboratory and Clinical Story of Fatigue Dr Arlie V Bock and Dr David B Dill Discussion Dr Donald J MacPherson and Dr Augustus Thorndike Jr

April 29—Annual Meeting at the Boston Medical Library The Treatment of Septicaemia, Dr Champ Lyons The Pleurality of Scarlatinal Streptococcus Toxin Dr Sanford B Hooker Discussion Dr Hans Zinsser

The medical profession is cordially invited to attend all of these meetings

ROBERT L DeNORMANDIE M.D., President,
CHARLES C LUND, M.D., Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

March 11—Wednesday evening Memorial Hospital, Worcester, Mass Dinner and scientific program Subjects of program to be announced later

April 8—Wednesday evening Hahnemann Hospital, Worcester, Mass Dinner and scientific program Subjects of program to be announced later

May 13—Wednesday afternoon and evening Annual Meeting of Society Time, place and details of program to be announced in an April issue of the Journal

ERWIN C MILLER, M.D., Secretary

27 Elm Street, Worcester

BOOK REVIEW

The Sexual Relations of Mankind Paolo Mantegazza. 335 pp New York Eugenics Publishing Company \$6 00

Singularly modern in its point of view is this translation of Mantegazza's *Gli amori degli uomini*, first published in 1885 Mantegazza was a physician, laboratory worker, traveler and anthropologist, this compendium of the love-customs of the tribes and races of the world reflects the mental attributes of a man educated as he was At the same time he was an Italian, and as he himself tells us (p 290) "As I see it (and I trust no one will take offense at this), the Italians are the foremost lovers among civilized races"

The book consists of a great collection of facts regarding various phases of the sexual side of life, including the Festivals of Puberty, The Sexual Embrace and Its Forms, Mutilation of the Genitals, Sexual Choice, Position of the Woman in Marriage, Monogamy, Polygamy and Polyandry and so forth The customs of many outlandish tribes, some of whom the author himself had visited, are presented in a scientific manner, free from sensationalism It has become one of the source-books for this sort of information The presentation of these facts is often accompanied by Mantegazza's comment, at the end of the book he submits a list of what he considers to be the first signs of a better future for love These points, written fifty years ago, might well be taken from the present day writings of one of our most free thinking writers They are as follows

"Less ignorance of sexual matters on the part of young girls

"Free choice on the part of both sexes, in place of a contract imposed by parents and endured by their offspring

"Less hypocrisy

"Restitution of its dignity to marriage, divorce being surrounded by wise precautions

"And finally—and do not be scandalized by this—a sincere and clean-cut separation of free and sexual love from that troth which is plighted between two creatures, who have come to know each other thoroughly well over a period of time, and who are animated by a desire to found a family"

The New England Journal of Medicine

VOLUME 214

FEBRUARY 20, 1936

NUMBER 8

ENDOMETRIOSIS*

With Particular Reference To Conservative Treatment

BY RICHARD B. CATTELL, M.D.,† AND NEIL W. SWINTON, M.D.†

ENDOMETRIOSIS is a relatively frequent finding of the pathologist at autopsy and during the examination of the surgically removed uterus and adnexa. In spite of the clinical interest in this subject since Sampson's original work, a preoperative diagnosis is rarely made, its presence may not be recognized at the time of operation, and the end results of radical and conservative treatment are too little known. While there have been many reports in the literature since Sampson's^{1,2} articles of 1921, most of the discussions on this subject have been concerned with the origin and mode of transmission of this lesion and few papers have appeared dealing with the end results following surgical treatment. Only by the addition of further groups of cases to the literature can a true appreciation of the importance and clinical nature of endometriosis be obtained. Certainly there is every evidence that the lesion is much more common than was previously suspected. We wish to present a brief résumé of the literature and to report forty three cases observed at the Lahey Clinic together with the end results of treatment.

Endometriosis is an abnormal growth of endometrial tissue in an alien location. This term was adopted by Sampson to avoid the confusion of terms which had been used in the literature. The terms adenomyoma, adenomyosis, chocolate cyst, hemorrhagic perforating cyst, menstruating cyst, and others have since been abandoned as misleading or incomplete. The use of the term endometriosis implies, as Graves³ suggests, an acceptance of Sampson's theories of etiology. The tumor manifestations of this disease are expressed by the word endometrioma, first mentioned by Blair Bell⁴ in 1922.

Von Rokitsansky⁵ in 1860 described adenomyoma as a pathological entity for the first time. Between 1893 and 1896 von Recklinghausen⁶ published a series of articles ascribing the origin of these tumors to the development of rests in the wolffian ducts. Cullen⁷, in 1896, made the first mention of an adenomyoma of the round ligament and since that time he has added considerable knowledge to the general sub-

ject. Russell, in 1899, first described endometrial tissue in the ovary. Pick⁸, in 1905, described four cases of what he called "adenoma endometrioides ovarii" and his description of endometrial tissue in the ovary has not been improved upon. He believed that the extra uterine growth arose from Gartner's ducts and the paroophoron. Blair Bell⁴, Fletcher, Shaw⁹, and Donald¹⁰ presented early reports from England while Norris, Casler, Schwarz^{10,11}, and Cullen¹² reported early cases in this country. Previous to 1921, when Sampson made his original report covering twenty three cases less than twenty instances can be found in the literature. Janney¹³ reported a series of observations made previous to the publication of Sampson's work but these were published later. Meyer first published his serosal theory in 1919. He believed that the germinal epithelium of the surface of the ovary retains its embryonal stage potentialities of growth and may differentiate into endometrial like tissues. Novak¹⁴ accepted this explanation and believed that dissemination through the peritoneal cavity arises from that point. It has been the observation of several writers that the celomic epithelium creates endometrial like tissue by a process of metaplasia and Sampson, in later publications, does not deny this possibility. Sampson^{15,16}, however, was the first to advance the theory that the endometrial like tissue found in ovarian substance was not a metaplastic change from embryonic remains but represented true endometrial tissue which had been regurgitated through the fallopian tubes in the menstrual blood and become implanted in the ovaries. While it is true that Sampson's theories may not account for all the endometrial like tissue in the abdomen and pelvis, his theories have not been disproved, and we feel that when true aberrant endometrial tissue is encountered, its presence can be explained by his theory. For a more complete résumé of the literature one should refer to the excellent discussion by Graves¹⁷.

It has been difficult to determine the incidence of endometriosis. Sampson had reported 188 cases up to 1929. While doing 296 pelvic operations he found the lesion sixty four times or in approximately 22 per cent. In the same year Smith¹⁸ reported 159 cases observed at the Free

From the Lahey Clinic, Boston, Mass.
†Catell, Richard B.—Surgeon, Lahey Clinic, New England Deaconess and New England Baptist Hospitals. Swinton, Neil W.—Surgeon, Lahey Clinic. For records and addresses of authors see This Week's Issue, page 331.

Hospital for Women while Keene and Kimbrough²¹ in 1930 reported 118 cases. In the past five years we encountered the lesion in forty-three patients during which time over 400 hysterectomies were done. From these observations endometriosis must be considered a relatively common lesion.

The age incidence of endometriosis closely parallels the age incidence of menstruation. The youngest patient in our series was twenty-two years, while the oldest was sixty-two years, the

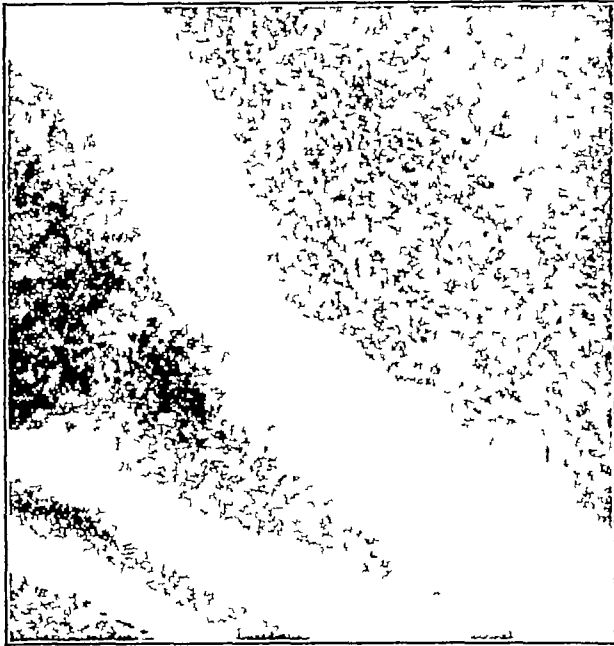


FIGURE 1 Ovarian endometriosis

Mrs. C. K. aged thirty-three married for six years with no pregnancies. Five years previously suspension and appendectomy had been performed. At operation there were dense adhesions in the pelvis with multiple chocolate cysts involving both tubes and ovaries. She had been well four years since operation.

average age incidence was 37.1 years. Smith⁵⁵ reports an age variation of twenty-three to seventy-two years with the majority occurring between thirty and fifty years. Keene and Kimbrough²¹ report age limits of twenty-two to sixty years with only two beyond the menopause. In an early series of forty-nine cases Sampson^{39, 49} found four cases under thirty (8 per cent) but in our series ten or (23 per cent) were under thirty years of age. Twenty-seven of our patients were married and sixteen were single. Of the married group, fifteen had borne an average of 3.2 children. In the remaining twelve, one had been married but two months, another had had one miscarriage in three years of married life, and ten had not had children. This gives a sterility index of forty per cent. Nine of these sterile cases had ovarian endometriosis, while one had a rectovaginal lesion. Smith's⁵⁵ sterility index was 20.6 per cent and Keene and Kimbrough²¹ found 40.9 per cent sterile.

Cases have now been reported showing endometriomata in all pelvic organs and in many

other localities. The ovary is the most common site, and in our series twenty-six cases showed ovarian implants, 40 per cent of these being bilateral. Graves¹³ reports a bilateral involvement of the ovaries in 30 per cent. The uterus is the next most common site, nine of our cases showed lesions in the wall of or on the surface of this organ. Rectovaginal endometriosis is less common but in the presence of bowel obstruction it is important to differentiate this condition and carcinoma of the rectum. There were four patients in this group, two of whom had bowel obstruction. We believe that all obstructive lesions in the rectum must be considered malignant until proved otherwise. However, with no history of bleeding or mucus in the stools and with a normal appearance of the mucosa at the site of the obstruction on proctoscopic examination, one must suspect that the lesion may be endometriosis. The round ligament, intestinal wall, fallopian tube, abdominal sac, appendix, and the peritoneum were the sites of the lesion in our other cases. Endometriomata have been reported also in the groin, bladder, umbilicus, omentum, vulva, perineum and vagina.

The duration of symptoms in our series varied from thirty-six hours to ten years. Acquired dysmenorrhea, pelvic and lower abdom-



FIGURE 2 Adenomyoma of the uterus

Miss E. P. aged thirty-five, had had menorrhagia for three months. Pelvic examination showed moderate irregular and nodular enlargement of the uterus. This illustration shows the distribution of the adenomyoma in the uterine wall.

inal pain, abnormal menstruation, backache, leucorrhea and lower abdominal tumor, named in the order of frequency, were the principal complaints in our group. Keene and Kimbrough²¹ add to this group bladder or rectal pain, associated with menstruation, as being a frequent symptom. They point out that the abnormal bleeding may be due to the associated

lesions which are frequently found. We feel that this fact should be kept in mind in considering most of the complaints of these patients who have endometriosis. Other symptoms are associated with lesions in particular localities. As already mentioned, the recto-vaginal group is particularly important, because symptoms of intestinal obstruction may occur. Graves¹² and Sampson¹³ and more recently Meigs¹⁴ have reported interesting cases of this nature. Ovarian endometriosis may simulate salpingitis or appendicitis. Lesions of the round ligaments usually present tumors near the external ring which show tenderness and swelling at the time of menstruation. Endometriomata may appear as tender nodules in the groin, or perineum or vulva. Bladder endometriosis may be mistaken for malignancy. Keene¹⁵ in 1925 reported the first case of this nature. Some of the most interesting cases of endometriosis have been transplants in abdominal wounds. These lesions are usually soft, dark-colored tumors which become engorged and painful at the time of menstruation, or there may be actually menstruating sinuses. Meigs¹⁴ case four in his 1930 series was most interesting. It presented a menstruating sinus which had apparently been caused by the transplantation of endometrial tissue during ventral fixation of the uterus. Endome-

A preoperative diagnosis of endometriosis is seldom made. Three such cases were recognized before operation in our series and several more had this tentative diagnosis, one was an obvious lesion of the round ligament while the other two caused obstruction of the sigmoid at the time of menstruation. Smith¹⁶ in his series of 159 cases reports that endometriosis was considered in about twenty instances. Shirer¹⁷ made no preoperative diagnosis in thirty patients observed. Ovarian endometriosis will always be difficult to differentiate from chronic pelvic in-



FIGURE 4. Endometriosis of the round ligament. Mrs. B. W., aged thirty nine had one pregnancy during nineteen years of married life. A lump had been noted in the right groin for nine years changing in size during menstruation. Low power magnification.

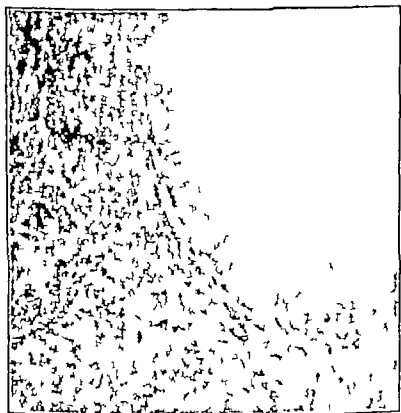


FIGURE 3. Adenomyoma. High power magnification of the same case as figure

trial tissues in the appendix may cause symptoms suggestive of appendicitis. Outerbridge¹⁸ in 1917 and 1925 reported cases of this nature.

Physical examination of these patients is usually not characteristic in most cases. However, if the lesion is in the umbilicus round ligament, perineum or abdominal scar the findings may be quite obvious when the symptoms are associated with menstruation.

flammation. Graves¹² states that when the posterior cul-de-sac and rectal wall are involved there is a peculiar, puckered, nontender, induration which an experienced examiner can at times differentiate from a posterior parametritis. We feel that with an increasing realization of the frequency of endometriosis and with a better knowledge of its clinical manifestations the condition will more often be suspected previous to operation. Such symptoms as abnormal menstruation, sterility, acquired dysmenorrhea, and lower abdominal pain should make one consider endometriosis particularly when associated with a fibroid uterus and malpositions of the uterus.

There is a very high incidence of associated lesions with endometriosis. Some observers have thought that an enlarged uterus may be instrumental in producing the backwash of menstrual blood through the tubes. Adhesions and abnormal positions of the fundus were most common in our series, occurring in seventy per cent of the cases. Fibroid uterus was next common,

occurring in forty-nine per cent. Much less commonly were found chronic salpingitis (diagnosed microscopically) twenty per cent, and simple ovarian cysts, fifteen per cent. Two cases of fibrosarcoma of the ovary were found in our series although they had no association with endometrial tissue. We did have, however, one case of bilateral ovarian endometriosis with an adenocarcinoma arising from the endometrial tissue. Sampson found endometrial tissue in seven of sixteen cases of carcinoma of the ovary. Smith⁵⁵ found malignancy in seven per cent of his cases of endometriosis and believes that these implants may undergo malignant degeneration.

The pathology of endometriosis varies somewhat with the locality involved, but the lesion

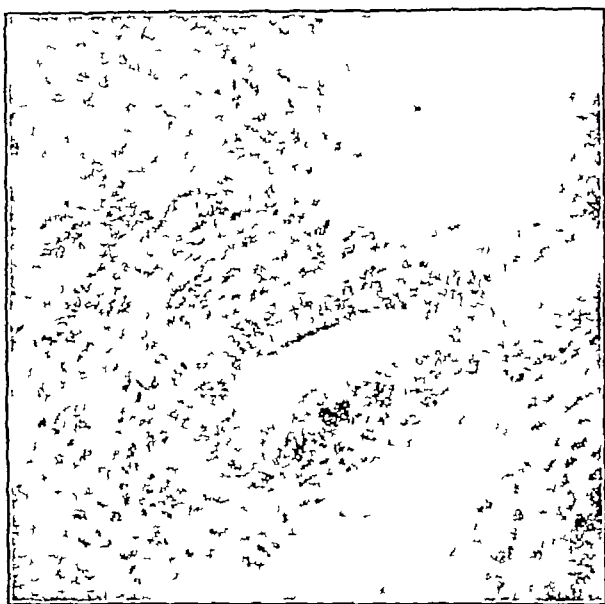


FIGURE 5 Higher power magnification of endometrioma of round ligament

itself is usually quite characteristic. In the ovary the so-called "chocolate cyst" is typical. These vary from small spots on the surface of the ovary to quite sizable cysts of fifteen to twenty centimeters in diameter. In 30 to 50 per cent of the cases, the cysts are bilateral. They may lie on the surface of the ovary or deep in its substance and may be multiple in the same ovary. They may take up the entire structure of the ovary. The cysts are lined with a low cuboidal epithelium and are surrounded with stroma resembling that of endometrium of the uterus with similar glands and tubules. This tissue undergoes the same changes as occur in the endometrium of the uterus during menstruation. There is a discharge of blood and desquamated cells into the cavity of the cyst, similar to that into the cavity of the uterus. Here, however, there is no outlet for the blood, and it may be retained in the cavity of the cyst or may rupture through the capsule into

the abdominal cavity. The retention of blood in these cysts gives the characteristic chocolate or tarry content. The discharged blood creates a reaction in the surrounding peritoneum which is responsible for the multiple, firm, tenacious, adhesions so commonly found associated in the pelvis in these cases. Further endometriomata may be found in these adhesions themselves, or may be spread in this manner to other structures. At times, the entire pelvis will be found to consist of one conglomerate mass of firm adhesions and endometriomata. Graves¹³ mentions the frequency, with which, in these cases of extensive adhesions, the tubes are free from involvement, and thus agrees with our experience. He feels that this is an important differential point from inflammatory lesions of the pelvis. Although twenty per cent of our patients showed chronic salpingitis on microscopical study, we did not feel that the tubes in the majority of the cases were abnormal at the time of operation.

When we consider our cases of "Chocolate Cysts", that did not show endometrial tissue on section, we are faced with several possibilities. Endometrial tissue may have been present and not found, but as we review the literature and find that most every observer has had similar experiences, we do not believe that this is so in all instances. Some may be corpus luteal cysts with hemorrhage. Some may be occlusions from the germinal epithelium and due to the influence of the ovarian hormone, undergo endometrial-like changes. They may be simple cyst adenomata of the ovaries with hemorrhage. MacCarty²⁷ emphasizes the black or tarry appearance of the latter, rather than the chocolate-colored content of the endometrial cyst. There seems to be no doubt that all hemorrhagic cysts of the ovaries are not necessarily endometrial in origin. This fact should be remembered when treatment is being considered.

Adenomyomata of the body of the uterus closely resemble ordinary fibroids. They, however, are not definitely circumscribed and cannot be easily shelled out of their surrounding structures. They are usually found near the uterine horns or on the posterior wall of the fundus, but they may be in any position where ordinary fibroids occur. They are made up of coarse, fibrillary fibromyomatous tissue which merge with the uterine wall. Within are glandular elements which may become filled with blood and many resemble chocolate cysts. They are usually small and seldom are they recognized at operation.

Rectovaginal endometriosis is usually first noted as a smooth hard lesion just behind the cervix. As it grows, it gradually involves the anterior rectal wall and may go on to the stage of obstruction. The lesion may involve the vagina early in its course and the diagnosis can be established by biopsy.

The treatment of endometriosis depends on the location and the extent of the lesion, the age, and general physical condition of the patient. Complete involvement of the ovaries and the necessity for castration have been rare in our experience. Three of our patients have had children following the removal of one ovary for endometriosis. Of four patients treated conservatively by Wharton², three subsequently bore children. Keene and Kimbrough found that twenty-eight per cent of their patients treated conservatively later had normal pregnancies. The removal of all ovarian tissue in young women is a very serious matter and we do not feel that it is warranted in this disease where local excision can be performed. In women over forty years of age supravaginal hysterectomy with removal of tubes and ovaries is indicated. In poor risk patients, it is to be remembered that castration will cause the lesion to recede and usually relieve symptoms. In this group, the production of an artificial menopause through the use of Roentgen therapy should be considered.

In the rectovaginal group, where intestinal obstruction has not occurred, the disease can be relieved by local excision followed by the production of an artificial menopause. Where intestinal obstruction has occurred the obstruction must first be relieved by colostomy. This colostomy should be done in such a manner that it can later be closed, since following the removal of the ovaries the lesion will regress and the obstruction will be relieved.

In bladder endometriosis, the production of an artificial menopause will cause the lesion to disappear. In endometrial tissue of the appendix, the removal of that organ will remove all trouble. Local excision will usually cure other types of endometriosis.

In the accompanying table, we have recorded

seventeen cases treated radically was 41.5 years. The average age of the conservative group was 29.2 years. The average follow up in both groups was approximately 25 years. In our group, treated by bilateral removal of the ovaries, all were cured. In the conservative group, two of our patients were improved, while the remainder were relieved. One patient still has nodules at the apex of the vagina, and has occasional lower abdominal pain. She prefers this situation, to castration, since she plans marriage. Another patient has had a biopsy of a small rectovaginal lesion and is now receiving Roentgen therapy. There were no cases in either group unimproved and there was no operative mortality.

SUMMARY

A series of forty three cases of endometriosis are reported together with a brief résumé of the literature. The incidence, location and symptomatology are presented.

A preoperative diagnosis of endometriosis is seldom made but the lesion should be suspected in the presence of abnormal menstruation, sterility, acquired dysmenorrhea and abnormal pelvic findings. The lesion is much more frequently recognized than formerly.

We wish to emphasize the importance of conservative treatment of endometriosis during the active child bearing period. Three patients in this series having ovarian endometriosis following removal of one ovary subsequently had children.

The end results after both conservative and radical treatment are satisfactory in properly selected cases.

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Observer	RADICAL							CONSERVATIVE					
	No Cases	No Cases	Cured	Imp	Not Imp	Ave. FU	Ave. Age	No Cases	Cured	Imp	Not Imp	Ave. FU	Ave. Age
Lahey Clinic	43	33	100%	0%	0%	2.3 yr	41.5 yr	21	90%	10%	0%	3.0 yr	29.2 yr
Wharton ²	13	9	100%	0%	0%	3 yrs		4	75%	0%	25%	3 yrs	
Read and Roques ³	41		86%	9%	5%				71%	20%	9%		
Keene and Kimbrough ⁴	118	60	98.3%	(1 death)				48	95.8%	4.2%	0%		
Smith ⁵	159		100%	0%	0%				67.5%	33.5%	0%	(2nd op in 9.3%)	

ed our end results in this group of cases, as well as those of several other observers. We have divided them into two groups, those treated radically, that is by castration, and those treated conservatively where all ovarian tissue had not been removed. The average age of our

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HUTCHINSON-BOECK'S DISEASE (GENERALIZED "SARCOIDOSIS")*

Historical Note and Report of a Case With Apparent Cure

BY FRANCIS T HUNTER, M D †

"Names are good servants but bad masters"
(Jonathan Hutchinson)

IN presenting the following communication the author has two objects, that of clarifying a minor point of medical history, and that of again drawing the attention of the practitioner to a rare but most interesting pathologic entity. In its history this malady not only reveals the scant attention often paid by investi-

gators to prior observations in the literature, but illustrates the disadvantages of multiple designations for a single disease and of a too rigid specialism in medicine, the latter is exemplified by the fact that after Caesar Boeck's paper (which gave the name to the disease) thirty-five years elapsed before any concerted attempt was made to correlate the known data on this morbid condition. That the patient whose case history is to be presented regained his normal health, though of no little interest, is possibly of less importance than that he suffered from an affection observed for the first time sixty years

*From the Medical Department of the Massachusetts General Hospital, Boston Mass

†Hunter Francis T—Assistant Physician Massachusetts General Hospital. For record and address of author see "This Week's Issue" page 331.

ago by Hutchinson, reported as involving the internal organs twenty years ago, by Kuzmitzky and Bittorf, and whose protean manifestations are even now scarcely recognized

As a number of investigators (such as Boeck, Besnier, Tenneson, and Hutchinson) have been eponymically associated with the condition commonly called "sarcoïd", it seemed possible that a careful re-reading of the early papers on the subject might bring to light new facts of historical interest. This conjecture proved to be correct. In the course of the inquiry it soon became obvious that Jonathan Hutchinson, four teen years before Besnier and twenty four years before Boeck, had specifically called the attention of practitioners and dermatologists to the skin manifestations of the malady. His name, to most physicians, connotes only the characteristic teeth seen in congenital syphilis but, his unflagging curiosity, his keen powers of observation, and his passion for intelligent note-taking stimulated him to write voluminously on many other subjects. "His *Archives of Surgery* (1889-1899) consisted of ten volumes,* issued in periodic form, the entire contents written by himself, forming a great storehouse of original observations on disease, which will some day be studied like the works of John Hunter." Accordingly, a certain amount of attention will be devoted to him and to his relations with Caesar Boeck in order that the reasons for believing him to be the first to describe "sarcoïd" may be made clear. Those authors who later drew attention to the involvement of the internal organs by the same pathologic process will be considered very briefly, since several reviews of the literature accompanied by adequate bibliographies have already appeared in print

HISTORICAL

Jonathan Hutchinson, as early as 1869 observed a patient with peculiar purplish, raised lesions on the front of the legs, on the fingers, and on one forearm, which were irregular in size and shape, possessed sharp margins and smooth surfaces, and were neither tender nor painful. Associated with this there was brawny edematous swelling of one finger. In his *Illustrations of Clinical Surgery* (1875) Hutchinson¹ described the case in detail, published a chromolithograph of the patient's hand and after a year's observation remarked that medicine of various sorts had had no effect on the lesions. He further stated "During a visit to Christiansia in the summer of 1869 Dr Bidentkap was kind enough to show me the collection of pathological drawings in the University Museum, and amongst these was one taken from a patient of Professor Boeck, showing a pre-

cisely similar condition of things to that delineated in my portrait. The only particulars that I could ascertain were that it was from the hand of a Swedish sailor, who appeared to be in good health, and who was not known to have suffered from gout. Professor Boeck told me that it was the only example of its kind that he had ever seen."

When one recalls that this "skin" affection has been honorifically termed "Boeck's Disease", the above statement at first glance suggests that Caesar Boeck knew of Hutchinson's early case and deliberately failed to mention it when he wrote his own paper twenty four years later. But if one pays due regard to the dates and to the ages of the individuals concerned, this cannot be true. The Professor Boeck mentioned here by Hutchinson must have been Carl William Boeck (1808-1875), an acknowledged authority on syphilis and Caesar Boeck's² uncle

Moreover, in 1889, ten years before Caesar Boeck's important contribution, Besnier³ described a lesion of the skin to which he gave the name *lupus pernio* ("chilblain lupus"). Although acknowledging that his case was similar to the one delineated by Hutchinson (1875), he thought the two were not completely identical. He portrayed, however, involvement of the nose and face, and noted for the second time what he termed "*synovites fungueuses*" of the fingers. In 1892 Tenneson⁴ reported a similar case, but added nothing essentially new to the description of the disease except that the lobes of the ears might be affected. Three years after Tenneson's paper Besnier published his *Musé de la Hôpital Saint Louis* and included in it colored lithographic reproductions of the lesions of the nose and fingers, these plates, however, did not materially improve upon Hutchinson's lithograph of twenty years before.

In the meanwhile, the Dr Bidentkap mentioned above had succeeded Professor William Boeck in the professorial chair at Christiansia and had in turn, been followed by Caesar Boeck. It was, therefore as a professor that the younger Boeck, in 1899, described for the first time⁵ the morbid histology of the skin. His paper was published first in Norway and, with minor changes, a few weeks later in this country. In regard to the earlier reports in the literature he remarked "The only clinical description known to me which bears any resemblance to my case is given in a recent paper by Jonathan Hutchinson in his *Archives of Surgery*, October 1898." I dare not say that the skin affection there described as "Mortimer's Malady"⁶ is identical with my case since the latter shows some very marked clinical features not found in Mortimer's disease, and since Mr

The series runs from 1889 to 1900 and contained, of all the last of which was not completed and sent to the subscribers until 1910.

Hutchinson frequently called new syndromes or diseases by the name of the patient—in this case Mortimer—although other and more scientific names might be devised, it is perhaps doubtful whether they would be more convenient."

Hutchinson has had no opportunity to examine his cases histologically. Nevertheless, I am inclined to believe that they are only variant types of the same group of diseases and perhaps, later on, may be found to represent benign forms of so-called pseudoleukemic affections of the skin." We must assume, therefore, that Boeck did not regard the cases reported by Besnier and Tenneson as similar to his own.

One might wonder, at this point, why Hutchinson had not investigated more thoroughly these two patients with "Mortimer's Malady", for he had presented one of them to the Dermatological Society of London about 1894. In respect to this, however, he writes "The general opinion was, I believe, that the disease was sarcoma, and it was strongly urged that portions should be removed for microscopic examination. This was subsequently suggested to the patient, and with the result that I did not see her again for two years."⁹ This statement, apparently, explains his "lack of opportunity to examine his cases histologically." It is probable that he did not dare suggest a biopsy to the second patient.

It now appears that Hutchinson not only enjoyed the friendship of Professor William Boeck but was acquainted as well with the nephew Caesar, for he, Hutchinson, was president of the Dermatological Congress of London in 1896.¹¹ At this meeting Caesar Boeck, as vice-president for Norway, presided over one of the sections, and at the gala banquet responded to a toast. Doubtless, too, Boeck attended the garden party at Haslemere⁶ given to the members of the Congress by Hutchinson and his daughter. So when, in 1898, Hutchinson¹² referred to a recent visit of his "esteemed friend, Professor Boeck of Christiania", obviously from the date, the latter could have been none other than Caesar Boeck, since the uncle had died in 1875. From this one might assume that the younger Boeck knew of Hutchinson's visit in 1869 to his uncle and of their discussion of their similar cases. But since there is no suggestion in Hutchinson's writings that he considered his own case of 1875 as one of either "Mortimer's Malady"^{10, 13} or of "Mabey's Malady",^{14, 15} the likelihood that Caesar Boeck was entirely unacquainted with it,—the first to be reported in the literature,—seems most probable.

The next important contributions came from the roentgenologists. As early as 1902 Kienbock¹⁴ noted on x-ray examination curious "cysts" in the digits and toes of a twenty-seven year old patient who had acquired syphilis five years previously, but in those early days of roentgenology he attributed the findings to lues

Kreibich¹⁵ in 1904 definitely associated these roentgenologic lesions with *lupus pernio*, but, in ignorance of this, Remijnse¹⁶ in 1907 reported a case of "dactylitis syphilitica" accompanied by generalized lymphadenopathy in a patient who gave no definite evidence of congenital or acquired lues and who showed no lesions on the skin. The excellent skiagrams of the osseous changes which he reproduced in his paper would now be considered quite characteristic of "sarcoid." In a paper published in 1910 Rieder¹⁷ re-described the roentgenologic appearance of the phalanges in two of his patients, and again observed that each one had active *lupus pernio*. Thus a decade passed with no important contributions other than descriptions of the bony lesions.

Five more years elapsed before involvement of the internal organs was noted. In 1915, Kuznitzky and Bittoif¹⁸ reported a case of skin "sarcoid" with evidence of morbid changes in certain of the viscera. A biopsy of the skin showed the histologic pathology previously pictured by Boeck, but in addition, the patient exhibited lymphadenopathy and splenomegaly, the blood examination revealed a leukopenia and eosinophilia, and mottled infiltration of the lungs with some enlargement of the hilar glands was demonstrated by the x-ray. Schaumann¹⁹, in 1917, in describing the microscopic appearance of the lymph glands and later²⁰ of the osseous lesions, identified *lupus pernio* and Boeck's sarcoid as one and the same disease. Finally Jüngling²¹ (1919) not only again described the "cystic" appearance of the phalanges seen on x-ray examination, but biopsied the soft tissues of one finger, found the characteristic microscopic changes described by Boeck, and gave to the bony deformations demonstrated by the x-ray the term "ostitis tuberculosa multiplex cystica."

Scattered papers depicting either the clinical or histological changes in the lymph glands or internal organs began to appear in print during the next ten years. Raschin²², Bernstein²³, Goeckerman^{24, 25}, Bernstein, Konzlemann and Sidhek²⁶, Doub and Menagh²⁷ all contributed pertinent observations. Between 1931 and 1934 other cases with visceral involvement were recorded by Kiklin and Morton²⁸, Funk²⁹, Bayer³⁰, Bergel and Scharff³¹ and Sannicandro³². In 1932 an important monograph was published by Kissmeyer³³ which summarized the previous contributions to our knowledge of the disease and included many original observations of his own. In May of 1934, the *Réunion Dermatologique de Strasbourg*³⁴ devoted itself entirely to the consideration of "sarcoid." This symposium brought out a number of unique aspects of the malady, papers being contributed by dermatologists, internists, pathologists and roentgenologists from Germany, Switzerland, France, Sweden and Denmark. At this meeting

*For a delightful description of Hutchinson's country home see the article by William Osler. Phila. Med. Jour. 41: 453-455 1899. (This is a hitherto uncatalogued letter by Osler.)

**Mabey was another patient of Hutchinson.

Kissmeyer acquiesced to the suggestion that the name he had bestowed upon the condition be changed from "La maladie de Boeck" to "La maladie Besnier Boeck". From the historical evidence here presented, however, I believe the malady should properly be called "Hutchinson Boeck's disease" or "Hutchinson Boeck's Sarcoid."

HUTCHINSON BOECK'S "SARCOID"

The second and chief purpose of this paper is to draw again the attention of the medical profession to the protean manifestations of this bizarre condition. Neither, strictly speaking, a disease of the skin nor related to sarcoma, practically always benign in its course, its etiology has to date remained undetermined. Although thought by some to be a manifestation of tuberculosis, in the majority of cases the tuberculin test and the usual animal inoculations of tissue have given negative results, but those who believe in tuberculosis as the cause of the disease explain these negative tests by assuming that the histologic changes are a result of "anergy" to the chemical products of the tubercle bacillus. Because a similar microscopic pathology is at times seen in leprosy, syphilis, and in certain instances after subcutaneous injection of oil or paraffin, some authors, particularly the French school, speak of a "terram sarcoïdique". Finally, Kissmeyer and his followers refuse to accept tuberculosis as the etiologic factor, and, although offering in confirmation nothing but negative evidence regard the disease as due to an unknown organism or virus and therefore entitled to be considered an entity *sui generis*.

In the field of *pathologic histology*, very little has been added to Boeck's original description—foci of endothelial cells with a thin margin of lymphocytes and connective tissue septa, no tendency to necrosis, caseation, or accumulation of Langerhans' giant cells,—an appearance somewhat similar to that seen in tuberculosis. This histologic picture has been recorded not only in the skin, but in the lymph glands, spleen, lungs²¹, bones, mucous membranes, conjunctivae, and parotid gland.

Treatment has usually consisted either of local therapy such as fulguration of the skin lesions, or of general measures such as arsphenamine intravenously or Fowler's solution *per os*, but due to a tendency of the affection to spontaneous remissions, the efficacy of these procedures has been difficult to evaluate. Recently Lomholt²² has reported good results in twelve cases from injections of "antileprol", but he has not as yet followed his patients over a sufficiently long period of time to confirm this impression. In the present instance the patient was induced to give up exercise, to go to bed

in the afternoon and early in the evening, to get as much sunshine on the bare skin as possible, and take large amounts of cod liver oil and extra amounts of milk. The results of this régime, over four and a half years' time, were impressive.

CASE REPORT

The case is that of a white male married, American high school teacher aged thirty six, who entered the hospital May 19 1931 complaining of weakness and loss of weight of one year's duration.

Present Illness Four years ago he noted a superficial lesion on the chin and some time thereafter similar lesions appeared on the face, trunk, and upper extremities. During the next three years the patient tried several different remedies and an equal number of doctors without amelioration of his condition. One year ago he appeared in the Dermatologic Clinic and at that time showed several firm elastic, dull red, pea-sized nodules on the chin and about the corners of the mouth. Fowler's solution was prescribed, but there was only slight improvement. A lesion on the left shoulder was biopsied and a pathologic diagnosis of "sarcoid" was made. Several of the skin lesions were fulgurated with a high frequency current with some cosmetic improvement.

For the past year his strength had been falling and he had declined from 155 to 142 pounds in weight. Three or four months prior to entry an additional symptom, consisting of a slight cough accompanied by occasional nausea and vomiting on arising in the morning made its appearance. At or about the same time he began to note gaseous eructations and epigastric distress at various times during the day apparently unrelated to meals. Eight weeks before entry he was examined in the Medical Clinic because there had been no improvement in his skin condition and because pathology in the chest had been observed on fluoroscopic examination. A roentgenogram revealed large lobulated shadows at the lung roots and he was consequently referred to the Tumor Clinic as a case of probable lymphoblastoma.

The family and marital histories gave no significant information.

Past History He had never had an important infectious disease. In the U S Infantry during the World War he had received severe shrapnel wounds which involved the left frontal region of the skull the posterior aspect of the left shoulder and the soft tissues of the left upper arm and for these had undergone numerous operations. During the past thirteen years since the war he had experienced two generalized convulsions lasting a few minutes each which he attributed to temporary digestive disturbances. Aside from frequent attacks of sinusitis and slight dyspnea on exertion the rest of the past history was negative.

Physical examination showed a well-developed and nourished man, with some weight loss. There were numerous 0.5 to 1 cm slightly umbilicated dull purplish red non tender shiny nodular lesions with small surrounding areas of induration scattered over the face, trunk arms and upper legs, and which seemed to show a predilection for the old shrapnel scars. There was a large flat, atrophic scar over the posterior aspect of the left shoulder the result of an old burn and a linear scar on the mesial aspect of the left upper arm the result of an operation for a gunshot wound. On the skull there was a circular bony defect (2 x 2.5 cm.) in the left frontal region with visible pulsation synchronous with the radial pulse and which bulged on cough

ing There were several 1 cm glands under the angles of each jaw and a similar sized one below the symphysis of the mandible there were two 4 cm rather soft, nontender, slightly matted glands in each axilla and in each groin, a 1 cm gland could be palpated in the right posterior cervical triangle. The lungs showed no abnormalities to percussion and auscultation. On examination of the abdomen the tip of the spleen was easily palpable 2 to 3 cm below the costal margin on deep inspiration, and on deep pressure there was slight tenderness in the right upper quadrant and epigastrium. The liver edge was not felt.

Laboratory findings Urinalysis was negative. Blood examination showed white blood corpuscles 9,800, red blood corpuscles 4,650,000, hemoglobin 80 per cent. The blood smear showed polymorpho-

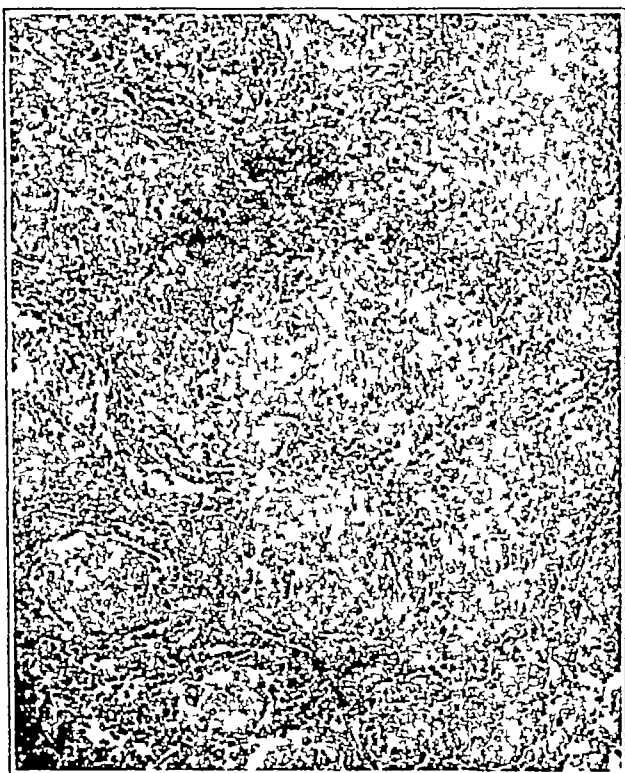


FIG 1 Microscopic section of axillary gland removed for pathological examination. Note collections of epithelioid cells without giant cells or caseation

nuclears 65 per cent, small lymphocytes 14 per cent, mononuclears 20 per cent, eosinophils 1 per cent, platelets slightly increased, the red blood corpuscles normal in appearance. The Hinton test was negative. An intradermal tuberculin test was moderately positive. During the patient's stay in the hospital the temperature varied from 97.5° to 100.5°.

A biopsy of the lymph nodes in the axilla was performed and, at the same time, a skin lesion on the left forearm was removed for examination. **Pathological report** (Dr T B Mallory) The specimen consists of two enlarged lymph nodes, the larger measuring 1 x 2.5 x 4 cm. They are moderately firm and on section have moist, glistening, pinkish white finely lobulated surfaces. There is a small elliptical piece of skin measuring 1.5 x 1 cm. On microscopic examination the lymphoid tissue is largely replaced by well defined compact conglomerate tubercles showing little caseation. The section from the forearm shows the typical structure of the lesion which is usually called sarcoid.*

X-ray examination (Dr G W Holmes), April 27, 1931 (three weeks before entering the hospital) "No organic pathology in the stomach or duodenum. The diaphragm is sharply outlined on both sides and moves normally with respiration. There is rather soft, fine mottling at both lung roots. The changes are most marked around the root of the lung and gradually fade out toward the periphery. On the right side there is a narrow dense band extending across the chest in the region of the septum between the upper and middle lobes. There are large lobulated shadows at both lung roots. These shadows occupy the region of the hilus of the lung. They are quite dense and are about 8 cm long and 5 cm wide. They are roughly kidney shaped. There is no evidence of calcification. The heart shadow is large and prominent in the region of the right auricle. There is no increase in the supracardiac shadow. The aortic knob is indistinct. There is no erosion of the ribs or other abnormality of the chest wall. There is no evidence of enlargement of the peritracheal glands. The examination shows evidence of an extensive process involving both lung fields, the interlobar septum on the right and the hilus regions. It is accompanied by some dilatation of the heart. Lymphoblastoma is the most probable diagnosis." (See fig 2)* "The x-ray films of the hands show no deviation from the normal."

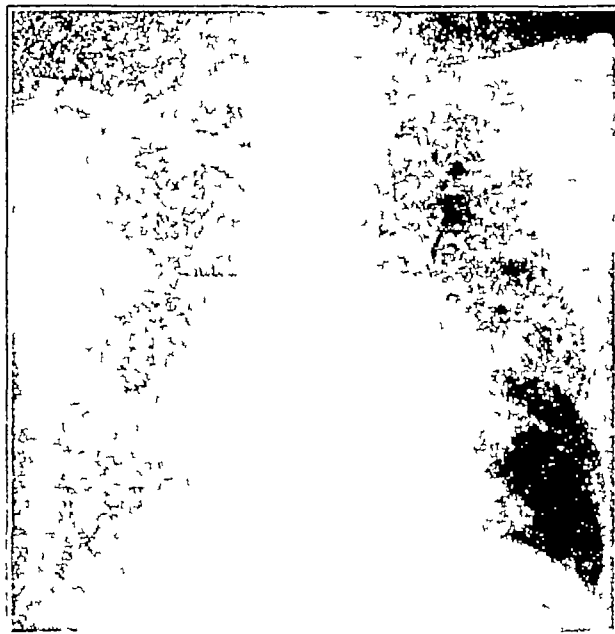


FIG 2 X-ray film of the chest May 15 1931 (See text)

Progress Notes June 15, 1931 On a modified tubercular régime (consisting of rest in the afternoon, cod liver oil, extra milk, etc.) there had been a gain of three pounds in weight and the glands seemed to be smaller.

August 3, 1931 The patient had gained eight pounds since discharge from the hospital. There were no new skin nodules. Several of the newly developed lesions had disappeared. The older lesions were healing well, a few having disappeared entirely. There was a 2 cm. gland in the right axilla, two 2½ cm glands in the left axilla, three or four 2 to 3 cm glands in the groin, and the spleen was palpable 1 to 2 cm below the costal margin.

*The reproduced x ray film was taken three weeks after the foregoing report was made but on comparison the two were almost identical in appearance.

September 11 1931 The patient was still gaining weight, having added twelve and a half pounds since leaving the hospital. His general health was excellent. The lesions which had been fulgurated were gradually fading and no new ones had appeared. The glands in the axilla measured about 2 cm. those in the groin had not changed in size. The spleen was just barely palpable on deep inspiration.

August 12 1932 Since the last examination a year ago the patient had been unusually well. He had gained steadily in weight up to 179 pounds. All the skin lesions had completely disappeared and had not recurred. On physical examination scars of the fulgurated skin lesions and a 2 cm. gland in each axilla were the only objective findings. The spleen could not be felt.

September 15 1933 For the past year the patient had enjoyed the best health since 1917. His weight had varied between 185 and 190 pounds; he felt physically more ambitious than he had for years, and seemed normal in every way. On careful questioning no symptoms of any sort could be elicited and no new lesions could be detected on physical examination. In the right neck there was still present a 1 cm. superficial nodule but no glands of importance could be felt in the axilla or groin, and the spleen was not palpable on deep inspiration. X-ray examination. "There is a definite and striking improvement in the appearance of the chest since the last examination. The lung roots now ever are still definitely abnormal. The millary and linear shadows in the lung fields have almost disappeared (Fig. 3).

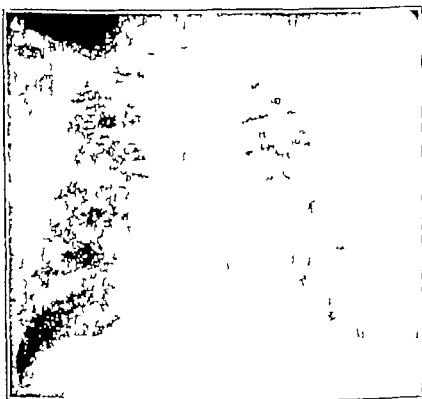


FIG. 3. X ray of the chest, September 1, 1934 (Forty months after treatment was begun.)

September 24 1934 Aside from occasional heart burn the patient's condition had remained excellent. Physical examination was entirely negative. X-ray examination. The gastro-intestinal tract showed no variations from the normal. The chest exhibited the identical appearance described the previous year.

October 31 1935 There was no evidence of disease on physical examination. X-ray films of the chest revealed no detectable differences when compared with those made in September 1933.

COMMENT

The evidence from the cases previously reported in the literature and from the one presented here is that "Hutchinson Boeck's 'sarcoid'" is a generalized systemic disease. It affects at times not only the skin, but the lymph glands,—both peripheral and those at the hilus of the lungs,—the spleen the parenchyma of the lungs, the phalanges of the fingers and toes, the mucous membranes, the conjunctivae and the parotid gland. In its power of invading many organs it simulates lymphoblastoma and is therefore a disease which should be recognized and studied by the internist, the surgeon, and the roentgenologist. Since iritis is not infrequently reported as a precursor or as accompanying the skin lesions, the ophthalmologist, too should be acquainted with it. One of the probable reasons it has remained so long overlooked by the internist is the multiple and philologically formidable nomenclature given it by dermatologists and others—Boeck's disease, Besnier's disease, Besnier Boeck's disease, Besnier Tenneson's disease, benign lymphogranulomatosis, sarcoid, multiple benign sarcoid of the skin, ostitis tuberculosa multiplex cystica, milary (or disseminated) lupoid, lupus pernio, and "chilblain lupus." It would simplify matters if all concerned would agree upon a single cog nomen at no distant date.

The case I have reported showed changes limited to the skin and reticuloendothelial system—lymph nodes and spleen, for although Kiss meyer doubts the involvement of the spleen in many of the reported cases, the fact that under treatment this patient showed a decrease of the splenic enlargement which paralleled the regression of the lymphadenopathy, cannot, in my judgment, be dismissed as fortuitous. It seems logical, therefore to assume that the spleen would have shown the same morbid histology as that demonstrated in the biopsied lymph gland.

This malady finally, offers a possible solution to another problem,—that of the true diagnosis in instances where apparently healthy patients without skin lesions, give evidence of increased hilus shadows accompanied by diffuse infiltration of the lungs at x ray examination—an appearance not infrequently reported by roentgenologists as tuberculosis. Are these patients suffering from Hutchinson Boeck's "sarcoid"? More careful roentgenologic and clinical observation may in the future throw light on this question.

CONCLUSIONS

(1) Hutchinson Boeck's Disease (generalized "Sarcoidosis") is a generalized systemic disease and may involve in addition to the skin,

the lymph glands, spleen, lungs, bones, mucous membranes, conjunctivae, and parotid gland

(2) Jonathan Hutchinson was presumably the first to mention the condition and deserves to be remembered as long as the disease is eponymically designated

(3) A case is reported with involvement of the skin, lymph glands (peripheral and hilar), and spleen,—with apparent cure after four and a half years' observation

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CATHARTIC TO MIX IN BREAD COSTS FOOD
FAKERS \$600 FINE

A powerful coal tar cathartic has no proper place in bread or any other product sold as a food. The Food and Drug Administration regarded phenolphthalein as an adulterant when it was used as an ingredient of what the manufacturer called a "laxative health bread." The Federal court at St. Louis, Mo., agreed with the food officials and imposed a \$600 fine on Edward Ownen, Frank Dawdy and Glenn Allmon trading under the fancy name of Bakers' Research Co.

This concern has been selling "Ownen's Viti-Veg" a mixture of flour, bran and between ten per cent and twelve per cent of phenolphthalein, a coal tar cathartic. This mixture was recommended to bakers for addition to their regular bread mix. The product was to be marketed as "laxative health bread."

Bread, a staple article of the diet and consumed by everyone from infancy to old age, should not be used to mask the presence of a powerful laxative, in the opinion of the Food and Drug Administration. W G Campbell, Chief of the Administration,

remarked recently, "It is peculiarly appropriate that the deliberate perpetrators of this, one of the most flagrant types of adulteration uncovered in recent months, should receive one of the largest recent penalties — \$600." Shipments totaling some 700 packages of "Viti Veg" were seized and destroyed last June—*Bulletin, U S Department of Agriculture*

CONNECTICUT MEDICAL AFFAIRS

THE TRI CITY MEDICAL SOCIETY

The February meeting of the Tri City Medical Society of Norwich, New London and Willimantic, Conn., was held Thursday evening, February 6, 1936, at Uncas-on-Thames, Norwich, Conn., with the President of the Norwich Medical Society, Dr John Raymer, presiding.

Dr William B Castle of Boston, Associate Professor of Medicine at Harvard University, delivered an informal talk on "Recent Advances in Blood Diseases." In his talk Dr Castle reviewed some of the recent theories regarding polycythemia, pernicious anemia, leukemia, etc., and answered questions relative to these blood diseases.

NEW ENGLAND SURGICAL SOCIETY

FOOT STATICS AND SURGERY*

BY FREDERIC J. COTTON, M.D.†

FOOT statics have been neglected of late years and apparently little understood

Yet the foot is the weight-carrier that keeps us off the ground, and its smooth function unimpaired by ill use, repaired or reinstated in case of ill use, deformity or injury, is most important.

Up to 1900, foot statics was considered a problem in purely static, not kinetic, mechanics.

A vast literature had been produced, German in the main, culminating, if my memory serves me, in works by one Meyer.

Out of all this survives one item only. There is a sort of "triangle of support" (seen here) and, if the stress of body weight transmitted through the leg, falls outside, or more often in

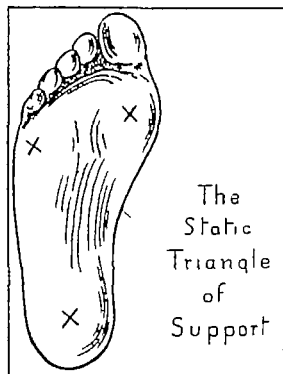


FIGURE 1

side of this neat triangle, trouble is likely to follow for the line of weight-bearing through the tibia should not be far off centre for normal function (Fig 1)

Forget all the rest!

Particularly, forget all you ever heard about "arches", both longitudinal and transverse. If one must be architectural about it there are trusses in the foot, *not arches*, and the truss conception is best forgotten also, it isn't so simple as that!

Dr Edward H Bradford first had the idea of the moving tarsus, I think and of muscle balance and of the value of muscle training which is so important to a proper conception of foot function.

Whitman, with his rocking plate, and Dane with his "pronated foot", understood much about all this as well.

Lovett and the writer worked a season on the kinetic mechanics of the foot using the then new x ray on the living foot to help.

Then, Dr Thomas Dwight, the anatomist, went over all our work and changed his teach-

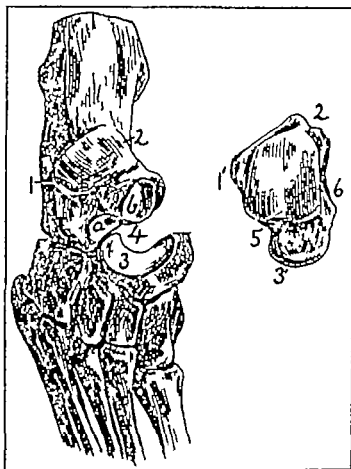


FIGURE 2

- 1 Outer end, joint surface, calcia.
- Inner corner 1 2 like points on astragalus
- 3 a b Concave of a, for receiving 3
- 4 Astragalus head
- 5 Calcaneo-scapoid ligament compli g cup.
- 6 Back limit of front joint.

ing. The specimens relevant to all this are still in the Warren Museum!*

Some people digested all this to their profit, and that of their patients but since then nothing especial has been added to our knowledge until one Mr Philip Wiles London surgeon neatly described what we had been stupid enough to overlook, namely the muscle function of the long peroneal in relation to the mobile function of the first toe unit. We had all known the effects of displacement of this unit but no one had worked out the corrective function of the peroneus longus muscle! Perhaps, one may now talk with confidence (with reserves, of course) of the function of bones, joints and muscles, and of their action in the amazing supporting weight function of the foot.

At any rate, I am going to try to make this intelligible

*Read at the Annual Meeting of the N. W. England Surgical Society at Manchester N. H., September 3, 1925.

†Cotton, Frederic J.—Consultant, Boston City Hospital. For record and address of author see "This Week's Issue" p. 351.

The foot has many joints. The body weight, transmitted through the tibia and astragalus, drops to the os calcis, scaphoid, and cuboid. These three form a queer irregular cup, into which the astragalus fits (Fig 2)

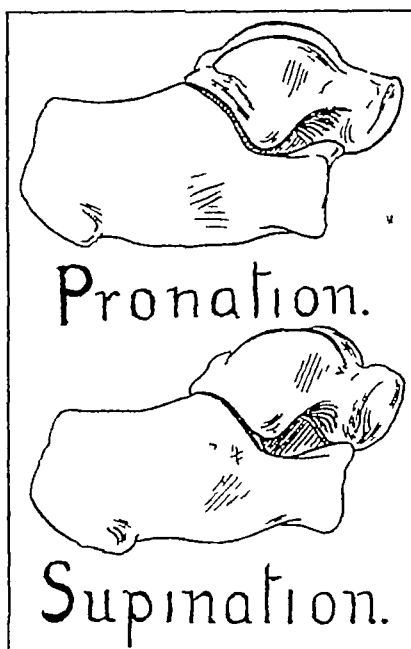


FIGURE 3

Calcis rocks in and out (lat. view)

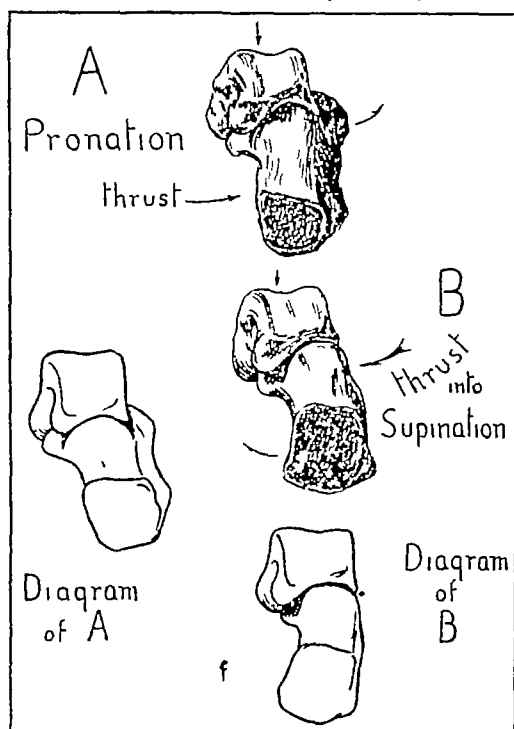


FIGURE 4

Same from behind.

In this cup, the astragalus *rocks* (or more accurately the cup rocks under it) in standing and walking

The calcis rocks *in* and *out*, and, as the heel goes inward, the whole heel bone rotates *under* the astragalus (Figs 3, 4 and 5) And, with

this rock and shift, the "cup" being of uneven diameter, the scaphoid moves *inward*, and the whole front part of the foot goes inward as well

And this movement occurs in just the same way, whether the foot moves in inward rotation about a vertical axis, or the leg, and with it the astragalus, rotates outward (Fig 6)

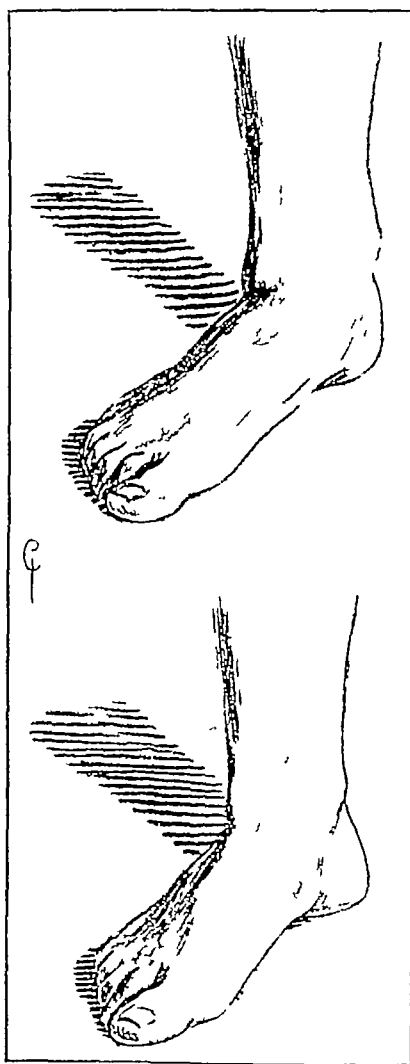


FIGURE 5

Upper drawing shows relaxed 'pronated' position. Below is shown the correction to proper position by muscle action—in proper balance

Apart from this motion, but working in like direction, there is *some* *ad-* and *ab-*duction movement (with slight rotation) at the *mediotarsal* joint (Fig 7)

And then, too, there is the important independent action of the first member, comprising the first cuneiform, the first metatarsal and the great toe, moving up and down on the scaphoid as a base (Fig 8)

With the downward movement of this "first member", under control of muscle pull of the long peroneal, the "anterior arch" arches up

The tibialis posticus lifts and accents the "long arch", and the long flexors, particularly of the hallux, help in this lifting

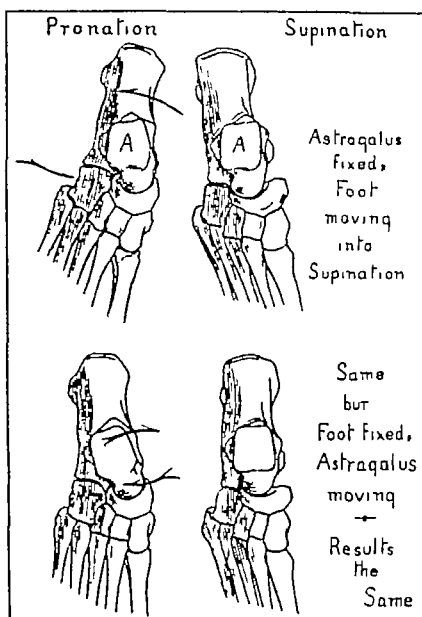


FIGURE 6.

The tibialis anticus helps not at all, but does lift the foot to clear the toes in stepping. It is, properly, as Wiles tells us, an *opponent* of the long peroneal, tending to flatten both arches in the position of *inversion* of the foot. It does not act to put the foot into stable position, but

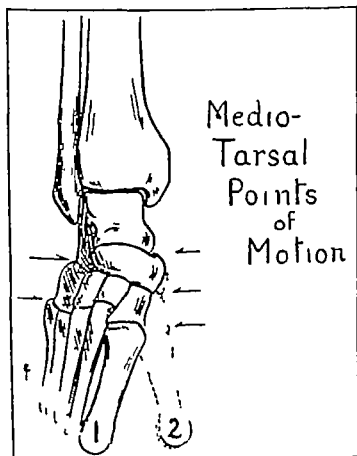


FIGURE 7

into a varus far out of any normal standing position. All the exercises based on action of the tibialis anticus are not only useless but harmful.

The long peroneal pulls the cuneiform and metatarsal, the "first" member, down and out



FIGURE 8

Movement down and out, of 1st cuneiform, and 1st metatarsal under pull of peroneus longus.



FIGURE 9

The metatarsals seen from behind. Pulled by the long peroneal, metatarsal I flexes downward, rotates and moves outward.

Unaided by the posterior tibial it would roll the foot into undesired valgus. (Fig 9)

Its real function is to bring the head of the first metatarsal *into the tread*, and to raise the so-called "anterior arch" as the posterior tibial and the flexors deepen the "long" bring about a varus position

The tibialis posticus can be *ex-* toned up, easily. Such exercise t ors as well. (Fig 10)

The long peroneal can be brought back to efficiency only by restoration of voluntary function, as far as we know, a matter of education which is not always easy (Fig 11)

Many have long known that plates are but a crutch for old ladies, they cure nothing, and prolong treatment

Modified shoes and heels help those who will help themselves, and they stall the very young along to an age where these children can be induced to cooperate, mainly on the plea of possible efficiency in sports, or dancing. The minimum age for normally vain females is four to

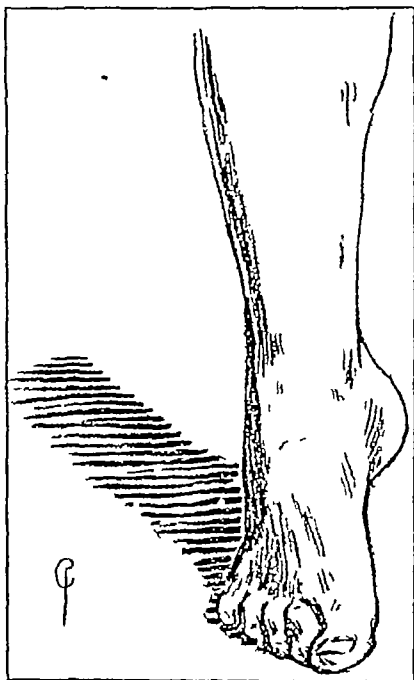


FIGURE 10

Exercise to develop and tighten the muscle group of tibialis posticus long toe flexors et al that make for supination and the lifting of the arch

five, males about two years behind this schedule

Such exercises as will bring back real coordination of the tibialis posticus, flexors, and long peroneals require an attention and persistence not commonly met with in our offices, as the patients run, day in, day out. Yet cure of the familiar type of flat foot depends in the end on restoring muscle balance and proper action

For this reason the problem is arduous. Many of our patients are going to stick to plates or "supporting" shoes, till they sit down permanently in chairs, or accept steel leg braces.

The vigorous, young or old, can be cured by temporary support, reinforced by directed exercise, in the great majority of cases.

Some flat feet, not a few, can be helped by operation, thereby changing statics. Not many are these likely to be cured, unless care is at hand to utilize muscle action made easier by the operative correction.

The helpful operations seem to be the following

The Gleich Operation This is applicable to many conditions usually the result of injury (fig 12) whether to tarsus or ankle. It has the advantage that the heel may be shifted in any desired

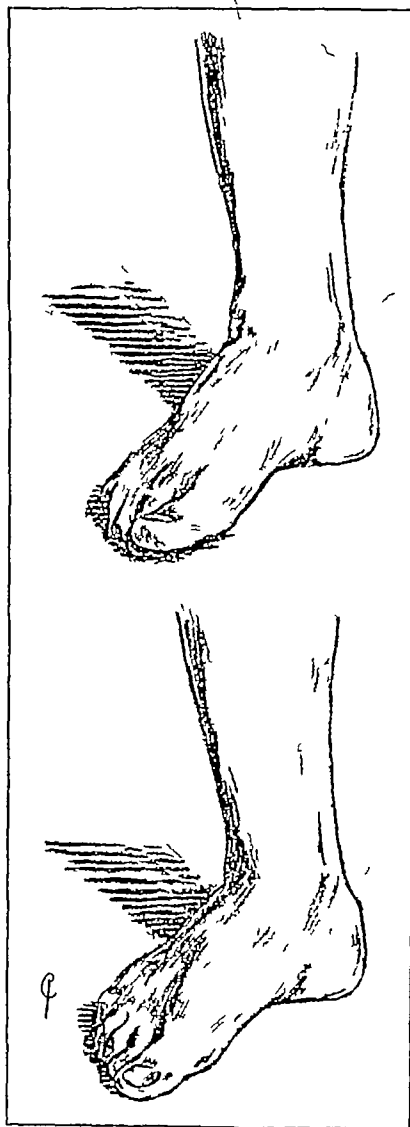


FIGURE 11

The thumb action in the foot. Above one sees weight carried on the outer side of the foot by muscle control—the first metatarsal is entirely out of weight bearing function.

Below one sees the first metatarsal down in action.

This is what has been called the thumb action in the foot. It is the result of the down driving action of that curiously aligned muscle the peroneus longus that goes down the leg across under the foot just to do this—to pull the first metatarsal and its toe down out into the working tread of the foot.

direction and for some distance. Also it is a strangely undisturbing operation. It was devised two generations back for the cure of the flat foot of bony type, the "Rad-Fuss" so common in peasants. It was forgotten, revived here to correct bad results in os calcis fracture—since used for many purposes.

The Cotton Advancement Operation This consists in advancement of the calcaneo-scapoid ligament, a logical operation which is useful in certain few cases.

Operation on the first member, the cuneiform wedge

This is applicable to any type of case in which, from long standing deformity the first metatarsal head cannot be made to carry any weight. Such a condition may result from an inveterate flat foot dating back to childhood with changes in bone shape as well as lax ligaments. Or it may be the result of trauma with some deformity.

In hallux valgus cases such an ascent of the "first member" is common and important.

In some cases of "anterior arch" trouble, one finds it in marked degree and it seems likely

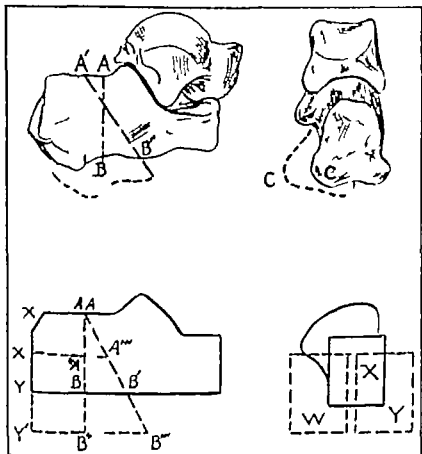


FIGURE 12

Glick operation. Diagram. This operation, devised a generation or more ago, to treat most of the flat feet of European peasants, has proved of the greatest value. One can shift the heel in or out at pleasure. Revised here for handling certain cases of valgus following a calcaneal fracture, the operation has proved of value for all sorts of things—for example, shifting a heel in a case of club foot, brought back, except for this detail by previous handling. It is simply an osteotomy across the neck of the calcaneus that makes it possible to shift the heel down and forward—see A-B, A-B' or inward—see C-C' or what one will.

that in cases of such trouble we should describe the deformity as an ascent of the first member rather than as a descent of the second third or fourth.

In any of these classes a bringing down of the metatarsal head for three fourths of an inch is simple and more can be obtained.

The operation is simple not painful, and weight bearing begins within a month.

In the short series of cases done since I devised this operation there has been no trouble in any and the correction obtained has in no case been lost.

It seems to merit further use.

There are other static factors, first the short heel cord.

Short heel cord means "metatarsal strain,"

from the resultant habitual "toeing out" that infallibly drops the long arch, and makes trouble.

Often, but not always, this results from habitual wearing of high heels.

It has long been a source of income by way of tenotomy of the tendo-achillis. (Fig 14)

This operation, at times justifiable, may usually be avoided by the simple use of the "shoe" or strap wrench, devised by the late Dr Gwilym Davis, the use of which does not even need anesthesia.

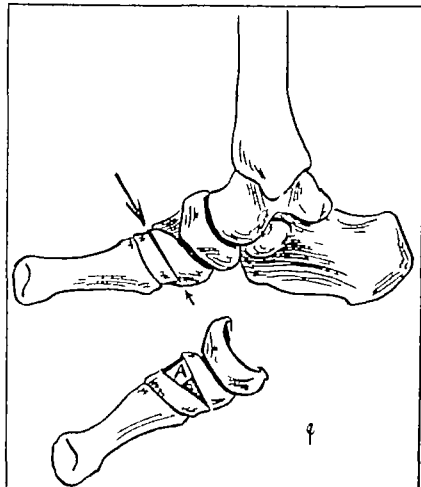


FIGURE 13

If the first metatarsal is up it may be brought down, as here shown by splitting the first cuneiform bone and wedging the resulting gap wide open. This is a matter of surgical carpentry; the amazing thing is the prompt repair and the early return of function.

Another factor of disability is the "dropping of the anterior arch," sometimes associated with the distressing "Morton's toe" from nerve pinching, usually between third and fourth metatarsals.

Proper pads, set in behind the tread of the ball of the foot, with or without circular strapping, relieve most of these cases, temporarily and may be required permanently although persistent exercise of the flexors of the toes will usually effect a real cure if persisted in.

In certain obstinate cases with or without hallux valgus, the operation already described does the work and is far preferable to any resection of metatarsal heads. (See figure 17)

Hallux valgus is very much a matter of statics.

Blamable to short shoes not always and rather often running in family lines, it cripples often

because of "bunion" friction, but also because there is usually an *ascent* of the first metatarsal, a sort of separation of the first from the rest, "primo-varus" which means nothing but a description of the deformity from adduction of this metatarsal with a wide space between this and the next metatarsal

With this, an upward movement of the first member takes place, and it was on this type of hallux valgus case that I first did the opera-

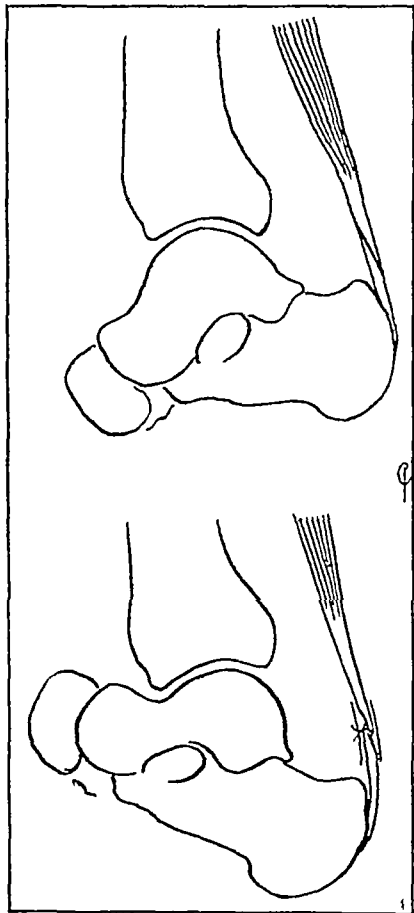


FIGURE 14

Lengthening of the tendo-achillis. An operation to be done seldom. As a rule the Gwilym Davis strap-wrench does the work. But if one must cut the tendon the matter comes down to a question of judgment as to length. Of course the section is to be oblique

tion here talked about. In these cases the bony wedge taken out of the hallux valgus makes a good wedge to keep open the gap in the osteotomy gap in the first cuneiform

Operations on hallux valgus, as such, we cannot consider here because of restricted space for they are many, but the operation for dropping the first metatarsal to its proper level with the others just shown is of importance (Figs 15, 16, and 17)

"Hallux rigidus", which is loss of dorsal flexion between the first metatarsal and its phalanx, from arthritis or due to fixation in plaster, is crippling because it hurts, and because this hurt makes the patient "toe out"

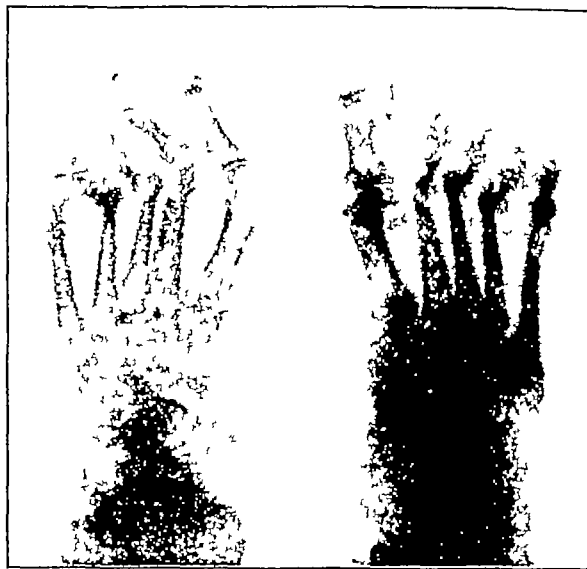


FIGURE 15

(X-ray before and after Jenner)

Mrs J

A very vigorous heavy-weight of forty five years crippled for years. The obvious usury of the metatarsal heads is aside from the present point. The working disability was of the first unit. One sees left the original set up right the postoperative detail

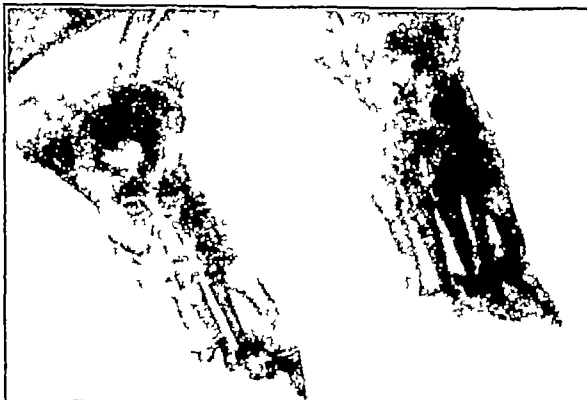


FIGURE 16

(X-ray before and after Jenner)

Same seen laterally. To the right one sees the reshaped metatarsal head shifted downward. Also a superfluous chip of the graft at the point where the cuneiform was wedged apart.



FIGURE 17

(Photo after Jenner)

Same case. The two feet, right foot operated. Later the left foot was operated on in the same way. The clinical result unbelievably good, considering the damaged heads of the other metatarsals about which we did nothing

and roll the foot into valgus, and so puts it out of commission, mechanically

Such a condition again is readily remediable by easy surgery

And that means only a clearance of the top half of the first metatarsal joint surface, not a difficult, but useful procedure.

In relation to statics fracture cases must be considered.

Fractures of the metatarsals are problems of correction by local osteotomies when indicated.

Metatarsal displacements not rarely call for correction by removal of a deep, often wide, wedge from the convex side.

The typical if not common, varus deformity accompanying fracture dislocation of the scaphoid can be corrected with a Gleich operation.

Faulty statics following os calcis fracture may call for removal of bone on the outer side with or without a shifting of the heel. Such removal of bone with the Gleich operation works out very well.

The correction by arthrodesis has the drawback that it deliberately destroys all movements of the tarsus which might otherwise be preserved.

It has its place for relief of pain, not for any correction of statics.

Deformity from astragalus injury usually means arthrodesis between the tibia and astragalus with such sloping of cut surfaces as will give right statics.

This does not sacrifice any tarsal motion. As trapelectomy is to be avoided. The results are sometimes tolerable but the patient is at best a lumping cripple.

Now as to ankle fractures proper. Outward deviation of the foot with valgus means Pott's fracture. Given any considerable deviation (see fig 1), any relief short of operation is apt to be partial, if not futile. Long ago Stimson showed us how. This is his bimalleolar osteotomy (fig 18), a most useful operation.

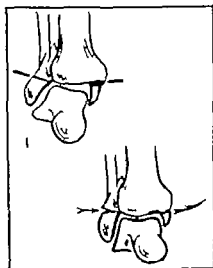


FIGURE 18

Stimson's bimalleolar osteotomy. A cross-cut and a lateral shift inward. The first, I think, of all the operations of reconstructive surgery as good as what Stimson described it, a generation or more ago.

For backward dislocation my class III fracture sometimes labeled with my name, there are two procedures.

Often enough the end result shows a backward displacement with no elements of a stable joint, and only too often with an obliquity of the remains of the joint inward or outward.

For such a case there is nothing for it but a radical reconstruction, such as is shown in figure 19A, this is usually practicable, though a

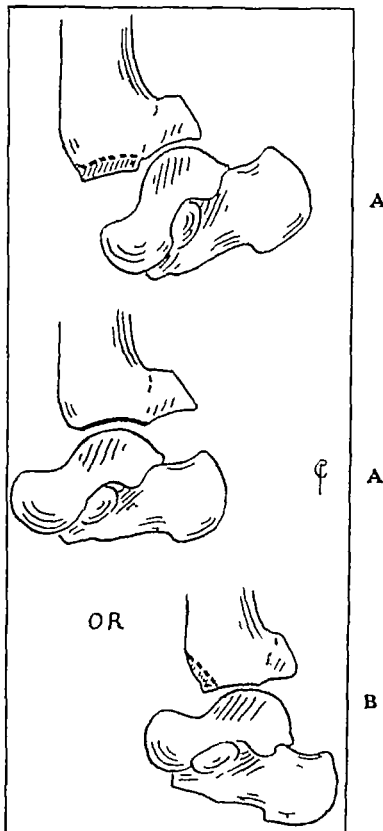


FIGURE 19

In a Class III fracture. If the foot is back, entirely out of alignment, one must reconstruct. The posterior fragment cannot be moved. The malleoli can be cut across a fresh bed cut in the tibia for the astragalus. These operations do rather well and they do not result in ankylosis. Given one joint surface covered with cartilage, one gets no cross adhesions. Loss of motion may often result but not from cross adhesions between joint surfaces.

difficult and heavy operation. I have done it often. Lately in one case, that of an elderly woman, this seemed impractical due to the risk of time shock. An arthrodesis with correction was done.

In other cases of this class the displacement is less and there is some sort of a decent joint

with the disability largely from contact of astagalus and front edge of the tibia or pinching of tissue between

In such a case the simpler operation shown in figure 19B suffices, and usually gives great relief out of proportion to the simple nature of the operation

Static problems of varus deformity are uncommon When met with they must be handled

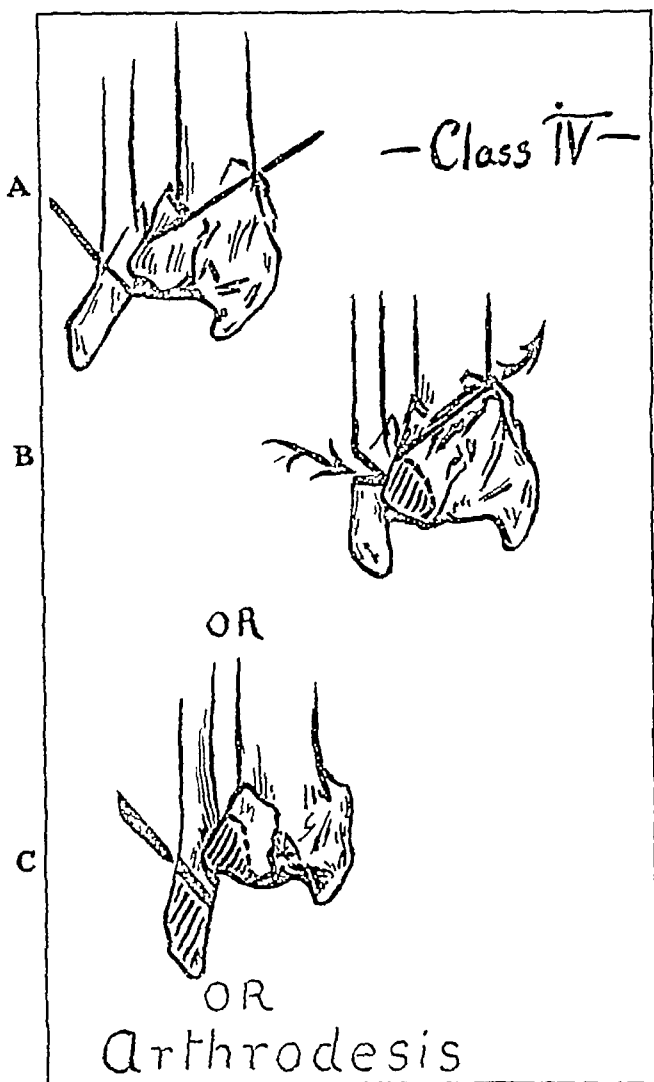


FIGURE 20

Supramalleolar osteotomy
Subperiosteal resection

Class IV fracture

Given the not unlikely adverse result one may

(1) Shorten the fibula relatively too long and correct any serious deviation of the tibia by a cross cut osteotomy or (2) do a subperiosteal resection of the superfluous part of the fibula or (3) do an arthrodesis. Gallie's technique is the best

by shifting the foot back (in reversed Pott's) by bimalleolar osteotomy, or by doing a transverse or wedge osteotomy of both bones rather close to the ankle joint. If the incisions are sloped down from outside and inside to the center, correction may be made very exactly and without danger of slipping

The reverse deformity may be dealt with in

the same way, and so may anterior or posterior bowing, and this applies to many cases with displacement due to fracture well above the joint. From all points of view and especially with regard to speed of repair the low osteotomy is to be preferred

In cases of my "class IV", smashes of the lower end of the tibia with comminuted fractures into the joint with almost inevitable deformity and with some shortening almost inevitable, incurred in heavy falls on the foot with the foot driven upward, smashing the tibia, driven upward past and away from a fibula which may often enough not be broken at all, one has real problems in statics

Varus deformity with forward or backward spreading is what one sees in late results in the unlucky cases, and the unfortunate ones are lamentably many

Shortening cannot be corrected but often a low osteotomy of both bones will at least give proper weight-bearing (Fig 20A, B)

Some cases may be fit only for arthrodesis with static correction, giving at least a mobile tarsus and foot, in others the problem is simpler. It is the long fibula, often intact, driven down into the os calcis, throwing the foot into sharp varus position and giving pressure pain besides

In such, a subperiosteal resection of the fibula (fig 20C) is all that is to be done, and the results are surprisingly good as a rule

Limits imposed on time and space make this a brief talk around the pictures and all detail as to manipulations, apparatus to ease strain, shoes and modifications of shoes, and the large field of exercise work brought down to working terms, must be omitted

Perhaps I have enabled you to have a clear picture of what we know of foot statics, of the importance of keeping this clear view with us in much of our surgical work

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DISCUSSION

DR. EZRA A JONES (Manchester, N H) I am very much interested in this subject and it deserves much better discussion than I am able to give to it. As a matter of fact, the title of this paper did not tell me very much of what it was about. The first time I saw Dr Cotton's paper was last night. I determined to go home and read it over and write a better discussion, but I was unable to do so

However, the points that he brings out are very interesting and, I think, very valuable. The infantile cases I think, have shown us a lot about muscular action of the foot, although I was not ac-

quainted with the fact that the peroneus longus was so valuable but I think it probably is.

I think the exercises that we give our patients to correct their flat feet, when they come up on the toes, improve the tone of the peroneus longus and probably help pull the first metatarsal head down.

There is another point that Dr Cotton brought out that is interesting to me showing that the rotation or eversion of the foot is principally at the astragalocalcaneus joint. I remember trying to cure cases of infantile, attempting to give them a better weight-bearing position by ankylosing the astragalus and scaphoid, without very much result. But when Dr Hoke devised his operation which not only ankyloses the astragalus and scaphoid but also the astragalus and calcaneus it gave I think, better results.

The pronation is probably what causes us pain. You all know that the American Negro has perfectly flat feet and he does not have very much foot trouble while the same degree of flatness in the white race is usually accompanied with pronation. The amount of pain they have depends more on the pronation than on the flatness of the long arch.

I think Dr Cotton was right when he said we should disregard our arches and talk about our weight-bearing. Of course in weight-bearing where the line comes on the inner side of the foot instead of the outer side, we get all kinds of troubles and trouble as you all know is not limited to the foot itself, but causes rotation of the knee joint backache and gives us many disabilities.

I was interested in the Gleich operation. I should think it would be an excellent operation for our cases of fractures of the os calcis where the bone is displaced outward that is where it is rotated outward. As you know there is a large amount of callus formation usually under the external malleolus. In chiseling that off we do not get very satisfactory results. I am wondering if this Gleich operation would not help to bring the calcaneus back where it should be.

I was interested in Dr Phillip Wilson's operation of ankylosing the astragalus and the calcaneus but it seems to me that this would give you better weight-bearing without destroying any joint surface. Thank you.

PRESIDENT JOHNSON Is there any further discussion?

DR. DAVID CHEEVER (Boston Mass.) Mr President—I was immensely interested in Dr Cotton's paper and especially in his beautiful drawings.

I just wanted to ask him to elaborate a little further about the statement which I understood him to make that there are no arches as such in the foot. Of course, I think all of us have been brought up with the architectural conception of an teroposterior and transverse arches. That is pretty well fixed in our consciousness and Dr Cotton himself is still arch-conscious in his description as he said he would be because in the description of his demonstrations his pictures he frequently mentioned the word arches.

If you recall figure 7 I think it was which showed in coronal section the transverse arch through the bases of the metatarsals it seemed to me it was a beautiful picture of an arch as I understand an arch with a tie-beam growing across underneath represented by the tendon of the peroneus longus.

If they are not arches I would like to get a little clearer idea of why they are not, so in the occasional anatomical talks that I have to give I can be a little more up to date.

PRESIDENT JOHNSON Is there any further discussion? If not, perhaps Dr Cotton will conclude.

DR. COTTON As to Dr Cheever's arches, it is perhaps a matter of words. Strictly speaking architecturally an arch is a curve which has abutments at the hips and may be built with a keystone or as a simple arch which maintains its height on account of the balance of the down thrust of the weight of the arch and whatever load is put on it, the counterbalance of that against the resistance of the hips at the side.

In the foot we have nothing of that sort. We have what is analogous to a roof in a house. We do not have Gothic or Roman cathedrals with arches. We live in houses that are tied together with trusses. A roof gets very little thrust, ought to give no thrust at all on a great beam. It is fastened together with cross-ties, king post, queen post and is tied together as one structure. That is what we get in the foot. There is no thrust against the immovable lateral end to take weight, but we do have this truss which is tied together with a strap below.

It is not very accurately described that way but there is something of an arch in it. In the long arch we have a plantar fascia running fore and aft which is the lowest strap of the truss and we have the ligaments lying under the tarsal bones close under the tarsal bones as an accessory strap.

It is perfectly true the astragalus comes down exactly like a keystone but I think it is just as well not to bother too much about that because as I will say in a minute the whole thing is complicated by a lot of other factors.

As far as the transverse arch is concerned that is nearer an arch. The posterior transverse arch under the arch of the foot that is held in this position by ligaments, again acting as straps across the base of this almost semicircular truss. The anterior arch I do not think can be called an arch at all. The arch is held up by the action of the flexor muscles. If you ever handle those cases and try to cure anterior arch dropping so-called, by educating the muscles, you find you can do it in the majority of cases very easily.

I had a personal experience of that a couple of years ago when I happened to be the victim of an accident. During my convalescence one anterior arch after the other went. I was completely crippled. I did not do anything about it except to put a pad in for a day or two and exercise my toes. The arches came up all right.

The muscles, and not even the ligamental structures, hold the anterior arch and I do not think there is any anterior arch—transverse yes longitudinal yes perhaps. If you want to call a truss an arch that is a matter of words.

The reason why I dislike to think of arches or even trusses is because these motions of the foot, which interest us are largely rotary motions, conditioned by the most complicated curves in the joints of the foot. If you settle down to work out the anatomy of the astragalus and the cup in which it rotates, it is enough to confuse you. You can see it happen but even with the articulated bones especially articulated in your hand it is hard to see what happens.

What happens is that the front part of the foot is thrown in a given direction on account of the fact that the astragalus goes out and wedges the scaphoid in. It is that complicated kind of thing that makes it possible for us to walk and not the support of anything like an architectural arch.

I would like to say a word in closing about the Gleich operation. The history is rather curious. I have not been able in research again to find the reference to that. Years ago in getting together

the Bradford and Lovett book, I did a vast amount of German reading. I ran into the Gleich operation. Later when I began to take up os calcis fractures I revived it for just the class of os calcis cases.

I did the Gleich operation. I have used it whenever I felt like it for all kinds of deformities of the foot where I wanted to shift the heel. Wherever I wanted to shift the heel, I shifted it there. The operation is a very simple one if you have ability to calculate angles. All you do is cut across the neck of the os calcis. Then you take your hand or

hammer, whatever you like, and put the heel where you want it.

The os calcis has an enormous amount of repair power, as you know, too much in many instances, and these cases are able to bear weight without any distortion of the fragment, as early as five weeks. There is no reaction to the operation or sense of pain in any case I have ever seen. I must have done it a good many scores of times.

I recommend to you, gentlemen, the Gleich operation.

THE EFFECT OF CORAMINE ON POSTPARTUM PATIENTS UNDER THE ANALGESIC INFLUENCE OF SOME BARBITURIC ACID DRUGS*

BY ALEXANDER A. LEVI, M.D.,† AND CHARLES M. KRINSKY, M.D.†

MANY successful attempts have been made in obstetrics to alleviate the pain of childbirth. In addition to the amnesia and analgesia desired, some postpartum reactions which occur occasionally are found objectionable. Among these are the duration of the narcosis long beyond the period of pain and many hours past the end of the third stage of labor, the urinary retention, and the possibility of an idiosyncrasy to the specific medication used. These undesirable complications are largely responsible for the objections to analgesic agents in obstetrics. We have, therefore, endeavored to determine what medicament could perhaps decrease the period of postpartum narcosis and thereby eliminate a great many secondary manifestations. Coramine was used, in our series, because of favorable reports by investigators¹ on the efficacy of this drug in diminishing the duration of narcosis. The reports did not concern the use of this drug in obstetrical patients. We therefore undertook the study of this problem.

INVESTIGATION

It has been the accepted procedure for many years at the Evangeline Booth Hospital to administer nembutal by mouth and paraldehyde in oil by rectum for the purpose of obtaining obstetrical analgesia. The dosage varies from four and a half to six grains of nembutal given by mouth and four to six drams of paraldehyde in three ounces of olive oil administered by rectum, depending upon several variables such as parity, weight and progress of labor. These are given under as uniform conditions as possible. The criteria are first, regular pains which occur about five minutes apart, secondly, engagement of the presenting part, and thirdly, two or three fingers' dilation of the cervix. From study of many records the individual susceptibility to

this medication cannot be definitely evaluated or anticipated, but it can be stated that the patients in the majority of instances enjoyed excellent amnesia. We were also able to conclude that the most undesirable effects were the length of postpartum narcosis beyond the time of actual need, the development of urinary retention, and the lassitude which persisted for several days. Practically no difficulty was encountered with the babies.

Idiosyncrasies of one form or another to drugs are well known. Our experience in such a case, and the recovery of the patient after treatment with coramine suggested the possibility of minimizing the undesirable reactions of nembutal and paraldehyde by its administration. The results obtained in this case proved to be the impetus for our study. In brief, the patient, a hospital case, was a primipara, aged twenty-one, who had been carefully observed throughout her labor. The prenatal history was normal. Ten and one-half grains of nembutal by mouth and nine drams of paraldehyde by rectum were given in small, divided doses over a period of fifty-four hours, the medication being repeated as consciousness returned. The baby weighed 7 lbs and 6 ounces and was delivered by a low forceps application and episiotomy. With the exception of a marked caput, the baby appeared and remained normal, breathing well after the delivery. The maternal pulse averaged 88 and the fetal heart 140 per minute until four hours before the delivery, at which time both increased, to 144 and 172 respectively. At the time of the delivery, the blood pressure was systolic 98 and diastolic 78. Soon after delivery, the maternal pulse increased from 128 to 140 per minute, and the blood pressure dropped to systolic 76 and diastolic 60. The fundus was firm, and very slight oozing from the vagina was noted. There were no evidences of abnormal bleeding from the uterus, cervix, or vaginal mucous membrane. The patient presented a clinical picture indicative of marked respiratory embarrassment and

*From the Evangeline Booth Maternity Hospital, Boston, Massachusetts.

†Levi, Alexander A.—Instructor in Department of Obstetrics, Tufts College Medical School. Krinsky, Charles M.—Intern, Newark Beth Israel Hospital, Newark, N. J. For records and addresses of authors see This Week's Issue, page 381.

vasomotor collapse seemingly due to the drug administration. Her face appeared pinched and drawn. Her lips were cyanotic and the heart sounds were rapid but regular. Respiratory excursions were shallow and barely perceptible. The pulse was thin and of poor quality. The fingernails were cyanotic and the extremities were cold and clammy. When seen in consultation by one of us (A. A. L.) it seemed that death was imminent.

The patient was treated for shock by means of intravenous glucose and saline therapy, elevation of the foot of the bed, heaters and blankets, and coffee was administered by rectum. In spite of these and other heroic measures, the response was poor. The symptoms and blood pressure—systolic 76 and diastolic 60—remained the same. It was then deemed advisable to attempt respiratory stimulation by the inhalation of a carbon dioxide mixture. The patient showed little reaction even to this apparently because of the shallow inhalations. Three cc. of coramine was then administered intravenously and intramuscularly. Within three quarters of an hour from the time this medication was given, the patient became conscious. She was able to converse with the attendants. Her respiration improved. The cyanosis slowly disappeared, and the blood pressure rose from 76 systolic and 60 diastolic, to 108 and 74 respectively. Following this experience the patient made an uneventful recovery, appearing quite normal twelve hours later. The puerperium was without event.

A medical consultation was obtained during the course of the treatment. The opinion coincided with that of the obstetrical consultant that the reaction was perhaps due to the drugs administered, probably those of the barbituric acid group.

The group studied consisted of forty consecutively admitted patients who had received nembutal and paraldehyde in the routine manner. This was divided into one group of twenty patients who were given coramine and a second group of twenty patients who served as a control. The two groups were comparable as far as age, parity, race, and color were concerned. Five cc. of coramine was given intramuscularly after the third stage of delivery had been completed. The average patient had in the mean time reacted from the mild ether anesthesia which was administered. The blood pressure, pulse, and respiratory readings were taken at this time and repeated every fifteen minutes for the first hour and twice during the second hour. The depth of ether anesthesia and narcosis, the degree of amnesia, and the extent of motor activity were noted. The time from the end of the third stage to consciousness was charted in each case.

RESULTS

Significant differences were obtained between the two groups when the average time of recovery of consciousness was computed. It was seven hours and forty eight minutes for the control group and five hours and forty five minutes for the coramine group. The average dosage of nembutal and paraldehyde administered was practically identical being 4.4 grams of nembutal and 5.1 drams of paraldehyde for the control group and 4.7 grams and 4.5 drams respectively, for the coramine group (Table 1).

TABLE 1

Patients	Cases	Nem bu tal	Par alde hyde	Time
Controls	20	4.4	5.1	7 Hrs 47 Min
Coramine study	20	4.7	4.5	5 " 45 "

The consensus of those closest (i.e., nurses and attendants) to the patients was that fewer catheterizations were necessary for the coramine treated group. This may be attributed, perhaps, to the decreased time of postpartum narcosis.

A study of the pulse, respiration, and blood pressure revealed that the type of response to coramine is a matter of uncertainty. In twenty five per cent of the cases the pulse, respiration, and blood pressure were raised. In an additional twenty five per cent they were slightly lowered, while in fifty per cent they remained unchanged. Whether this latter seventy five per cent would have shown a negative or positive response with additional coramine is problematical. No other noteworthy observation was made which could be ascribed to the use of coramine.

SUMMARY

- 1—A study of the applicability of coramine in decreasing the time of postpartum narcosis was made.
- 2—One-half of the group of forty mothers received five cc. of coramine intramuscularly after the third stage. The remaining twenty patients were used as controls.
- 3—The length of narcotization after the third stage was decreased from an average time of seven hours and forty eight minutes to five hours and forty five minutes in the coramine group.
- 4—A patient "in extremis" after administration of nembutal and paraldehyde recovered after treatment with coramine.
- 5—The effect of coramine on respiration, pulse, and blood pressure in our series was variable.
- 6—Coramine is no doubt of value as a respiratory stimulant when the respiration is so depressed that the patient cannot "breathe in" carbon dioxide oxygen mixtures.

CONCLUSION	REFERENCES
<p>The intravenous or intramuscular administration of coramine can decrease the duration of postpartum narcosis due to barbituric acid drugs. This requires further confirmation.</p> <p>The authors wish to thank the Ciba Company, Incorporated, New York for their generous cooperation.</p>	<ol style="list-style-type: none">1 Wood P M. Coramine in denarcotization and resuscitation preliminary report. <i>Am J Surg</i> 22: 86 (Oct.) 19332 Killian H. Über die Unterbrechungsmöglichkeiten der Avertinnarkose. <i>Klin Wchnschr</i> 10: 1446 (Aug 1) 1931 Coramin als Antidot bei Vergiftungen durch Narkotica und Hypnotica. Zusammenfassung der bisherigen praktischen Ergebnisse (150 Fälle). <i>Klin Wchnschr</i> 12: 192 (Feb 4) 19333 Reese Hans H. A method to counteract the narcotic and intoxicating effect of the barbituric acid drugs. <i>Wisconsin M J</i> 32: 530 (Aug.) 19334 Kennedy W P. Effective counteraction of avertin narcosis. <i>Lancet</i> 1: 1143 (May 28) 1932

THE PERSONALITY OF THE PHYSICIAN*

BY JOSEPH H PRATT, M D †

THE privilege of appearing before the students of this famous medical school as a lecturer in this annual course on the "Care of the Patient" is appreciated by me as it should be by any practitioner. The invitation, however, carried with it a special responsibility as the standard set by my predecessors has been so high. It has presented me with the opportunity and also the duty to devote considerable time to meditation in order that I might offer bread rather than stones. This task of preparation has been a pleasant one and has brought to mind happy memories. From the day I received the invitation from Dr. Locke there has been frequently in my thought the picture of one we have loved and lost, Dr. Francis W. Peabody. The delightful address he delivered from this platform on the "Care of the Patient" has given to this course a special distinction. That essay should be read and reread by all medical students.

Only a month before Dr. Peabody accepted the invitation to lecture in this course it was discovered that he was the victim of a fatal disease and he had been told the truth. He showed the stuff that was in him by acceptance of the situation and he went quietly about the daily business of living in a spirit of equanimity, without haste and without waste of time or thought.

When I was told of the shocking discovery made at the operating table I also learned that he was back at Northeast Harbor busy at his research work. He was engaged at the time on a fruitful study of the bone marrow in the anemias. Knowing he would not want sympathy but help I wrote at once and asked if I could not look up in the library some of the references he might wish to consult and prepare abstracts for him. In reply he wrote, "I am still poring over the microscope, but if any problems arise that want looking up I shall call on you."

Dr. Peabody's lecture dealt chiefly with the

care of that large and neglected group of patients whose physical symptoms such as pain in various parts of the body, exhaustion and indigestion are the result not of organic disease but of a functional disturbance brought about by worry, fear and other forms of troubled thought. These are the patients who after a thorough physical examination are often blithely told by their doctor that there is nothing the matter with them. As regards the symptom for which they sought relief, they are told to forget it. It is all so simple and usually so ineffective. This reassurance, it is sad to relate, is about the extent of the psychotherapy still practiced by the average physician. It may be that at the very moment the doctor is giving the advice to forget it the poor patient is racked with pain or is so dizzy he can scarcely stand. Is it any wonder he turns in despair to Christian Science or to osteopathy? He knows he is sick in spite of the calm and cheerful assurance of the doctor to the contrary. The irregular practitioner, ignorant though he be of any knowledge of the body and its disease, inspires in the patient faith in the treatment offered, no matter how absurd it may be. The result is that his fears are often soon dispelled. With agitation removed from mind and spirit the brain no longer sends out jangling impulses to all parts of the body, the symptoms vanish and the patient feels well again. He is not only cured but he is profoundly grateful to the man or woman who healed him. The stately temple to Mrs. Eddy and her pseudoscience on Huntington Avenue is a visible testimonial to this fact and it is also a monument to the failure of the medical profession in New England to treat successfully the victims of the psychoneuroses.

From Peabody's lecture the student learns a truth that wise Ernst Wagner stated many years ago, namely, that we do not treat diseases but sick human beings. Flowing through Peabody's talk to students is a kindly spirit that came from his understanding heart. He shows clearly that it is not enough to search for evidence of organic disease by the most modern and scientific methods. If the scientifically trained physician stops his investigation when

*Delivered in the Course on the Care of the Patient Harvard Medical School November 15 1934
†Pratt Joseph H. — Physician-in-Chief Boston Dispensary
For record and address of author see This Week's Issue page 381

he is satisfied that symptoms are not due to organic disease he is contented with a half truth and is not scientific enough

The subject that I wish to discuss with you this hour is the personality of the physician. No more fitting illustration of what the doctor should be can be found than that presented by my friend and pupil Francis Peabody.

For years prior to the day I heard Peabody's address on the "Care of the Patient" I had been a follower of Dejerine, the great French neurologist, whose simple common sense methods of psychotherapy I had employed with gratifying success. After the lecture I talked with Dr. Peabody in that anteroom at the left of this amphitheatre. His address doubtless made a deep impression on the audience but there was no evidence of unusual approval. In a few minutes the hall was emptied and we were alone. In answer to my inquiry he then told me that it was not Dejerine who had stimulated his thought during the preparation of his address but Dejerine's English disciple, T. A. Ross, whose book on the "Common Neuroses" Peabody held in the esteem it deserves. May I take this opportunity to urge you to read both authors. Dejerine's work on the psychoneuroses and psychotherapy translated by Jelliffe is unfortunately out of print. It is, however, still available in the original French (*Les manifestations fonctionnelles des psychonévroses* Masson et Cie, Paris, 1911).

The last year of Dr. Peabody's life has been beautifully pictured in the memoir written by his father. There was no fight to escape from the dark valley into which Peabody saw him self rapidly swept. During the summer of that year I visited him in the quiet of his walled garden, and when the weather became cooler within the pleasant house. This had been the home of William James, the very place in which the Gifford Lectures on the "Varieties of Religious Experience" had been conceived. He talked about my work and his work as if he had no expectation that his work was almost finished. He gave close attention to my plans for developing a clinic for advanced instruction in internal medicine and offered valuable suggestions. He approved fully of my idea of bringing selected assistants from the best clinics in Germany to my little clinic at the Boston Dispensary and saw clearly the advantage it would be to American students to rub elbows for a while with the best type of German assistants trained in the clinics of Krehl, Grafe, and Morawitz. Only once did I hear him express any regret at the blotting out of his own plans for the future. Then he simply said, "Oh, if I only had five more years to complete my work," meaning the full development of his clinic and laboratory at the Boston City Hospital. All I could say in

reply was the well known quotation "It is better to travel than to arrive."

When his essay on the "Care of the Patient" was published in attractive format by the Harvard University Press, he sent me a copy. On receipt of my note of thanks for the gift he wrote me the following letter. It is written with a pencil and the lines slant.

"There is no one whose approval of this little book I would rather have than yours—my scientific godfather! Many thanks for your note. I hope the little sermon may do some good. My great desire has been to have a medical clinic in which the highest type of scientific work was carried on in conjunction with the most human and sympathetic attitude toward the patients—a type of spiritual atmosphere that may be expressed by the word Christian. (Of course I mean the true spirit of Jesus as expressed in the Gospels and not the so-called Christianity of the Evangelical churches.) It might be called a Christian Science Clinic. Best of all I think I see the germs of it developing. After all such is the best background for good scientific work.

He possessed that fruit of the spirit extolled by Osler under the names of imperturbability and equanimity. In addition to this he had acquired a closely related and even higher virtue in the scale of values which Saint Ignatius in his spiritual exercises termed indifference, meaning thereby that quality of mind and spirit characterized by the ability to live on a level higher than that of a mundane existence. At the same time he was so detached from any trace of self pity or even self-centeredness that he could throw himself wholeheartedly into his writing and the work of his assistants as well as into the activities of his family and friends, so far as he was physically able. There was a mastery of self that impressed everyone who talked with him as most unusual. It was in truth a fine variety of cheerful religious feeling, which this man of science experienced during the fifteen months when he found himself sitting face to face with death. When the end was near he was able to look back on the year and say that it was one of the happiest of his life. There was an apparent dissociation taking place between mind and body. As he grew weaker physically his thoughts seemed to become clearer and even more vigorous. "In rare moments of self disclosure he would speak, as if casually, of the approaching end. 'This is not so bad,' he said one day, 'as most people think.' It is like leaving behind one an old suit of clothes." * * * And yet again when the talk turned to religion 'It is a very simple thing. It just comes down to 'He that loveth his life shall save it.' So, without access of suffering or crisis of disease the tired body at last surrendered to the unwearied mind and unconquered will.' (Francis G. Peabody) The

courage and cheerfulness with which he met disease and death were an inspiration to those who were privileged to call upon him during his illness. His friends left his presence uplifted and glad that here was a man for whom death had no sting. With him the victory of death was a triumph for the victim.

The first mental picture I have of Peabody dates back to the fall of 1906 when he was beginning his senior year in this school. I had offered that year for the first time a course in clinical research as an elective for fourth year students. I secured for a laboratory a room on the top floor of Building C. It was the first term of the School in its present location. Funds for this laboratory were willingly supplied by my chief, Dr. Reginald H. Fitz, and a "Diener" supplied. The word "Diener" was the term by which a laboratory assistant was known in Dr. Welch's Baltimore laboratory and also in Dr. Councilman's here in Boston. I mention this as indicating how dominating in American medical science at that time was German influence.

Peabody, perplexed as to what he should study during the final year of his medical course and uncertain as to his future, visited Prof. Fitz at his Manchester home for advice. Dr. Fitz told him of my new course in clinical investigation and advised him to take it. I know Peabody consulted at least one other man, an eminent laboratory investigator, who expressed doubt whether I would be able to devote time enough to the proposed study to justify the sacrifice of the excellent clinical opportunities that would be lost if even a month were spent in laboratory research.

Only recently I learned from Prof. Peabody's biography of his son that Dr. Fitz had difficulty in obtaining the consent of the faculty to my new enterprise. It was without doubt generally felt by the clinical teachers, with the exception of Dr. Fitz, that it was a foolish undertaking because the view was then held that laboratory science played a mighty small part in the practical training of future practitioners. What had a laboratory research in bacteriology to do with the practice of medicine? The students had had the first two years of their course devoted to the laboratory, what they needed in the fourth year, most clinical teachers held, was not laboratory work but every bit of clinical instruction they could get. At the time of which I speak there was a great gulf fixed between the scientists and the clinicians in this school.

I mention this incident in such detail to show that it took courage for Peabody to follow a course that must have been frowned upon by every clinician he consulted excepting Dr. Fitz. We took a bare room in the newly opened build-

ings and fitted up a bacteriological laboratory. The problem assigned to Peabody was to isolate typhoid bacilli from the dejections of typhoid patients by the use of new methods. The program I proposed to him would have repelled most students. He had to go from his home in Cambridge each morning to the Massachusetts General Hospital and there gather up the collected feces of typhoid patients and bring them out to the school. The distance from the Massachusetts General Hospital to Longwood Avenue seemed much longer in those days when one had to travel by electric cars. Arriving at the school he had to make all the culture media, and to do all the work aided only by an untrained laboratory boy. He completed the research and we published it under our joint authorship, first in German in the *Centralblatt für Bacteriologie*, and later in English. Strange to relate the work yielded to him results of practical importance that we did not anticipate. The knowledge gained of the bacteriology of the typhoid bacillus enabled him, while an interne at the Massachusetts General Hospital, to isolate this micro-organism from the blood of the ear in all of five cases of typhoid fever admitted during the first week of the disease. Knowledge of what he had accomplished in the matter of early diagnosis spread rapidly. As a consequence while yet an interne he was asked to present the results of his hospital study before the Section of Medicine of the American Medical Association. Thus he did at the meeting in 1908. I can recall no other interne who has reported original work in clinical medicine at a meeting of our national society.

Peabody's gratitude to me for starting him on investigative work was far greater than I deserved, and time did not lessen it. Although he stood first in his class in the medical school he confessed to me years later that he felt no enthusiasm for the work during the first three years and that he lived laborious days simply from a sense of duty. In a letter written after the onset of his last illness he stated that it was I who first showed him "the joy and satisfaction of seeking new truths." In looking back over my life it is a source of pride to know I had some part in the education of this distinguished physician. At the same time I recognize the truth that all I did for Peabody was to act as a transmitter of something I had received in abundant measure from my own masters in medicine. Goethe in his conversations with Eckermann brought out the point clearly that when a man deducts the debts he owes to great predecessors in his field of work and to his own teachers and fellow-workers there is not much left that he can call his own. In my own case I know this is true. The happiness and satisfaction in my life work have been due to my

good fortune in being closely associated with a series of great men during my formative years who stamped me with the impress of their strong personalities. Three men who instilled into me a genuine love of medical investigation were teachers in this School Dr William T Porter Dr William T Councilman, and Dr Frank B Mallory, and I am glad of this opportunity to express my indebtedness to them.

You may be surprised to know that at the time I entered the Harvard Medical School Yale graduates were more highly favored than those from across the Charles. That is, if they had taken, as I had, the course in physiological chemistry given by Prof Chittenden, the first man to establish in America a laboratory for physiological chemistry.

At our introductory lecture in physiology the announcement was made by Prof H P Bowditch that if any members of the entering class had taken Prof Chittenden's course they would be excused from the regular work in physiological chemistry but would be expected to do special work in physiology in his laboratory. There I met the young assistant professor of physiology, Dr William T Porter. He took me through the well-equipped laboratory and showed me different forms of the elaborate apparatus used in his researches. Then he told me I could work with him on any one of three problems which he explained, each requiring for its solution different types of instruments. He added that if we got results worth reporting we would publish them jointly. The intimate association I enjoyed that year with Prof Porter was of great value to me. When I began to work with him I looked upon the original investigation we undertook simply as furnishing an opportunity to learn how to tie ligatures rapidly and securely, and to keep clean the field of operation by proper sponging. My ambition at that time was to be what Dr Oliver Wendell Holmes called "a drawer of blood and a hewer of members." In the course of time Dr Porter aroused my curiosity and I became interested in the experiments. He was making important studies on the work of the heart, a continuation of the fine Arbeit he had published in *Pflüger's Archiv* two years before. Through him I sensed the dignity of scientific research as exemplified by Heidenham and his assistant Hürtle under whom Dr Porter had worked in the Breslau Laboratory. His description stamped a picture on my mind of Heidenham walking to and fro on the shaded path in the park which adjoined his laboratory, buried in thoughts bearing on the investigations in progress. From Dr Porter's enthusiasm I gained some slight intimation of the joy of creative work. Following the path on which he started me I discovered later the fun that comes from exploring the unknown.

The man whom I look upon as my father in

medicine was also a professor in this school—Dr William T Councilman. I was his assistant for four of the happiest and most profitable years in my life. From the day I first worked in his laboratory to the very end of his life he was a loyal friend and always willing to help with wise counsel. Great in science he was still greater as a man. Read Cushing's sketch of him for there you will find a faithful picture of a strong and delightful personality. He was a modest, kindly, vigorous man with an open mind, who loved nature and his fellow man. To his students he brought the inspiration and knowledge he had gained from his own great masters—Martin in Baltimore, Conheim in Leipzig, and later Welch, who regarded Councilman as his dearest friend. His every thought and act were honest and sincere. He worked for the good of this school and for the good of his assistants and never for selfish ends. In the last decade of Mr Eliot's régime Dr Councilman's clear vision and unselfish labors did much to elevate this school toward the eminent position it occupies today in the world of medical education and research. Largely through Dr Councilman's efforts the barrier of prejudice and misunderstanding which existed between the laboratory and the clinic in this university was broken down.

When Councilman arrived here from Johns Hopkins he found a young assistant in the department by the name of Mallory whom he recognized as a man of exceptional ability. Soon Mallory became his right hand man and they worked together for many years producing a series of important monographs on diphtheria, cerebrospinal meningitis and other subjects. When the fine new pathological laboratory of the Boston City Hospital was opened in 1896 Dr Mallory was placed in charge of it. In June of that year, having just completed Dr Welch's course in pathology at Hopkins, I began to work in this new laboratory and then first came in contact with Dr Mallory. His name was already well known to us in Baltimore, and we had heard Dr Welch say that Weigert in Germany and Mallory in America led the world in the technique of pathological histology. For two years following my graduation I had the good fortune to work under Dr Mallory and to be one of the earliest of that long line of young men who have had the benefit of his personal instruction in observation and in the preparation of organs and tissues in such a way that careful observations of microscopic details were possible. That was the best kind of so-called elbow teaching. He influenced us more by example than precept. Most investigators when placed in charge of a large laboratory degenerate into administrators and organizers of the actual work which is done by assistants. Not so Mallory. From the day I first met him in the laboratory until the present I

have always found him busily at work unraveling the secret of the histological or gross specimen before him. The impact of his personality upon that of his assistants is as great as any man I have ever known. He created a definite school in pathology, and without conscious effort impressed his methods and his point of view upon his pupils. His enthusiasm for his work has never waned and it has a contagious quality about it that few can resist. His problems seem to exhilarate him and I feel sure that his attitude of mind toward his work has made it an engrossing pursuit compared with which the amusements of ordinary men would be dull indeed.

When discussing the particular problem upon which he is engaged he conveys to his hearer the feeling that nothing could be more interesting than its solution. Long may he live to work in the noble institute of pathology that bears his name.

The addresses given to preceding classes by the lecturers in this course have been of such value to student and practitioner alike that they have contributed distinction to the daily work of the physician. They have tended to raise the dignity of the art of medicine and in so doing have filled a need. Not a few of the ablest graduates of this school in recent years have felt during their intern days that the worst thing that could happen to them would be to earn their living by private practice, so great has been the lure of laboratory and teaching clinic.

Some of the lectures in this course have been collected and published in a volume entitled "Physician and Patient." Busy with prescribed studies it is possible that some of you have not read this helpful book.

Within recent years the study of personality in its relation to medicine has been revived and it appears that the old humanities and the new sciences are to be united. If so, Plato and Aristotle may once again join Hippocrates and Galen as the fathers of medicine. My old teacher, Prof. Kiehl, in a recent address on personality and disease-forms says that while the medicine of the recent past rests on natural science as its sole foundation, that of the future will undoubtedly be built partly on natural science (*Naturwissenschaft*) and partly on psychology, metaphysics and ethics (*Geisteswissenschaft*). This statement which may sound revolutionary should carry weight for it is made by that undoubted leader in clinical medicine and pathological physiology, Rudolf Kiehl. The great pioneer in this new field of medical investigation dealing with the relation of personality to disease is no less a man than Friedrich Kraus of Berlin from whom in his early years your dean, Dr. Edsall, obtained light and leading. Kraus's first studies on personality as it relates to clinical investigation appeared more

than a quarter of a century ago. Since his early work important studies on personality and character in their relation to medicine by himself and by others have been coming from the press in increasing number. A new science, characterology, like a new star in the firmament, has appeared. The word "characterology" is not listed even in recent English dictionaries except the latest, the 1934 edition of Webster's International.

Professor Kiehl in the last edition of his famous work on pathological physiology stresses the importance of personality in the study of the sick man. The man is a unit, he says, meaning a psychophysical entity, and this man is sick. You as practising physicians will be dealing always with a personality in the form of your patient who is being acted upon at the time he seeks your aid by some external or internal disturbing force. For example, the external disturbance may be a nail in the foot or, the internal disturbance, one caused by an ulcer of the stomach or painful thoughts. Let me take the first of these examples to make my meaning clear. The patient has a nail in his foot. He pulls it out himself. Why does he come to the doctor? Very likely because he fears infection, possibly lockjaw. Your whole duty as a doctor does not end in giving him antitoxin. It is equally your duty to remove from his mind the fear produced by this injury to his body.

The problem of determining what is disturbing the personality of your patient presents itself every day at the bedside of every patient to every practitioner. Each problem is different and no matter how long you practise the healing art the same problem is never repeated, for the same personality is not found twice in the same state of being and subjected to exactly the same disturbing irritant. Kiehl believes that when pathological physiology has advanced sufficiently to explain the effect of injury upon personality, pathological physiology will become a part of the *Geisteswissenschaft*.

It is well to remind ourselves from time to time that the word cure comes from the Latin *cura* and the cure of the patient originally meant simply the care of the patient. "The priest had the parish for his cure, the physician the sick for his" (James Jackson). In this original sense we should continue to cure our patients until they recover or until death closes the scene. Toward the end of a fatal illness the family of the patient may need our cure more than does the one who is dying. The importance of caring for the patient to life's end has been emphasized by one who has previously lectured in this course, our beloved Dr. Alfred Worcester, a man who practises what he preaches.

The ancients rightly styled man a microcosm or little world within himself. The advances made in psychology have emphasized the truth of

this old view. Back of our conscious minds is the undiscovered country of the unconscious. Man has prided himself that he is guided by reason. One period of history called itself the age of reason. The truth is quite otherwise. Modern psychology teaches that the color of our thoughts and the motive power behind our actions are more influenced by the emotions than the reason. Of this drive of the affects we are usually quite unconscious. Man's free will to think and to act is inhibited or strengthened by the impulses resulting from a multitude of influences inherited or acquired. Often in us some virtue or vice passed on by an unknown ancestor lives again.

Fortunately environment has great influence in directing and strengthening native gifts. The impact of the personality of a great teacher on the personality of his students and disciples has wrought wonders in transforming lives and creating powers which some students in turn have been able to pass on to others. This transmission of spiritual and intellectual energy has been exhibited many times in the course of medical history. The seed sown by an inspired teacher often falls on sterile ground. It is true, but when it lodges on fertile soil it may bring forth a hundred fold.

In the favoring atmosphere of this medical school the personality and character of the carefully selected group that have the privilege of studying here should grow apace if you that make up the student body are receptive to the good influences that are acting upon you. These influences are like radio waves and to perceive them you must have a recording apparatus that is correctly tuned. True success as a physician is largely dependent on personality and character. In the sick room what you are may speak so loud that the patient cannot hear what you say.

The real Harvard Medical School does not consist of these stately marble buildings. They are simply the outward sign of the real medical school which is a house not made with hands. Its builders have been those master minds of medicine who have lived and labored for it since the foundation in 1783.

The Father of the Harvard Medical School John Warren, possessed a personality of a very high type, and the record of his life is an inspiring one. "That we may do justice to his fame," said James Jackson, "let us make it useful as was his life. Let us all, and particularly his professional brethren, strive to imitate his virtues." You can learn to know the real man by studying his biography written by his son Edward Warren. No teacher was ever more self-taught than John Warren, and few have had more obstacles to overcome. His plan to form a medical school aroused the active opposition of all the leading physicians in Boston. They so misunderstood the man that in

his efforts to help students they saw only an attempt at personal aggrandizement. They showed their resentment. The unanimous vote of the local medical society prevented Dr. Warren from giving clinical instruction in any hospital from the founding of the school in Cambridge in 1783 until its removal to Boston 1810, a period of twenty-seven years. As a result the school in Cambridge was a poor weak thing. There were few students and usually only one graduate a year, never more than two. Not only were his motives wrongly interpreted by his fellow practitioners in Boston with the result that they became as a group hostile to him and to the School but his medical colleague in the faculty of three, Dr. Benjamin Waterhouse, became his enemy. It is sad indeed that Dr. Waterhouse, a man gifted by nature and equipped with the best medical education of any American of his generation should have been blind to Dr. Warren's virtues. His antagonism against Warren grew with the years until it finally led to inexcusable acts which resulted in his dismissal from the school. We have the testimony of James Jackson that Warren's nature "was ardent, most affectionate, most generous. Fair and open himself, he learnt to distrust others only from experience."

Soon after John Warren entered the army at the outbreak of the Revolutionary War his ability attracted the attention of Dr. John Morgan, the Surgeon General. Although a very young physician, Warren was placed by Morgan in charge of military hospitals, first on Long Island and then in New Jersey. Two years after his promotion to the rank of hospital surgeon, Morgan's successor, William Shippen, appointed Warren chief of the army hospital in Boston—a position he held until the end of the war. The opportunities thus furnished for the study of anatomy and surgery enabled Warren to develop his rich talents.

Not only were Morgan and Shippen the founders of the first medical school in America, which later became the medical department of the University of Pennsylvania, but through the aid and support given John Warren, may be truly regarded as the grandfathers of the Harvard Medical School.

When John Warren began his life work in Boston he alone was actively interested in medicine as a science. We have the testimony of a contemporary, Ephraim Eliot that the Boston physicians were jealous of one another and like oil and vinegar they would not unite. "They did not love each other," says Eliot, "and all were determined to put down Warren, but they could not, he rose triumphant over them all."

John Warren fortunately lived to see the establishment of a vigorous medical school in Boston with an harmonious faculty. His eldest son John Collins Warren, together with another

young man, James Jackson, carried on the work John Warren had begun. John Collins Warren succeeded his father as professor of anatomy and surgery and like him became the leading surgeon in New England.

The Massachusetts General Hospital is the realization of John Warren's dream. It was he that secured an initial bequest from William Phillips to be paid to the trustees "as soon as they shall determine to begin the work." Unfortunately John Warren did not live to see even the laying of the corner stone, which was done with much ceremony three years after his death. On entering the old Bulfinch Building of the Massachusetts General Hospital it is well to call to mind the memory of two men, John Collins Warren and James Jackson, who, inspired by John Warren, founded the hospital by their joint labors. These two men who did so much for this school, for the Massachusetts General Hospital, and for the elevation of the medical profession in this country, have shown their personalities in their published works, and in their writings their spirit survives. Dr Jackson still lives in his *Memoir of James Jackson, Jr.* and the "Letters to a Young Physician" and Dr J C Warren in his biographical notes which are incorporated in the biography prepared by his brother. They brought to this medical community a spirit of peace, unity, and concord. Writing in 1867, Dr Oliver Wendell Holmes said, "No man ever did more, if so

much, as Dr Jackson to produce and maintain the spirit of harmony for which we consider our medical community as somewhat exceptionally distinguished. If this harmony should ever be threatened I could wish that every impatient and irritable member of the profession would read that beautiful, that noble Preface to the 'Letters' addressed to John Collins Warren. I know nothing finer in the medical literature of all time than this Prefatory Introduction." This spirit of harmony still characterizes our medical community nearly seventy years after Dr Holmes wrote the words quoted. Let us do honor to the men who first exhibited it here, John Warren, John Collins Warren, and James Jackson.

The men I have selected to illustrate the qualities of heart and mind that make the personality of the physician successful in his profession have all contributed much to this school. The more you study them the greater will be your admiration for them. It is my hope that you may make them your friends. In the library they, through their writings, are always ready to instruct you. Learn of them. In gaining instruction you may, I trust, also receive inspiration. In developing your own personalities you would do well to imitate the virtues of the succession of physicians from John Warren to Francis Peabody who have labored here for the advancement of the science and art of medicine.

ABDOMINAL COMPRESSION AND VAGINAL TAMPONADE IN THE TREATMENT OF ABRUPTIO PLACENTAE*

BY ROY J. HEFFERNAN, M.D.†

ABRUPTIO placenta is one of the major catastrophes of obstetrics. As soon as the diagnosis is made or *suspected*, the patient should be hospitalized. Watchful expectancy, an admirable policy in many abnormal obstetrical conditions, has no place in the treatment of premature separation of the placenta. Measures should be promptly instituted to (1) control hemorrhage, (2) improve the patient's general condition, and (3) empty the uterus. As soon as an abdominal and pelvic examination has been made, if the patient is bleeding, externally or internally, a firm Spanish windlass should be applied to the abdomen with a tight T-binder to the perineum, and morphine sulphate, grain $\frac{1}{4}$, administered subcutaneously. This simple procedure, advocated years ago by the Dublin School¹, usually stops the hemorrhage and permits a careful unhurried analysis of the case,

so that the safest type of delivery may be selected.

Meanwhile the acute anemia or shock so often present should be relieved by blood transfusion, external heat, and glucose or saline solution by vein and hypodermoclysis. Needless to say no active operative intervention should be attempted until the patient's general condition warrants it.

In recent years cesarean section has been advocated as the best treatment for the bleeding complications of the third trimester of pregnancy, namely placenta previa and abruptio placenta. For most cases of placenta previa this is good practice. In this condition delivery through the pelvis is fraught with greater danger to both mother and baby. Rupture of the uterus and extensive lacerations of the vascular friable cervix may occur in the best hands. In abruptio placenta, however, the integrity of the lower segment and cervix has not been compromised and the conservative management of more of these cases is desirable. Unquestion-

*Read at a meeting of the New England Obstetrical and Gynecological Society at the Carney Hospital Boston November 13, 1935.

†Heffernan, Roy J.—Visiting Gynecologist and Obstetrician, Carney Hospital. For record and address of author see "This Week's Issue" page 381.

ably if the parturient is at or near term with an undilated cervix, the baby alive, and symptoms of severe abruptio placentae, an abdominal delivery is indicated. Again, if the symptoms are sufficiently severe to warrant a diagnosis of uteroplacental apoplexy, with hemorrhage in filtration of the myometrium (the so-called "Couvelaire uterus"), a cesarean should of course be performed, followed by hysterectomy if the uterus will not contract.

However, if the symptoms are less marked, or occur many weeks before term so that the baby is very premature, or dead or if the patient is extremely toxic or anemic and not a good operative risk, or if labor has started so that there is some dilatation of the cervix the application of a firm Spanish windlass, with a tight vaginal tamponade or Voorhees bag supplemented when necessary by blood transfusion and other supportive treatment, will usually result in the completion of the first stage of labor with very little additional hemorrhage so that delivery through the pelvis may be safely accomplished. Before packing, the patient should be prepared with scrupulous care and the bladder emptied. If narrow (one inch) iodoform gauze is not available, plain gauze may be used after a thorough soaking in two per cent aqueous solution of mercurochrome. The cervix and vagina should be packed as tightly as possible.

These points can best be illustrated by describing briefly the following cases.

CASE 1 Mrs. J. aged 25 para 2

First pregnancy interrupted three weeks before term for severe pre-eclamptic toxemia. The last period was January 11 with the expected date of confinement October 18. In June and July the patient showed a slight trace of albumin in the urine and the blood pressure rose from 120/70 to 144/94. On August 16 while working about the house the patient felt a sudden sharp pain to the left of the umbilicus began to flow and felt faint. When seen at her home a short while later the patient was flowing profusely passing large clots and the abdomen was firm and tense pulse 96 blood pressure 134/88. A firm Spanish windlass and T binder were applied, a quarter grain of morphine sulphate was administered and the patient transferred to the Carney Hospital. The cervix was found to be one finger dilated and half effaced. The cervix and vagina were firmly packed with narrow iodoform gauze and the Spanish windlass continued. There was no further bleeding. One hour later active labor started and after five hours the pack was removed and a 3 lb., 1 oz. baby delivered followed by the placenta, which showed the characteristic depression filled with old blood clot. The uterus contracted well and the patient made an uneventful recovery returning to her home in twelve days. The baby gained slowly and was discharged in four weeks.

CASE 2 This is interesting because trauma was apparently the cause of the separation.

Mrs. N., aged 35 a primipara, had her last period January 26. Blood pressure and urine were nor-

mal for four months. On June 20 the patient was in an automobile accident and sustained a severe blow on the abdomen. She had considerable abdominal pain with moderate flowing which subsided after three days during which the patient was confined to her bed and received four injections of morphine sulphate grain one-sixth. After the fourth day the patient was allowed to be up and about there was an occasional slight showing and three weeks later the abdominal pain recurred with profuse flowing. This subsided promptly under the treatment outlined above. Five weeks later the patient had a similar experience. The general condition remained good blood pressure remained normal and urinalysis was negative. There was slight staining with occasional flowing off and on until September 4 when a profuse flow with clots made it necessary to transfer the patient to the Carney Hospital. The fundus was two fingers above the umbilicus the fetal heart right and below rate 144 the cervix one finger dilated. The pulse was 108 blood pressure 110/84 the red count 3 200 000 with hemoglobin of 60 per cent. A firm Spanish windlass was applied and a number 5 Voorhees bag inserted in the cervix. All bleeding stopped immediately. In one-half hour labor pains started and the bag was expelled three hours later. A 2 lb 3 oz baby was delivered by breech extraction. It expired after three hours. The placenta showed a characteristic punched-out area four inches in diameter extending to the margin of the placenta, and a considerable amount of old blood and blood clots was expelled. The uterus contracted well and the patient was discharged in good condition except for a moderate secondary anemia, on the fourteenth day.

CASE 3 Complete separation with internal concealed hemorrhage

Mrs. P., aged 45 para 12. Nine children living and well. All previous deliveries normal. The expected date of confinement was November 25. On November 7 the patient fell on the cellar steps and struck her left side. After resting awhile she felt well and continued to do her housework. She had no pain or bleeding until the present date November 10. Early that morning she went to the bathroom and while voiding felt something "drop" in the lower abdomen, but experienced no pain. Shortly after this she fainted. Thinking that this was due to hunger she ate some food but fainted again shortly after. She returned to bed and fainted again. She then began to experience pain in the right side of the abdomen, and felt nauseated and weak. She observed that her abdomen was increasing in size and said she felt as though the fetus were being pushed upward. In the afternoon she called Dr. Fred Costanza, who found her in shock, her face ashen white and drawn, the abdomen tense and boardlike, with the blood pressure 100/60 and the pulse rate 100 of poor quality. There was no sign of any vaginal bleeding or staining. She was transferred to the Quincy Hospital and I saw her in consultation a short while later. The general condition was as stated above, the r.b.c. 3 000 800 w.b.c. 14 000 hemoglobin 60 per cent. The abdomen was tremendously enlarged with a rounded mass larger than a fetal head projecting from the upper part of the fundus. The cervix was one finger dilated and well effaced, the membranes were intact there was no bleeding and no evidence of blood serum in the vagina. A firm abdominal binder was applied and the vagina packed tightly with iodoform gauze. Seven hundred cc of blood were given by the citrate method, and 1000 cc of five per cent glucose and saline solution administered by hypodermoclysis. The patient's general condition improved and four hours later the pack

was removed and she delivered spontaneously a 6 lb stillborn fetus, immediately followed by the placenta, the entire surface of which was covered with old and new blood clots. Apparently there had been a complete antepartum separation of the placenta. Several very large old clots, sufficient to completely fill a large basin, were expelled and a moderate postpartum hemorrhage occurred. This was checked by pituitrin and ergot, after which the uterus contracted well. Six hours later the pulse had risen to 140, was of poor quality, the patient felt nauseated, and the blood pressure had dropped to 84/40. Another indirect transfusion of 600 cc of blood was given, and the patient made a slow but steady improvement, and was discharged in fair condition on the fourteenth day.

CASE 4 Mrs M, aged 33, para 3

First baby was delivered with high forceps and died five hours later. Second baby was hydrocephalic, and delivered at the eighth month. The last period was October 15, probable date of confinement July 22. The pregnancy was normal until the eighth month when a slight trace of albumin appeared, with a few headaches and moderate edema of the ankles. The blood pressure remained normal. On June 12 she was awakened at four o'clock in the morning by a feeling of abdominal discomfort and backache. On going to the bathroom she observed that she was flowing profusely. Violent fetal movements were noted, which ceased completely after a few minutes. I saw her a short while later at St Margaret's Hospital. The fundus was considerably larger than it had been four days previously, there was a steady moderate flow of bright red blood, the fetal heart could not be heard, the uterus was tense and firm and the abdomen tender. The cervix was two fingers dilated, and partly taken up. The patient looked drawn and pale, blood pressure was 104/56, the pulse 128, of poor quality. A firm Spanish windlass was applied and the vagina packed tightly with iodoform gauze. Five hundred cc of blood was then given by the citrate method. The patient's general condition improved and the pulse dropped to 104. After two hours the patient's condition remained about the same, and as active labor had not started, she was given one minim of pituitrin every twenty minutes. After the second dose labor pains began and four hours later the patient was delivered of a 6 lb, 4 oz stillborn fetus. The placenta had apparently undergone complete separation as it immediately followed the fetus, and the maternal surface was covered with clotted blood. A considerable amount of fluid and clotted blood followed the placenta. The uterus did not respond well to massage, intramuscular pituitrin and ergot, but after the injection of three minims of pituitrin, diluted with four cc of warm salt solution, by vein, the uterus became firm and remained so. The patient made a good recovery and was discharged on the twelfth day.

CASE 5 Mrs K, aged 37, para 1

Last period July 12. Expected date of confinement April 19. March 14 the patient had no toxic symptoms, the blood pressure was 130/80 and urinalysis was negative. The fundus was three fingers below the ensiform, with the fetal heart left and below. Two days later the patient retired with a headache and a feeling of general malaise. At six o'clock the following morning she awoke to find herself flowing profusely. She was transferred to the Faulkner Hospital, where she arrived in a condition of shock, with a pulse of 130, of poor quality, marked pallor, and flowing profusely. The abdomen was firm and tender. No fetal heart sounds could be heard. The cervix was two fingers di-

lated, well taken up, with the vertex dipping into the inlet. A firm Spanish windlass was applied, the vagina packed tightly with gauze impregnated with two per cent mercurochrome solution, and glucose and saline given intravenously. After some delay in securing a donor, a transfusion of 700 cc of blood was given. Labor had apparently started before the patient reached the hospital, and it progressed with very little further bleeding for eight hours. The patient's blood pressure had risen to 140/90, her color had improved, and the pulse was 96, of good quality. The pack was removed, cervix found to be five fingers dilated, and a 6 lb, 12 oz stillborn fetus was delivered by mid forceps. The placenta showed the characteristic changes of abruptio placentae involving more than half of the maternal surface. The uterus contracted well and the patient was returned to bed in fair condition. She made an uneventful recovery, except for a slough of the antecubital space which did not fully heal for two months. She was discharged from the hospital in good condition on the sixteenth day.

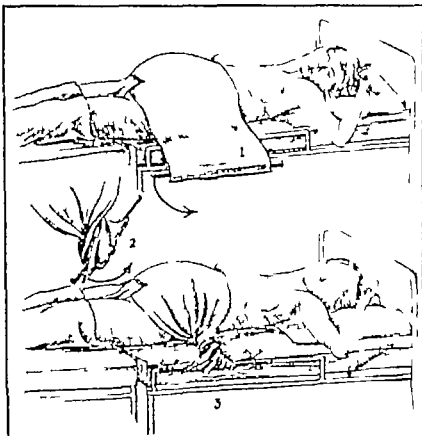
CASE 6 Mrs C, aged 42, para 5

First baby delivered by forceps, others normal. All previous children living and well. This patient was seen at St Margaret's Hospital, in consultation with Dr John A. Foley on May 14. During the past two months she had shown signs of a moderate preeclamptic toxemia, with a blood pressure ranging between 140/90 and 150/100, a small amount of albumin in the urine, occasional headaches and dizziness, and increasing edema of the feet and legs. The expected date of confinement was May 24. The patient had been in labor for four hours and was having regular pains every five minutes, lasting about forty seconds, when she suddenly experienced a sharp pain near the umbilicus, felt weak and dizzy, and fainted. Moderate flowing ensued, and the pulse increased to 118. The patient appeared pale and anxious, the abdomen was very large and suggested a multiple pregnancy. She complained of constant backache and dull constant pain in the abdomen. The uterus between pains was relaxed and not firm and tense, as it usually is with abruptio placentae. A fetal heart could be heard in the right lower quadrant at the rate of 136. Rectal examination showed a head engaged, with the cervix four fingers dilated, membranes intact. A firm abdominal binder and tight T binder were applied, with immediate cessation of the flow. The patient's general condition improved, the pulse dropped to 104, and preparations were made for a blood transfusion. Gas was administered with the labor pains, which increased until in one hour they resembled second stage pains. The cervix was then found to be fully dilated, and a 6 lb, 12 oz child was extracted with mid forceps. A second baby, which weighed 7 lbs, 1 oz, was then delivered by version and breech extraction. Both babies were alive and well. Under the usual stimulation the fundus contracted well and a large placenta, showing a depression four inches in diameter on the maternal surface, was expelled. The patient's general condition was fairly good, so that a transfusion was not given. She made a good recovery and returned home with her babies on the fourteenth day.

CASE 7 Mrs C, aged 29 years Para 1

This patient was seen in consultation with Dr Joseph McSweeney at the Somerville Hospital. The expected date of confinement was November 19. Two weeks before admission the blood pressure had risen to 140/100 and the urine showed a slight trace of albumin. There were no other symptoms, and the usual treatment for a mild toxemia was instituted. On September 29 the patient had a severe chill, but the temperature remained normal. Shortly after

that she noted a cessation of fetal movements, and developed a slight edema of the ankles with occasional blurring of vision and headache. The urine showed a trace of albumin. On October 5 she experienced a sudden flow of blood soon followed by the onset of labor pains. She noted that a gush of blood would occur with each contraction of the uterus. She was then transferred to the Somerville



The Spanish Windlass. 1. Long abdominal binder, perine binder and wooden rod in position. 2. Tightening the binder by twisting the rod. 3. The Spanish Windlass applied.

Hospital. When seen the pulse was 94 of fair quality there was moderate pallor blood pressure 150/110 with the fundus three fingers above the umbilicus, firm and tender and the patient having thirty-second contractions every five minutes. There was a steady moderate flow of blood from the vagina and the cervix was two fingers dilated and well taken up with the vertex high. The fetal heart could not be heard. A firm Spanish windlass was applied and a number 5 Voorhees bag in-

serted in the cervix, with a half pound weight attached. Except for very slight oozing this controlled the bleeding. The patient's general condition remained fair and preparations for a transfusion were made. She had been nauseated for several hours and had not retained fluid so 1000 cc of five per cent glucose and saline was given by hypodermoclysis. Morphine sulphate grain 1/4 was given at the onset of treatment. The bag was inserted at 8:00 A.M. and was expelled three and a half hours later. Under ether anesthesia a premature macerated fetus was delivered by version and breech extraction. The placenta showed an area of separation involving about one-third of the maternal surface with old blood and clots in one area indicating a probable first slight separation at the time of the chill three days before. The uterus reacted well and the patient was returned to bed in fair condition. She made an excellent recovery and was discharged to her home on the twelfth day.

SUMMARY AND CONCLUSIONS

Compression of the uteroplacental sinuses by means of a Spanish windlass supplemented by cervicovaginal tamponade usually controls the hemorrhage in abruptio placentae.

This affords time for transfusion and other measures to improve the general condition and seems to shorten and expedite labor.

Cesarean section should be reserved for cases seen at or near term, with an undilated cervix and a baby in good condition, and when true uterine apoplexy with hemorrhagic infiltration is believed to be present.

Seven cases of abruptio placentae are described demonstrating the value of the conservative treatment.

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CASE REPORT

Inversion of the Uterus in Two Consecutive Pregnancies

By ROGER E. STEWART, M.D.*

THIS patient was first seen by me on March 7, 1935, with the following history:

She was thirty-seven years of age and had been married four years. With her first pregnancy she had severe preeclampsia. The systolic pressure went to 230 mm. the urine boiled solid, and there was retinitis and vomiting. A live baby weighing 6 lbs. 4 oz. was secured by classical cesarean section. It was well developed. An undelivered fetus about three months in size was removed with the placenta. The postpartum course was uneventful. This delivery was on April 3, 1933. On October 3, 1933 she was delivered at term with a breech pres-

entation of a child that did not live. She was said to have been toxic with this pregnancy though her impression is that she was well throughout. While the obstetrician was waiting for the placenta without any credé maneuver it was extruded and quickly followed by a completely inverted uterus. The placenta was strongly adherent, and removed with difficulty. The uterus was restored at once manually. The patient's physician reported no shock or hemorrhage but the postpartum course was marked by a week of subinvolution, secondary anemia, and considerable mental depression.

The patient was seen by me early in her third pregnancy. In view of her age (thirty-seven) and previous history a cesarean section was thought to be her best chance for getting a live baby and also for her own survival. Her pregnancy was normal throughout. A low transverse cervical section was

Stewart, Roger E.—Assistant in Gynecology, Harvard U. T. Varsity Medical School. For record and odd cases of all see "This Week's Issue" page 241.

performed at term, on August 17, 1935 at the Massachusetts Women's Hospital, and a vigorous seven and a half pound infant delivered. After waiting awhile, with no signs of separation of the placenta, slight *crédé* expression was resorted to. Shortly after this the placenta appeared in the incision. It quickly became extruded, and the uterus followed by completely inverting itself. The placenta was very adherent, and no point of separation could be found between its margin and the endometrium. Hysterectomy seemed the only way out, and had already been decided upon, when a slight area of separation appeared at one edge of the placenta. With considerable difficulty, the latter was removed, complete. There was no hemorrhage and no shock. The pulse ran at the rate of 112 during the induction of anesthesia, and remained at this level for forty minutes. It then gradually declined to 80 at the end of one hour and ten minutes. Her convalescence was uneventful, and she went home on the thirteenth day, postoperative.

COMMENT

While it is possible that the force used was sufficient to initiate inversion, it seems impossible as the pressure was so slight. The case is remarkable as an example of inversion, twice, with adherent placenta, but with apparently no shock or hemorrhage. It suggests some predisposition on the part of the individuals, in view of the many patients subjected to the *crédé* maneuver with all degrees of strength, experience, and judgment, in whom inversion does not result.

REFERENCE

Fox P C Inversion of uterus in 2 successive pregnancies
Am J Obst. & Gynec. 30: 235 (August) 1935

WIDESPREAD DECEPTION FOUND
IN ALCOHOL RUBS

Rubbing alcohol is frequently adulterated and misbranded, Federal drug officials find. In recent years rubbing alcohol compounds have been used widely for massage and bathing purposes. In December and January, activity in inspecting and testing supplies on the market have led to seizures involving 13,000 bottles, shipped under various names by dealers in the Eastern States. In all the seized rubbing compounds, the examining officials found isopropyl alcohol instead of Ethyl (grain) alcohol. One lot—in a class by itself—contained only two per cent of isopropyl alcohol, although the label on the shipping case claimed "70 per cent alcohol."

Isopropyl alcohol, relatively a newcomer among the commercial alcohols, is a by-product of the petroleum refining industry. It is known that this alcohol, when taken into the human system, is destroyed and eliminated very slowly, that is, its harmful effects are relatively persistent. For this reason, its use in foods such as flavoring extracts has been vigorously opposed by the Food and Drug Administration, and its use in drugs for internal use is subject to like attack.

W G Campbell, Chief of the Administration, stated recently, however, that the recent actions do not depend on proof of harmful effects from isopropyl alcohol. "It is not known whether harm does result from its external use," he said, "but Federal courts have repeatedly stated that one of the purposes of the Food and Drugs Act is to enable purchasers to buy foods and drugs for what they really are."

It was pointed out that it is misleading to label an isopropyl alcohol mixture in such a way that the package is an imitation of the well recognized rub

made up almost entirely of ethyl alcohol. This mislabeling is therefore in violation of the Food and Drugs Act. The purchaser does not receive the article he is led to expect. In some of the recent cases, the word "isopropyl" or the chemical symbols C_3H_7OH appeared in small letters on the labels, but the Administration does not consider either of these additions sufficient to inform the purchaser of the true nature of the article, especially in view of the prominent designation "alcohol" or equivalent expressions on the label. The Administration has taken the position that the labels of isopropyl alcohol preparations intended for external bodily use should show the exact nature of the article, without any accompanying words or trade names which tend to confuse the article with ethyl alcohol.

VIOLATIONS OF THE CAUSTIC POISON ACT

In the latest published list of judgments under the Act, three of the eight cases reported dealt with toys. One was a balloon outfit which included a dangerous acid to be used in generating gas for the balloon. Two cases resulted in taking off the market miniature educational chemistry outfits that included dangerous chemicals.

This Act requires that certain caustic or corrosive substances and preparations containing them in a specified concentration shall be labeled to bear the word "Poison", suitable directions as to antidotes, the common name of the poison, and the name and address of the manufacturer, packer, seller, or distributor. The substances are hydrochloric, sulphuric, nitric, oxalic, carbolic, acetic, and hypochlorous acids, salts of oxalic acid, potassium hydroxide, sodium hydroxide, silver nitrate, and ammonia water.—*Bulletin, U S Department of Agriculture*

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., Editor

CASE 22081

PRESENTATION OF CASE

First Admission. A fifty-six year old white American nurse was admitted complaining of soreness in the right upper abdomen.

Three weeks before entry she developed a vague dragging soreness in the right upper abdomen and flank. This was persistent but did not increase in severity. During the same time she noted shortness of breath with moderate exertion and some swelling of her ankles. She had frequent cramps in her calves at night. Other than a marked degree of flatulence there were no gastrointestinal symptoms. Her bowel movements were kept active by taking two laxative tablets three times daily. Three days before entry she was seized with severe non-radiating colicky pain in the right upper quadrant. There were no acholic stools, nausea, emesis or jaundice. The pain continued for two days and then abruptly subsided. Thereafter she felt quite well.

Twelve years prior to admission she had been ill with severe right upper abdominal pain associated with jaundice, nausea, emesis, and chills. At this time she was said to have passed two gall stones.

Her mother and one brother died of tuberculosis. Her father died of carcinoma of the rectum. One sister had diabetes.

Physical examination showed a short obese female weighing about 200 pounds. The tonsils were enlarged but not reddened. The heart and lungs were negative. The blood pressure was 150/75. The abdomen was full and rounded. Tenderness without spasm was elicited with moderate pressure in the right upper quadrant and high in the epigastrium. The liver was definitely enlarged and tender. There was no ascites. A few varicose veins were observed upon the legs and there was considerable edema of the ankles and feet.

The temperature, pulse, and respirations were normal.

Examination of the urine showed a specific gravity of 1.015 with a slight trace of albumin but was otherwise negative. The blood showed a red cell count of 5,160,000, with a hemoglobin

of 80 per cent. The white cell count was 15,500. 85 per cent polymorphonuclears. The nonprotein nitrogen of the blood was 39 milligrams per cent. A fasting blood sugar was 101 milligrams per cent. A Graham test showed no concentration of the dye.

The patient was discharged on the third day. *Second Admission*, four days later.

Two days after discharge from the hospital the patient was seized with severe, sharp right upper abdominal pain which radiated to the top of the right shoulder. There was associated nausea and emesis on the day of reentry. The pain persisted and increased in severity.

Physical examination showed no change since leaving the hospital except marked tenderness and spasm in both upper quadrants and in the epigastrium.

The temperature was 98.6°, the pulse 100. The respirations were 20.

Examination of the urine showed a specific gravity of 1.026 with a slight trace of albumin. The sediment contained 6 white blood cells and 50 red blood cells per field. The blood showed a white cell count of 13,000. The stools were brown and examination was negative.

On the second day a cholecystostomy was done. Except for a slight postoperative rise of 101° and an occasional rise to 100° during the second hospital week the patient's temperature remained normal. The postoperative course was good for about two weeks, at which time the patient gradually became jaundiced. An icterus index was 50 and a van den Bergh was 9.6 milligrams per cent. The icterus index gradually rose to 70. The nonprotein nitrogen of the blood was 58 milligrams and the serum chlorides were equivalent to 85 cubic centimeters N/10 sodium chloride. The urine showed a large amount of bile and the sediment contained a few red and white blood cells. The red cell count of the blood was 4,700,000 with a hemoglobin of 85 per cent. The white cell count was 23,700, 95 per cent polymorphonuclears. The stools were tan colored and gave a strong reaction to the guaiac test. Physical examination showed the patient to be dyspneic. There was edema of the extremities. The tongue was dry. The heart sounds were regular, rate 90, and the quality was only fair. The blood pressure was 110/80. The abdomen was soft, full, and shifting dullness was elicited in the flanks. There was no tenderness in the liver area. Her condition became progressively worse, she developed gallop rhythm, and finally expired on the twenty-seventh hospital day, about a week after the onset of her jaundice.

DIFFERENTIAL DIAGNOSIS

DR. HORATIO ROGERS. From the fact that this patient was a nurse we may take her history as above average in accuracy.

From the first episode we can say that she had a mild attack of something, presumably gallbladder disease, but if you look closely you will see that it is a little more than that. It was accompanied by dyspnea and swelling of the ankles, and followed by an unusual degree of weakness. This may or may not be an integral part of her present disease.

The sudden onset and abrupt termination of her attack are very suggestive of a mechanical cause.

From the past history we know that she has had gall stones, and I assume that she still has a pathological gallbladder, presumably the cause of this present attack.

Physical examination adds a few points. The blood pressure is not elevated. The liver is large and tender. The normal temperature rules out an acute inflammatory disease but the mild leukocytosis suggests the presence of some lesser degree of sepsis. The cholecystogram either was unsuccessful or indicates gallbladder pathology, I think the latter because it fits in with what we already know.

DR. GEORGE W. HOLMES: These films of course fail to show the outline of the gallbladder. You can see the edge of the liver quite well, and the edge of the kidney. I should think if the gallbladder had any dye at all it would have shown. It probably would be in this area and there is nothing there to suggest gall stones.

DR. ROGERS: If they thought they were dealing with a mild subsiding attack of cholecystitis or cholelithiasis in a poor risk patient they might perfectly well have discharged her on the third day.

The second attack is obviously more severe than the first, with marked systemic reaction and pain radiating to the right shoulder as in irritation of the right diaphragm, rather than radiation to the back as we should expect from gallbladder disease. There is still no fever.

Blood in the urine is confusing, since she has no jaundice, and the only other hint about kidney is that her original soreness was in the flank as well as the upper abdomen. It may be due to trauma from a catheter or it may be an important lead. The white count is lower than before, another point in favor of mechanical rather than inflammatory damage.

It is legitimate to speculate as to why a cholecystostomy was done. Not for jaundice, not for empyema of the gallbladder. The patient was a poor surgical risk but her symptoms were getting worse. The diagnosis was not entirely clear. An exploration was justifiable. The surgeon may have found that more surgery was desirable but unsafe, or that some inoperable condition existed.

Following operation she became progressively jaundiced in spite of a tube sewed into the gallbladder. That seems very queer. The chlorides are diminished, probably by loss of

bile from the tube and through vomiting. The tan color of the stools must indicate the presence of bile as well as blood. I cannot explain the blood unless her jaundice, brief as it seems to have been, accounts for it. At all events it is evident that the patient did not have a complete obstruction of the common duct.

A PHYSICIAN: I think we ought to know whether she drained any bile.

DR. ROGERS: I am taking "she did well for two weeks" as meaning that she did.

Jaundice with bile in the stools, unless it is hemolytic jaundice (and there is no shred of evidence for that) must be of intrahepatic origin and due to marked liver damage.

We are now dealing with a very sick patient with deep jaundice, dyspnea, edema and fluid in the abdomen. Is the fluid bile or ascitic fluid? There is no story of a sudden accident following operation to suggest the escape of bile into the abdomen. I shall assume ascites. Note that although the abdomen is now soft, nothing further is said of the enlarged liver. What has become of it? The spleen was never felt.

It seems to me that we have ample evidence of gallbladder and liver disease. Let us consider the common causes of death from gallbladder disease.

1 Mechanical accidents, such as rupture, or perforation of a stone into the intestine.

2 Infection.

3 Obstruction of the bile ducts by stone.

We have some evidence for 2 and 3 but none for 1 except the suddenness of events at first. Her last white count is consistent with some bile duct infection. We cannot rule out stones, but we feel sure the common duct is open. We know there is liver damage sufficient to cause deep jaundice and probably death, but what, besides low-grade infection, is causing the liver damage?

She is fifty-six. It is reasonable to suppose that she might have had some neoplasm with metastasis in the liver or even primary cancer of the liver or bile ducts, but there is little evidence for such a diagnosis. The acuteness of the symptoms, lack of gradual onset, and disappearance of the enlarged liver are all against cancer.

Viewing her disease as a whole, it seems to me the things that distinguish it from plain cholecystitis are the circulatory manifestations—edema, dyspnea, ascites. We know that a patient with portal cirrhosis may remain symptom-free as long as the compensatory circulation does not break down. But even a mild attack of cholecystitis might be enough to break it down by a superimposed biliary infection. Such a diagnosis would account for this patient's picture better than anything I can think of. It would explain the absence of a long history, the afebrile course, the jaundice, the circulatory

symptoms, and the fatal termination. It might account for the large tender liver at one examination and the presumed absence of a palpable liver thereafter. There should have been a palpable spleen, but perhaps this was missed because of the patient's obesity.

CLINICAL DIAGNOSES

Hypertension
Obesity
Cholecystitis
Hepatitis

DR. HORATIO ROGERS' DIAGNOSIS

Chronic cholecystitis
Mild acute cholangitis and hepatitis
Portal cirrhosis (fatty) of the liver

ANATOMIC DIAGNOSES

Carcinoma of the gallbladder with metastases to the peritoneum, liver, pancreas, mesenteric and retroperitoneal glands
Acute intrahepatic cholangitis
Operative wound. Drainage of abscess of the gallbladder bed
Ascites
Icterus
Bronchopneumonia
Fat necrosis of pancreas
Diverticulum of the duodenum
Cyst of the kidney

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY. Dr. Rogers' line of thought ran very close to that of the physicians who were in charge of the case. The surgeon I assume, went right down to the gallbladder through adhesions and was unable to make an exploration. Certainly there is no note of the condition of the remainder of the peritoneal cavity or of the surface of the liver itself. As the patient progressively grew worse and became deeply jaundiced they began to think of cirrhosis and Dr. Bock was called in consultation. He differed from Dr. Rogers on one point. He thought if the patient had portal cirrhosis at this stage of the game she would have a small atrophic liver rather than a large one and consequently he was against the diagnosis of portal cirrhosis.

We found at autopsy a severe grade of liver damage in the form of diffuse cholangitis. The gallbladder was practically lost in a huge tumor mass, and on dissection it became apparent that the drain had never been in it but had been inserted into an abscess of the gallbladder bed. The tumor must have been growing very rapidly to have increased so much in size between the time of the operation and death which was less than a month later. The mucosa of the gallbladder was completely replaced with

shaggy tumor masses. The tumor had invaded deeply into the liver. There were metastases on the peritoneal surface, with terminal hemorrhagic ascites. We found nothing in the gastrointestinal tract to explain the positive guaiacs in the stools. So that I think there is no question that she died of a primary cancer of the gallbladder with a secondary hepatitis. The bile ducts were perfectly free. There was tumor in the head of the pancreas, also. We have had several cases in which we found it very difficult to decide whether cancer was primary in the gallbladder or in the pancreas. I think in all probability it is usually primary in the gallbladder in such a case. We have twenty-seven primary cancers of the gallbladder on record, and among those we found five in which the head of the pancreas also showed cancer. The other cases all showed metastases to the lymph nodes in the region of the head of the pancreas but no tumor was found in the pancreas itself. Most of the anatomical work tends to show that the lymphatics of the gallbladder run down over the surface of the pancreas but do not penetrate its substance.

Have you any comment, Dr. Allen?

DR. ARTHUR W. ALLEN. I would like to know whether any gall stones were found at autopsy or operation.

DR. MALLORY. No. I assume, however, as Dr. Rogers did, that she had suffered from gall stones in the past. Almost invariably cancer of the gallbladder is associated with stones or at least a history of stones.

DR. ROGERS. May I ask why she had bleeding from the gastrointestinal tract and in the urine?

DR. MALLORY. I do not know about the urine. As far as the gastrointestinal tract is concerned the jaundice is adequate. I think two-thirds of our jaundice cases show a positive guaiac.

A PHYSICIAN. What did the kidneys show?

DR. MALLORY. Nothing of note beyond arteriolar sclerosis. The kidneys in some cases of cholemia do show marked change of the tubules but not often red cells. The glomeruli ordinarily are perfectly normal.

DR. CHESTER M. JONES. I should like to ask how common it is to get sharp pain radiating to the top of the shoulder in this sort of picture. That is very interesting and might fit in with an intrahepatic condition rather than gallbladder itself.

DR. ROGERS. Yes if it were from the gallbladder I think you would expect it in the back rather than the shoulder.

DR. ALLEN. This second attack suggested perforation of the gallbladder with irritation under the diaphragm. I suspected that that was what they were going to find at operation.

CASE 22082

PRESENTATION OF CASE

A forty-one year old Russian woman was admitted complaining of blood in her stools

About a year before entry the patient noticed a considerable amount of clotted blood in her stools on several occasions associated with slight pain. This continued off and on for about six months until she consulted a physician who removed or cauterized something in the rectum. She did not know what was found but thought that it was not a hemorrhoid and was higher up in the rectum. There was no change in her condition thereafter. She had been constipated for about five years and had required one or two laxative tablets daily until three weeks before entry when presumably her bowel movements occurred spontaneously about once daily. She felt as though she had incomplete evacuation and there was a lower abdominal cramping sensation occasionally associated with the frequent passage of flatus. The character of the stools was not noted. There was a loss of about five pounds in one year. Her catamenia was regular but the onset of the menses was usually marked by pain in the left lower quadrant. There was some leukorrhea in the interval between periods.

A plastic operation upon the left tube with suspension of the uterus had been done eleven years previous to entry.

Physical examination showed a middle-aged woman who appeared to be in no distress. Oral hygiene was poor and there were many carious teeth. The heart was normal. The blood pressure was 115/75. The lungs were clear. A well healed lower midline abdominal scar was observed. The inguinal nodes appeared to be slightly enlarged. There was slight tenderness with deep pressure in the left lower quadrant. Vaginal examination showed a large, firm, nodular, lacerated cervix. A small, pale, cystic nodule was present on one lip. The fundus was slightly enlarged and fixed to the anterior abdominal wall. The left vault felt full and was slightly indurated and tender.

The temperature, pulse, and respirations were normal.

Examination of the urine was negative. The blood had a hemoglobin of 70 per cent.

A barium enema showed a shadow in the sigmoid near its junction with the descending colon. The shadow was about 3 centimeters in diameter and appeared to be polypoid in configuration.

A proctoscopy showed a bleeding growth high in the rectosigmoid. At the end of six days an exploratory laparotomy was done.

DIFFERENTIAL DIAGNOSIS

DR REGINALD H SMITHWICK The history is that of a forty-one year old female apparently

in good general health. What little evidence is available concerning the blood picture suggests a slight degree of anemia.

The history of clotted blood in her stools on several occasions during the past year suggests a profuse type of intermittent bleeding which might be seen, and which would be more apt to be seen in some highly vascular friable lesion which might ulcerate at times containing an excellent blood supply, and suggests that the bleeding is from above the internal sphincter inasmuch as the blood must have been in the rectum for some time in order to produce clots. This type of bleeding is not characteristic of carcinoma. The patient's age is against a carcinoma of the sigmoid. Profuse bleeding in carcinoma of the sigmoid is rare at any age, and the history of removal of some type of growth in the rectum or sigmoid six months ago plus the x-ray findings of a definite polypoid lesion in the sigmoid, plus the proctoscopic examination in which a lesion was actually seen, places the tumor in the sigmoid colon.

There is a discrepancy between the barium enema and the proctoscopic finding. The proctoscope would place the growth low in the sigmoid, whereas the barium enema would place the growth high in the sigmoid. This story suggests that the growth is polypoid and has a pedicle of some length so that the tumor can at times be visible from below and can at times be forced high enough to appear at the junction of the sigmoid and descending colon by x-ray.

The history also suggests a partial degree of intestinal obstruction, as evidenced by lower abdominal cramps, the passage of flatus, and the sense of incomplete evacuation after movement. This suggests a fairly large polypoid tumor producing partial obstruction of the intestine. There are many benign lesions of the large intestine, many of which are not commonly seen, such as lipomata, fibromata, fibromyomata, etc. Sarcoma is very rare. Invasion of the rectum or sigmoid by tumors of the pelvic organs is possible but would not be apt to give this particular group of signs and symptoms. The most likely possibility would seem to be a polyp of the sigmoid composed to a large degree of epithelial elements with a rich blood supply on a long pedicle and presumably benign at this time, although malignant degeneration at the base is always a possibility.

PREOPERATIVE DIAGNOSES

First operation Carcinoma of the rectum

Second operation Polyp of the sigmoid

DR REGINALD H SMITHWICK'S DIAGNOSIS

Benign polyp of the sigmoid

PATHOLOGIC DIAGNOSIS

Adenomatous polyp of the sigmoid

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY Dr. Smithwick's reasoning which led him to the diagnosis of benign polyp in this case was very good and I am particularly impressed by his use of the two apparently conflicting statements in regard to the location of the lesion as supplied by proctoscopy and by the barium enema. The anatomic findings bore him out completely in this respect since the polyp was found to have a pedicle nearly 2 cm. in length. At the time of the proctoscopy a biopsy was done and was reported by the laboratory as characteristic of a benign adenomatous polyp. Biopsy reports of this sort should, however, always be taken with a certain amount of reservation since an infiltrating tumor often undermines the normal mucosa for a considerable distance and biopsy taken apparently from the tumor mass may actually contain none of the tumor.

The patient was explored by Dr. Linton who found a freely movable polypoid mass which he

could palpate within the sigmoid. He noted that it could be moved up and down for a distance of about four inches. The base of the pedicle was too low to do a Mikulicz operation so he felt that a two-stage procedure was wisest and limited himself at that time to a cecostomy. She did well following this procedure and two weeks later the polyp with six inches of the adjacent sigmoid was resected and an end-to-end anastomosis was done. At the time of the exploration it was noted that she also had a fairly large fibroid of the uterus, but since this was causing no symptoms it seemed wisest to leave it alone.

The final pathologic examination showed a typical adenomatous polyp with no atypicality of the epithelium and no evidence of invasion. Why a tumor of this type should produce evidence of intestinal obstruction is not evident at first glance. A sufficient number of them, however, are found which have produced intussusception to make it seem possible that this may be the mechanism.

The New England Journal of Medicine

SUCCESSOR TO
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Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.04 per year, \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine, 8 Fenway, Boston, Mass

ANDREW BORDE, PERIPATETIC PHYSICIAN

ONE of the most remarkable of the sixteenth century English physicians was Andrew Borde (or Boorde), whom Anthony à Wood¹, the Oxford biographer, described as having "a rambling head, and an unconstant mind", which he used, nevertheless, not unprofitably, while traveling 'through and round about Christendom, and out of Christendom' This "cheery, frank, bright, helpful, and sensible fellow", according to Furnivall², was born near Cuckfield, Sussex, about 1490 Brought up in Oxford, he spent twenty years of his life in the Carthusian order, strictly adhering to vegetarianism and fasting Breaking away from the monastic life before the age of forty, the rest of his days were devoted to travel and study France and Spain he visited many times, returning at intervals to publish his books in England

"I study and piactyce physyk," he wrote, "for the sustentacyon of my luyung" The study took place at Montpelier, foremost university of its time in France, Borde practiced in all the countries he visited His chief English patrons were Henry VIII and Cromwell, each sent him abroad, probably as a reward for personal services

Back in Winchester, where he had inherited some property, he fell foul of "a Calvinistical bishop", who accused him of breaking his vow of chastity Poor Borde, whom Wood calls "a noted Poet, a witty and ingenious Person, and an excellent Physician of his time", was thrown into the Fleet prison and there died in 1549, perhaps by poisoning himself Such was the sad earthly end of *Andreas Perforatus*, as he styled himself, who, in Furnivall's estimate, was "sound at the core, a pleasant companion in many of England's most memorable days, worthy, with all his faults, of respect and regard"³

Borde's writings, esteemed by his contemporaries, are now widely sought for by all The British Museum collection is outstanding, the Boston Medical Library prizes three rare editions, two of the "Breviarie of Health" and one of the "Dietarie of Health" His most important book, "The fyrst Booke of the Introduction of Knowledge", with its delightful woodcuts, is available to scholars in the Furnivall reprint of 1870 In this book we find Borde's descriptions of his travels in France, Spain, Italy, Egypt, Barbary and Turkey, as well as throughout England Little misses his searching eye In passing through Spain, for instance, he comes to a church at St Domingo in which are kept a white cock and a hen He unearths the fable of the miracle connected with these birds, a tale recently beautifully retold by Mr Henry Thomas⁴ of the British Museum Skeptical Borde, who made it his business "to se and to know the trewth of many thynges", was shriven by "an auneynt doctor of dyuynite", who admitted that many of the clergy deceived the people about miracles and shrines containing the bones of saints In spite of Borde's seeing through the trick of this particular miracle, he failed to persuade pilgrims from England and Scotland, whom he met in his travels, from making the pilgrimage When all nine of the pilgrims died and only Borde got back to Aquitaine, he "dyd kis the ground for ioy", as well he might

REFERENCES

- 1 Wood Anthony à Athenae Oxonienses 2 vol, London, 1891
- 2 Furnivall F J Andrew Boorde Dictionary of National Biography Vol 2 London 1921-2
- 3 The fyrst Booke of the Introduction of Knowledge made by Andrew Borde of Physycke Doctor Ed by F J Furnivall London N Trübner 1870
- 4 Thomas Henry Monster and Miracle [Privately printed] Sonning on Thames 1935

THE AMERICAN FOUNDATION OF TROPICAL MEDICINE

THE American Academy of Tropical Medicine, meeting in St. Louis in November, founded The American Foundation of Tropical Medicine, for the prevention, control and scientific investigation of the tropical diseases which occur in the continental United States and the neighboring countries around the Caribbean Sea. The purposes of the foundation will be made effective by a fund which private individuals and commercial concerns with interests in the tropics have agreed to raise.

Dr Earl B McKinley, dean of the Medical School of George Washington University will represent the academy on the board of directors, other directors being Dr Isaiah Bowman president of Johns Hopkins University, Perry Burgess, president of the American Leprosy Foundation, Dr Nicholas Murray Butler president of Columbia University, E B De Golia of San Francisco, Harvey S Firestone Thomas W Lamont, Dr Leo S Rowe, director general of the Pan American Union, Dr Robert G Sproul, president of the University of California, Malcolm B Stone of Boston president of the Ludlow Manufacturing Associates and Alvin P Howard and Paul H Saunders of New Orleans.

At the same meeting Dr Richard P Strong head of the School of Tropical Medicine of Harvard University, was elected president of the Academy.

The days of private and presumably disinterested philanthropy are drawing farther from us, fewer are the great fortunes which depression and taxation have left in a condition to indulge in outstanding benevolences. More and more we must rely upon commercial interests to endow scientific investigation and humanitarian endeavors, and on the whole these endowments have been made with a generosity of spirit which leaves science free to seek its ends with an unencumbered honesty of purpose.

The Massachusetts Medical Society

THE ANNUAL MEETING OF THE SECTION OF PEDIATRICS

THE Section of Pediatrics will present, at the annual meeting in June, a panel discussion on "Rheumatism and Rheumatic Heart Disease in Early Life." The leader of the panel will be Dr John Lovett Morse of Boston. Dr Morse is Emeritus Professor of Pediatrics of Harvard Medical School and was for many years Physician in Chief of the Infants' and Children's Hospitals of Boston. Assisting Dr Morse on the panel will be Doctors Paul White, Tracy Mal-

lory Hyman Green, T Duckett Jones and Eli Friedman of Boston and Oliver Stansfield of Worcester.

The meeting of the Section will start promptly at 9 A.M. on Wednesday, June 10, 1936, in the lower room of the Springfield Municipal Auditorium. Adequate loud speakers will be installed so that the discussion may be heard clearly in all parts of the room.

The etiology, pathology, symptomatology, prognosis and treatment of "Rheumatism and Rheumatic Heart Disease in Early Life" will be discussed by the panel. Questions in writing may be submitted in advance to Dr Morse or to your officers, and from the floor at the meeting.

Plan now to attend the annual meeting of The Massachusetts Medical Society at Springfield and especially the Section of Pediatrics. We know you will enjoy the entertainment in store for you. Bring the ladies and make it a three day vacation of fellowship, instruction and fun.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

CATTELL, RICHARD B. A.B. M.D. Harvard University Medical School 1925 F.A.C.S. Surgeon, Lahey Clinic, New England Deaconess and New England Baptist Hospitals. Address 605 Commonwealth Avenue, Boston, Mass. Associated with him is

SWINTON, NEIL W. M.D. University of Michigan Medical School 1929 Surgeon, Lahey Clinic. Address 605 Commonwealth Avenue, Boston, Mass. Their subject is Endometriosis. Page 341.

HUNTER, FRANCIS T. A.B., A.M. M.D. Harvard University Medical School 1924 Assistant Physician, Massachusetts General Hospital. Associate Physician, Collis P. Huntington Memorial Hospital. His subject is Hutchinson Boeck's Disease (Generalized "Sarcoidosis"). Page 346. Address 6 Commonwealth Avenue, Boston, Mass.

COTTON, FREDERIC J. A.B., A.M. M.D. Harvard University Medical School 1894. F.A.C.S. Formerly, Surgical Chief, and Chief VI Bone and Joint Service Boston City Hospital. Consultant, Boston City Hospital, Beth Israel Hospital and Faulkner Hospital. His subject is Foot Stitches and Surgery. Page 353. Address 520 Commonwealth Avenue Boston, Mass.

LEVI ALEXANDER A. M.D. Tufts College Medical School 1926. Instructor in Department of Obstetrics, and Teaching Assistant in Department of Gynecology at Tufts College Medical

School Surgeon, Out-Patient Department, Cambridge Hospital Obstetrician, Evangeline Booth Maternity Hospital Junior Surgeon, Gynecology Department, New England Medical Center Address 485 Commonwealth Avenue, Boston, Mass Associated with him is

KRINSKY, CHARLES M M D Tufts College Medical School 1933 Formerly, Clinical Assistant in Medicine, Worcester State Hospital Teaching Fellow in Obstetrics, Evangeline Booth Hospital, Boston Now, Interne, Newark Beth Israel Hospital Address 201 Lyons Avenue, Newark, N J Their subject is The Effect of Coramine on Postpartum Patients Under the Analgesic Influence of Some Barbituric Acid Drugs Page 362

PRATT, JOSEPH H Ph B, A M, M D Johns Hopkins University School of Medicine 1898 Physician-in-Chief, Boston Dispensary Professor of Clinical Medicine, Tufts College Medical School His subject is The Personality of the Physician. Page 364 Address 270 Commonwealth Avenue, Boston, Mass

HEFFERNAN, ROY J M D Tufts College Medical School 1917 F A C S Visiting Gynecologist and Obstetrician, Carney Hospital Visiting Obstetrician, St Mary's Hospital Instructor in Gynecology, Tufts College Medical School His subject is Abdominal Compression and Vaginal Tamponade in the Treatment of Abruptio Placentae Page 370 Address 524 Commonwealth Avenue, Boston, Mass

STEWART, ROGER E B S, M D Columbia University Medical School 1928 Assistant in Gynecology, Harvard University Medical School Assistant in Obstetrics, Tufts College Medical School Junior Visiting Surgeon, Obstetrics and Gynecology, Boston City Hospital Assistant Obstetrician, Newton Hospital His subject is Case Report Inversion of the Uterus in Two Consecutive Pregnancies Page 373 Address 201 Bay State Road, Boston, Mass

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

C J KICKHAM, M D, R S TITUS, M D.,
Chairman Secretary
524 Commonwealth Ave, 472 Commonwealth Ave,
Boston, Mass Boston, Mass.

HYDATID MOLE

Hydatid mole consists of the formation of cysts from a millimeter to 2.5 cm in diameter

*A series of short selected articles by members of the Section is being published weekly
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

in the placenta. When it occurs early in pregnancy the whole placenta may be involved with disappearance of the fetus and continued growth of the mole. It may occur at any time during pregnancy with only parts of the placenta involved and a normal fetus. In such cases the disease is probably often not recognized. The cysts are filled with a thin clear fluid. The important change so far as the clinician is concerned is a proliferation of the epithelial layers of the placenta, Langhans' cells and the syncytium, because it may become malignant, forming chorio-epithelioma.

The cause of hydatid mole is not known. It is estimated to occur about once in 2000 pregnancies and at any age in the reproductive life.

Suspicion of the disease should be aroused by a greater increase in the size of the uterus than the normal for the period of gestation at which the patient is examined. That and bleeding coming on usually at from the second to the sixth month of pregnancy are the outstanding symptoms. Some of the cysts may be passed so that an attempt to find them should be made under such conditions. The disease commonly results in expulsion of the mole during the third or fourth month of gestation. Any spontaneous miscarriage might be due to a mole and the products should always be examined at least grossly and preferably microscopically as well.

The treatment consists of being sure that the uterus is emptied and that can be done only by examination under anesthesia with exploration of the uterine cavity with the finger, ovum forceps, and curette. More than ordinary gentleness is necessary because the villi may have invaded the uterine wall making soft areas, easily perforated.

The treatment must not end there because it is estimated that in five per cent of these cases chorio-epithelioma may develop from the mole and it has to be diagnosed early if the patient is to be saved. This disease may appear soon or years after the mole. The patient should be kept under observation for two years. During the first year an Aschheim-Zondek test should be done at frequent intervals. It becomes negative normally in from two to four weeks after the uterus is empty. If a positive test persists, chorio-epithelioma must be suspected and the uterus curetted for diagnosis and the vaginal wall examined for metastases. A microscopic examination of the tissue removed is essential. If irregular bleeding (especially that characterized by gushes of blood) occurs, the uterus should be curetted for diagnosis.

A PRIZE FOR AN APPROVED ESSAY

The attention of interns in Massachusetts hospitals is called to the fact that a prize of \$50.00 has been offered by the Massachusetts Medical Society for the best written and most comprehensive case report submitted by one of their number holding a rotating internship in any Massachusetts hospital which is approved by the American Medical Association for intern training during 1935-1936.

This report is to be typewritten and when completed is to be sealed unsigned, in a plain envelope, which in turn is to be placed together with a separate slip bearing the name and address of the contestant, in a larger envelope and sent to

The Massachusetts Medical Society
Committee on Medical Education and Medical Diplomas,
8 Fenway Boston Mass

The contest this year closes May 1 1936. Reports may be submitted at any time prior to that date

CORRESPONDENCE

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago Ill.
January 31 1936

Editor *New England Journal of Medicine*

In addition to the articles enumerated in our letter of December 30 1935 the following have been accepted

Robert A. Bernhard

Saf-T Top Tincture of Merthiolate 1 1000

Darsenol Co. Inc.

Neodarsenol 1.8 Gm Ampoules

Jensen-Salsbery Labs Inc.

Botulinus Antitoxin (Human)

Lee Laboratories

Diphtheria Toxoid Alum Precipitated Refined

National Drug Co

Normal Horse Serum 10 cc. Ampule Vial

Normal Horse Serum 100 cc. Cylinder with Intravenous Outfit

Sharp & Dohme, Inc.

Dextrose U.S.P. (d-Glucose) 25 Gm. 50 cc Ampoule (Unbuffered)

Dextrose U.S.P. (d-Glucose) 25 Gm. 50 cc Ampoule (Buffered)

United States Standard Products Company

Rabies Vaccine (Killed Virus) Sample (U.S. S.P. Co.) (25 per cent suspension) seven and fourteen vials packages

PAUL NICHOLAS LEECH Secretary
Council on Pharmacy and Chemistry

THE PHYSICIAN IN NATIONAL DEFENSE

Editor, *New England Journal of Medicine*

Believe it or not, the Constitution as interpreted by the courts makes every male citizen between the ages of eighteen and forty-five a member of the unorganized militia. If this were not so the guarantee of life liberty and the pursuit of happiness would be a farce. In a great national emergency all of us must help and it behooves each of us to find his proper place in the complicated machinery of national defense before the emergency arises—even before it appears upon the horizon. The more we desire peace the more important this is. The most effective way to preserve peace is to prepare against war. In joining the Army and Navy we identify ourselves with the most potent peace agencies in the country with men who picture the terrible effects of war from memory not from imagination.

The various elements of national defense open to physicians should be considered in logical order

First the Regular Army or Navy as a life career. The requirements of the Regular Army are American citizenship, age between twenty-three and thirty-two, compliance with physical standards satisfactory evidence of good character, degree of M.D. from a Class "A" Medical School and a diploma from the National Board of Medical Examiners or passage of a satisfactory mental examination. The successive grades and pay under present laws in the Regular Army are as follows:

Grade	Time in Grade	Pay Proper (Monthly)
1st Lieutenant	3 years	\$168.67
Captain	9 years	\$200.00-220.00
Major	8 years	\$300.00-325.00
Lt. Colonel	6 years	\$379.17-408.33
Colonel	Until age 64	\$460.00-500.00

Brigadier General and Major Generals are selected from grade of Colonel and receive more pay and allowances

In addition to the above pay from \$18 to \$54 per month, depending upon the number of dependents, is paid in lieu of subsistence. Quarters are furnished in kind or are commuted into money allowances in amounts varying from \$40 to \$120 a month depending upon rank. No officer below the grade of Brigadier General receives total pay and allowances exceeding \$600 per month.

The Regular Army is an interesting life career free from the irritating commercial details of civilian practice. It is hard to enter and will never make you rich but if it appeals to you write to the Corps Area Surgeon, Army Base Boston Mass.

Secondly We should consider seeking a commission in the National Guard of our State. Information about it can be secured from the nearest State Armory or from the Adjutant General of the State.

Finally If we do not feel that we can ally ourselves with either of these sections of the first line of defense, we should certainly endeavor to join the second line, namely, the Army or Navy Reserve Qualifications (Army) American citizenship, age between twenty one and thirty five years, satisfactory physical examination, diploma from a Class "A" Medical School, a license to practice medicine in a state, territory or the District of Columbia or a diploma from the National Board of Medical Examiners, and actual engagement in the ethical practice of medicine Reserve Officers receive no pay except when ordered to active duty They are never ordered to active duty in time of peace without their consent. When on active duty they receive the same pay as regular officers of the same grade Their promotion is more rapid than that of the regular army

The reason for the existence of the Reserve, which, by the way, was originated by the Medical Corps, is the need of a large body of officers assigned and partially trained in advance of a possible emergency It will contribute enormously to the efficiency of mobilization and will materially lessen confusion and whe-pulling for desirable rank and assignment One of the advantages to the individual officer is that he will receive promotion during peace time and will not have to enter the service in war time in the lowest grade In return for these advantages, however, a reserve officer is expected to devote a small amount of time to his own military education You are assured, however, that the training is too interesting to be burdensome, and cannot but be valuable to you in your civilian careers

Newly appointed Reserve Lieutenants will be very likely to have an opportunity to be ordered to active duty with the Civilian Conservation Corps at a total salary approximating \$225 a month, if they so desire Since the expenses are very low, this is an excellent opportunity to save up a little money to start practice

The Reserve is rapidly undergoing a transformation New life is being breathed into it. It is expected that in the near future the medical regiments, the medical detachments and the hospitals of all sizes will have their commissioned personnel slates filled and that participation in their activities will be both pleasant and interesting instead of being merely a duty For information write to the Corps Area Surgeon, Army Base, Boston, Mass

The three components of national defense are now before you You can do one of the following things

Throw this article into the pile of things you have finished with

Put it aside for further consideration and probably forget it

Act

G M EKWURZEL, Colonel, M C,
Corps Area Surgeon,
Army Base, Boston, Mass

RECENT DEATHS

BERRY—JOHN CUTTING BERRY, M.D., of 28 Trowbridge Street, Worcester, Massachusetts, died February 8, following a brief illness Dr Berry was born at Small Point, Maine, in 1847, the son of Stephen Decatur Berry, a ship captain

His early education was acquired at Monmouth Academy and Bowdoin College He received his M D degree from Jefferson Medical College in 1871 and immediately afterward served as a medical missionary under a commission from the American Board of Foreign Missions Especial interest in medicine led to an appointment in a government hospital at Kobe, Japan, and outlying clinics One evidence of personal influence is shown in reforms in Japanese prison administration Dr Berry later had positions in Okayama and Kyoto and became influential in many ways in that country, having founded the Doshisha Hospital and with it the training school under Miss Linda Richards Distinction in connection with his work in the earthquake area in 1891 and in various other ways secured recognition which led to the decoration of "The Imperial Order of the Sacred Treasure of the Third Class"

On returning to the United States in 1893 after a period of study in Vienna, he settled in Worcester, where he established a large practice in eye and ear surgery, in addition to serving on the staff of the Worcester City Hospital Membership in the Massachusetts Medical Society and Fellowship in the American Medical Association were acquired in 1896

His standing in his chosen field led to membership in the New England Ophthalmological Society and the New England Society of Otology and Laryngology

Dr Berry retained his interest in the development of Japan and was active in civic and religious circles in Worcester

Three children Dr Gordon Berry of Worcester, Miss Katherine Fiske Berry, also of Worcester, and Miss Helen Berry Holton, of Brockton, survive him, as do two grandchildren

KNOWLES—WILLIAM FLETCHER KNOWLES, M.D., a retired member of the Massachusetts Medical Society, died at his home, 1035 Beacon Street, Brookline, Massachusetts, February 12, 1936

Dr Knowles was born in Cambridge, Massachusetts, in 1861 the son of William Fletcher Knowles and Sarah (Robinson) Knowles After graduating from the Harvard Medical School in 1895, he served first at the Carney Hospital and later at the Massachusetts Eye and Ear Infirmary, and was a member of the American College of Surgeons and formerly President of the New England Oto-Laryngological Society

During the War, Dr Knowles served at the base hospital at Camp Devens and received the commission of major

He is survived by his widow, Miss Charlotte Treat

knowles a son Robert T. Knowles of Okmulgee Oklahoma a daughter Mrs. G. Gardner Monks and a sister Miss Carrie W. Knowles, of Boston

NOTICES

SUMMER COURSE IN BACTERIOLOGY

A summer course in General and Sanitary Bacteriology will be offered this year by the Department of Biology and Public Health, Massachusetts Institute of Technology Cambridge, Mass. The course will last for six weeks from June 16 to July 28. Classes will meet daily except Saturdays and Sundays, from 9 to 12.

The course will consist of lectures, recitations, demonstrations laboratory work and appropriate field trips. The laboratory work will include consideration of the methods employed in studying bacteria, the preparation and sterilization of culture media and other laboratory supplies the study of pure cultures the effect of physical and chemical agents of bacteria and the bacteriological examination of water and milk.

The course is designed for beginners in bacteriology and should appeal to public health nurses health education workers public health laboratory and hospital technicians sanitary inspectors water works operators milk inspectors milk analysts and students preparing for careers in biological science public health or medicine. Preliminary training in science though desirable is not required. The fee for the course is \$55.00.

Academic credit will be given to all who pass the course successfully.

Students having adequate training and special interests may arrange to work on special problems most suited to their needs.

All inquiries should be addressed to Prof. M. P. Horwood, Massachusetts Institute of Technology who will be in charge of the course.

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P.M. on Thursday February 27 in the Amphitheatre of the Peter Bent Brigham Hospital Dr. James E. Paullin, Clinical Professor of Medicine Emory University Atlanta, Georgia Physician in Chief, pro tempore Peter Bent Brigham Hospital will give a medical clinic. To it are cordially invited practitioners and medical students.

On Saturdays in the wards of the Peter Bent Brigham Hospital from 10 to 12, staff rounds will be conducted.

A SECONDHAND DEAN LEWIS LOOSE LEAF SURGERY WANTED

Dr. Mildred E. Burton a medical missionary in the Clara Swain Hospital, Bareilly India under the Board of the Women's Foreign Missionary Society of the Methodist Episcopal Church wishes to purchase a secondhand Dean Lewis Loose Leaf Sur-

gery which has been kept up to date. Anyone wishing to dispose of the same kindly communicate with Mrs. Wm. S. Mitchell, 100 Washington Street, Malden Mass.

REPORTS AND NOTICES OF MEETINGS

GREATER BOSTON MEDICAL SOCIETY

The January meeting of the Greater Boston Medical Society was held on January 7, 1936 at the Beth Israel Hospital. The president of the society Dr. H. Linenthal presided.

Dr. Elliott P. Joslin opened the meeting with a brief talk on the Community Drive, which is a combination of over one hundred social agencies, and spoke warmly in favor of its appeal for financial aid. He also presented a case of diabetes who had been treated with a new kind of insulin the action of which is greatly prolonged because of its combination with the protamine of a certain fish.

Dr. Harry Blotner spoke on the "Effect of Intestinal Enzymes on Insulin Prevention of Digestion of Insulin with Alcohol." He attempted to discover the reason why insulin is ineffective by mouth. By incubating insulin with gastric juice and injecting it into rabbits he found that the insulin had become inactive. If however he added alcohol before incubating the insulin was no longer digested by the gastric juices and its activity remained. The same was found to be true using the enzymes trypsin and also pancreatin. With these experimental data in mind he gave insulin with alcohol by mouth to a patient but found that the blood sugar was not affected. This may be because the alcohol is absorbed from the stomach leaving the insulin unprotected against the gastric juice or because the mucous membrane of the intestine is impermeable to insulin.

Dr. Boris Greenberg spoke on "The Visualization of Postgonorrheal Complications." By injecting lipiodol into the urethra and taking x-ray plates it is possible to study the changes that take place after infection with gonorrhea. Slides were shown to demonstrate the normal urethra, acute anterior and posterior urethritis, prostatitis, prostatic abscess, perurethral abscesses and strictures. Dr. Greenberg put this forward as an additional adjunct in the diagnosis of postgonorrheal complications.

Dr. B. M. Jacobson spoke on "Study in Gout." Three fundamental facts have been generally recognized as actively true in all cases of gout. First, sodium urate crystals are found to be always deposited in the tissues secondly there is a marked rise of the uric acid in the acute attack and thirdly colchicine is always effective therapeutically. Dr. Jacobson has been working on the problem of why the uric acid is deposited in the tissues. He has studied the changes in the water and mineral metabolism in the typical and acute attacks of gout, and has found that there is always a diuresis of water and sodium chloride resulting in a negative

balance of these substances, and including to a smaller extent, the other minerals. This diuresis may start a few days before the onset of the attack or on the same day as the onset. When the attack is in its full severity, the diuresis stops and compensation takes place rapidly as the patient recovers. This mineral loss is not related to the uric acid secretion or to the fever or drug administered, but it is in proportion to the severity of the attack and is a constant finding.

By the 1930 Folin method of serum uric acid determinations, cases of gout frequently did not have a high uric acid. However, by the new 1934 Folin method, every case has a value above 6 milligrams per hundred cubic centimeters, which is an abnormally high figure. If there is general nitrogen retention, as in nephritis, a high blood uric acid is not significant. Dr. Jacobson also studied the therapeutic effect of purine-free and purine-high diets on the frequency of occurrence of attacks and found practically no difference over a long period of time.

A paper on "A Method for the Prolongation of the Effect of Medication" was presented by Dr. H. L. Naterman. By the use of a purified ester of cholesterol mixed with a small amount of water and added to oil, Dr. Naterman has made a medium in which he can emulsify certain drugs and greatly prolong their period of absorption and therefore their therapeutic effect. First he tried this on phenolsulphone-thalein and found that the absorption was greatly delayed as measured by the slow excretion of the dye. The use of pitressin in emulsion in the treatment of diabetes insipidus has been found to be effective over a much longer time than when the drug is used in water. In this condition, one injection a day is usually enough. Adrenalin in oil has been used in the treatment of asthmatics with encouraging results. Pollen extracts in oil have also been used in certain cases of asthma.

Dr. S. Proger delivered a paper on "Some Effects of Diet Restriction on Patients with Heart Disease." He found that patients on a high caloric intake with severe heart disease and some degree of decompensation after they had reached a level on digitalis were definitely benefited by a reduction of their caloric intake. He put them on 350 calories a day for three days, which amount was then raised to 600 calories and later to 800 calories. By this procedure he reduced the oxygen consumption by 25 per cent, lowered the basal metabolism rate, diminished the weight, lowered the minute pulmonary volume, increased the vital capacity and diminished the diastolic and systolic pressure readings. The pulse rate also slowed down definitely. When the caloric intake was increased and the weight rose, the effect of this treatment was partially lost and the magnitude of the effect was greater when the weight loss took place from a normal level rather than from an obese level.

Dr. H. J. Sternstein spoke on "Quantitative Measurement of Nasal Obstruction." By the use of a simple nasal manometer, he has been able to

measure the resistance offered to a stream of air going through the nasal passages. This resistance can be charted and compared with the normal. Slides were shown of normal cases and those with partial or complete obstruction. This method can be used to advantage in studying the normalcy of the mucous membrane by taking readings before and after shrinkage. It is also of use in measuring the therapeutic effect of various drugs. Dr. Philip Drinker of the Harvard School of Public Health has been using this apparatus to study the filtering ability of the nose. In the normal nose the nasal passages stop from 10-30 per cent of the small dust particles, and Dr. Drinker therefore concluded that it is not an efficient mechanism in protecting against the diseases caused by dust.

The last paper of the evening was on "The Prevention of Anemia in Pregnancy" by Dr. M. B. Strauss. Anemia is common in pregnancy and may be caused by any of the usual factors, but most cases are of the simple hypochromic variety. The incidence is about 25 per cent, and 15 per cent are severe in degree. At birth the baby always has a normal blood hemoglobin and this, therefore, is always a drain on the mother. She should have, during pregnancy, an increased iron intake. By studying 200 pregnant women from the fifth month onwards, at monthly intervals, and giving 100 of them three grains of ferrous sulphate three times per day, and the other half lactose tablets only, he was able to show that this amount of iron was adequate to prevent anemia during pregnancy. Of those who did not take iron, 25 per cent developed anemia. Only 20 of the 200 had good diets. The postpartum percentage of hemoglobin should never be below 70 per cent.

HARVARD MEDICAL SOCIETY

The December 10 meeting of the Harvard Medical Society was held at the Peter Bent Brigham Hospital with Dr. Henry A. Christian presiding. The medical case was presented by Dr. Lawrence E. Putnam. A forty-four year old housewife entered the hospital five days previously complaining of a "pounding of the heart" of nine hours' duration. She gave a past history of scarlet fever, measles, and mumps in childhood. Ten years ago she experienced the sudden onset of precordial pain and a sensation of pounding of her heart, and was in a hospital for three weeks, during which time the symptoms subsided spontaneously. Since that time she had had frequent attacks similar to the first one, which lasted from a few hours to two weeks. Two years ago she was seen at the Brigham Hospital, at which time physical examination was negative except for a heart rate of 176 beats per minute. Carotid sinus pressure did not slow the rate, but on the second day it caused a fall of the rate to normal. During the month before the present entry she had had frequent attacks, and had been seen in several Boston hospitals in which medication failed to relieve her symptoms.

Nine hours before her admission she was suddenly seized with a severe precordial pain and pounding of her heart. Physical examination on entry was negative except for a heart rate of 108 beats per minute and a blood pressure which could not be determined in the brachial artery. Vagal pressure was ineffective in slowing the rate. An electrocardiogram showed paroxysmal tachycardia of auricular origin. Laboratory and x-ray studies were normal. She was given four cubic centimeters of syrup of Ipecac every half hour for three doses which caused vomiting but had no effect on the heart rate. Three quarters of an hour after the last dose, she received one eighth of a grain of morphine and three grains of luminal. One hour later her heart rate was found to be 86 beats per minute, and her blood pressure 90/60. She stated that fifteen minutes after receiving the last medication she experienced the sudden onset of severe precordial pain which radiated to her left arm. There was abrupt cessation of the pounding of her heart. Previous attacks usually terminated in the same manner.

Dr Samuel A. Levine remarked that this was a typical case of paroxysmal auricular tachycardia. Attacks usually last an hour or a few days and it is unusual that they persist for as long as one or two weeks. As a rule there is no cardiac dilatation, although dilatation can occasionally be quite marked. Dr Christian recalled having seen a case with persistent tachycardia lasting eleven days, which resulted in arterial thrombosis and subsequent dry gangrene of the arm. The use of ether anesthesia during amputation cured the tachycardia.

Dr Robert Bates presented the surgical case. A fifty-two year old single white male entered the hospital with a history of severe pain in his right arm and hand of twenty-four hours duration. One year ago bilateral ligation of the saphenous veins had been performed for varicose veins. The Hinton test at that time was negative. The blood pressure varied from 170/100 to 100/90. He had been followed in the varicose vein clinic. Physical examination on entry revealed a cadaverous appearing right hand. Pulsations were absent in the ulnar artery but were present in the radial, brachial and supraclavicular arteries, although they were weaker on the right than on the left. There was a thrill and bruit in the right supraclavicular region. The blood pressure on the right was 130/100 and on the left was 190/100. There was decreased sensitivity to pinprick in the right hand. The white blood count was 20,000, the temperature 100 degrees Fahrenheit. Electrocardiographic and fluoroscopic studies of the heart were negative. There were no cervical ribs. He received passive vascular exercise with a leg pump which led to decrease in pain and return of warmth to the hand. No diagnosis was made although it was felt that a partial thrombosis of the right subclavian artery might account for the observed signs and symptoms.

Dr Soma Weiss of the Boston City Hospital spoke on "Types of Syncope. Their Mechanism and

Treatment. In studies of hypertension and observation of vasodepressor and carotid sinus reflexes, certain patients were observed who were subject to attacks of fainting. It was thought that the carotid sinus reflexes might be the cause of the syncope, and this possibility was investigated. Subsequently the studies were extended to other types of syncope in an attempt to explain the mechanism of their occurrence. Syncope is a syndrome in which an intimate relationship exists between the central nervous system, the viscera and particularly the circulatory system.

Syncope may be defined as an acute transient state of the body in which there is a temporary partial or complete cessation of locomotion consciousness and occasionally of respiratory and circulatory activity. In spite of the fact that many cases of syncope present an identical clinical picture the underlying mechanism and treatment is quite different in different cases. Dr Weiss classified syncope according to the mechanism of production.

- 1 Vasovagal syncope. The "common faint"
- 2 Carotid sinus reflex syncope due to hyperactivity of the reflex.
- 3 Vagovagal syncope. Adams-Stokes syndrome of reflex origin.
- 4 Pleural shock syncope. Many cases so diagnosed have been caused by an air embolus but syncope actually does occur occasionally from traumatic irritation of the pleura.
- 5 Pericardial shock syncope. Similar to pleural shock.
- 6 Peritoneal shock syncope. There is no evidence for the existence of a specific form of shock from peritoneal irritation. Syncope occurring during abdominal paracentesis is probably vasovagal in mechanism.
- 7 Syncope with central vasomotor stimulation.
- 8 Adams-Stokes syncope of nonreflex origin, from complete heart block of sudden onset.
- 9 Syncope from sudden increase in heart rate. This may be due either to a reflex or to a decrease in cardiac output, or to both.
- 10 Syncope with attacks of angina pectoris. This may be due to a reflex.
- 11 Syncope with congestive failure of the circulation.
- 12 Syncope with postural hypotension.
- 13 Syncope with engorgement of the central nervous system.
- 14 Syncope with pulmonary circulatory engorgement.
- 15 Syncope with a dissecting aneurysm. A dissecting aneurysm is frequently characterized by a tear at the root of the aorta, in which area the depressor nerve runs. Syncope in these cases may be due to depressor nerve stimulation.
- 16 Notting's syndrome "vasomotor angina." This may be related to the carotid sinus reflex group.
- 17 Gowers syndrome. This corresponds closely to the cerebral type of carotid sinus reflex.

The *vasovagal type of syncope* is quite variant in its manifestations. It may be mistakenly diagnosed as epilepsy, or even as angina pectoris. Dr Weiss and his associates found that by administering sodium nitrite to normal individuals it was possible to induce all the symptoms of this type of syncope. The normal individual without medication shows certain changes in the cardiocirculatory system upon assuming the erect posture. There is a drop in the systolic blood pressure and a rise in the diastolic pressure, with resultant lowering of the pulse pressure. The heart rate is moderately accelerated. If a subject is given sodium nitrite and then is caused to assume the erect position, there is a progressive drop in both systolic and diastolic blood pressures, and an increase in heart rate. Pallor ensues, and syncope may occur. As soon as the horizontal position is reassumed, the heart rate and blood pressures return to normal.

If patients subject to vasovagal syncope are placed on a tilting table and tilted toward the erect posture there is an immediate decrease in pulse pressure, and a marked increase in heart rate. There is a temporary rise in the venous pressure in the foot vein, followed by a progressive fall. The blood flow through the hand may be normal for a period but preceding the syncope there is a rapid progressive fall. On resumption of the horizontal position, there is a prompt return of the above enumerated factors to normal levels.

Patients suffering a chronic tendency to this condition are benefited by improved posture and by adequate physical exercise.

Carotid sinus syncope must be considered as being due to one of two different mechanisms: (1) to cerebral ischemia, or (2) to a reflex depression of certain central nervous system centers.

Thus there may be three different types of carotid sinus syncope:

1 Vagal, characterized by (a) cardiac asystole, (b) cerebral anoxemia, (c) being abolished by atropin or adrenalin.

2 Depressor, characterized by (a) fall in arterial pressure, (b) cerebral anoxemia, (c) being abolished by adrenalin (atropin has no effect).

3 Combined, characterized by (a) normal heart rate and blood pressure, (b) normal total cerebral blood flow, (c) not being abolished by drugs.

There may be various combinations of these three types.

Carotid sinus stimulation in a normal individual will produce only a slight slowing of the heart rate. Novocain infiltration of the region of the sinus will abolish the slowing observed in normal individuals, and also the syncope observed in patients with hyperactive reflexes.

The dizziness and fainting observed in some individuals after receiving digitalis are due to an idiosyncrasy and great sensitivity of the sinus reflex to this drug.

Determinations of the oxygen tension in the blood

of the carotid and internal jugular arteries have shown that there is no essential difference between the levels found in a normal individual and in a patient with a purely reflex type of carotid syncope. In cardiac syncope, on the other hand, there is a definite anoxic stimulus to the nerve endings of the sinus.

In ten patients with unilateral hypersensitivity of the carotid sinus reflex, the carotid sinus nerve was severed, with relief of symptoms, and without ill effects except in one case in which there was transient high blood pressure and auricular fibrillation.

Vagovagal syncope is a purely vagal reflex. A powerful afferent impulse is carried up the nerve to the vagus center and a resultant powerful impulse is carried down the same nerve, with inhibition of the conduction of the excitatory heart impulse, and at times transient heart block. Dr Weiss has studied four cases of this type: two in which esophageal diverticuli produced pressure on the vagus and initiated the reflex, one in which a metastatic carcinoma of the thorax caused infiltration of the vagus nerve, and a fourth in which irritation of nerves in the throat produced long pauses in the heart rate. Administration of adrenalin or ephedrin will lessen or abolish these symptoms, although the transient heart block still persists and is unaffected by the medication. Oral or subcutaneous administration of atropin compounds, or novocain infiltration of the vagus completely abolishes these reflexes and prevents the production of the heart block. Small amounts of tincture of belladonna by mouth usually control these cases well. The carotid sinus reflex was found to be normal in these individuals.

The onset of extremely rapid heart rates due either to paroxysmal or to ventricular tachycardia frequently precipitates an attack of syncope. The cardiac output in these cases is markedly diminished, and the decreased blood supply to the brain results in cerebral anoxemia and fainting.

In summary, Dr Weiss again emphasized the fact that syncope is a symptom and not a definite entity. From a known mechanism in the periphery of the body various types of syncope can be produced which superficially appear identical, but which are in actuality quite dissimilar. The mode of action of these mechanisms in producing syncope depends upon (1) primary ischemia of the brain, (2) primary inhibition of central nervous system centers, (3) a combination of these two factors.

During the discussion Dr Weiss stated that the carotid sinus reflex is usually hypersensitive bilaterally, if found to be so on one side, but that cases of unilateral hypersensitivity are sometimes encountered. The reflex is more easily elicited with the patient in the erect rather than in the horizontal position. The frequent variations in the level of the sinus in the neck often make it difficult to locate. If symptoms similar to those complained

of by the patient can be produced by pressure on the carotid sinus. It is logical to assume that hypersensitivity of the reflex is responsible for these symptoms. Hypersensitivity without syncope exists but most normal individuals fail to show slowing of cardiac rhythm or show only very slight decrease even though extreme pressure is applied to the sinus. Reports of carotid body tumors have not given any history of coincident syncope, although aneurysmal dilatation of the carotid sinus may cause syncope at times.

DOCTOR WESSELHOEFT ADDRESSES MEDICAL GROUPS

MEETING OF THE ARLINGTON AND BELMONT CLUBS AT THE RING SANATORIUM

At a meeting of the Arlington and Belmont Doctors Clubs which was held on Tuesday evening January 14 at the Ring Sanatorium and Hospital in Arlington Heights Dr Conrad Wesselhoeft, Chief of the Haynes Memorial Contagious Hospital at Brighton and Associate in Communicable Diseases at the Harvard Medical School addressed a group of nearly 100 physicians.

Dr Edwin P Stickney of Arlington, voiced the sentiment of those present in an eloquent tribute to the life and work of the late Dr Arthur H. Ring and to the institution which Dr Ring and his wife, Dr Barbara T Ring developed to its present status.

Dr Wesselhoeft spoke on some of the problems in the diagnosis and treatment of scarlet fever. He said that the disease has become generally milder in the last fifty years. Eleven years ago the cause of scarlet fever was discovered, and we now have effectual means of preventing this disease as well as an antitoxin which, if given early alleviates the sore throat and fever and blanches the rash. Unfortunately the administration of this antitoxin is sometimes attended with severe reactions. Consequently it is not generally given in mild cases. Every attempt is being made to rid this antitoxin of these unfavorable reactions. The greatest danger of scarlet fever now lies in the complications which may occur. While early serum treatment may to some extent lower the frequency of these complications, it cannot be relied upon to do this. Once these complications arise the serum is useless and the physician must turn to other measures often of a surgical character.

Dr Wesselhoeft spoke of the Dick patent which controls the immunizing agent as well as the antitoxin. In his opinion there was no excuse for the continuation of this patent. He said that if there should be the same progress in the treatment of scarlet fever in the next fifty years as that which followed the invention of the telephone fifty years ago and as many patents were to be taken out as have been taken out on the telephone, the situation in medicine would be unthinkable. He visualized doctors guarding their secret discoveries for patenting purposes instead of sharing with one another each forward step in medicine according to the time-

honored custom and ideals of the medical profession. Attention was called to the recent criticism of the Dick patent by the Public Health Council of the League of Nations. He said that the generous support of medical research by the laity demands that physicians should turn over their discoveries for the benefit of all without those restrictions entailed by a legalized commercial monopoly.

Dr Wesselhoeft's paper was discussed by Dr Charles A. Atwood, Dr Edwin P. Stickney, Dr Edwin H. Place, Dr James M. Baty, Dr James H. Townsend and others.

Dr Hosea W. McAdoo, Medical Director of the Ring Sanatorium and Hospital, presided.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

The quarterly meeting was held at the Leominster Hospital January 23. The president, Dr George P. Norton, called the meeting to order at 4:20 and after the reading of the records and other preliminary measures, bills before the Legislature were considered.

Several members of the Legislature from the district, comprising an area from Ayer to Athol had been invited to attend the meeting. Among them were Senator Edward H. Nutting of Leominster and Representatives Henry A. Estabrook of Fitchburg, and Fred A. Blake of Gardner.

Dr Alexander S. Begg, Secretary of the Massachusetts Medical Society discussed the relation of the Society to legislation. He reported that the Society was opposed to Senate 24 which would abolish the several boards of all state institutions and transfer to the Governor and the Executive Council all the powers and duties now resting in the hands of the many boards supervising them. It was felt that this bill savored too much of politics. In this contention he was supported by the others present.

He explained that the chief medical function of the Legislative Committee of the State Society is to inform the legislators of the attitude of the doctors respecting bills under consideration especially those for the public interest. There is a single standard governing the practice of medicine in Massachusetts and that standard is a proper and sufficient education. Certain cults claim that special legislation to control medical education is not necessary but it was explained that the Society is not in agreement with them. There have been more than sixty unnecessary fatalities in the state due to cult practice.

House 34 is designed to raise the qualifications of those who apply for registration as physicians and is endorsed by the State Society. Under the proposed bill only graduates from approved schools may be qualified to practice medicine.

The bill to regulate magnetic healers is opposed because the State Society feels that a single standard is effective.

Opposition was also expressed to the Anti-Vaccination bill and the act for a special board to regulate chiropractors. The State Society has reached

no decision on the bill requiring physicians to register annually, and pay a fee of \$2 00

Representative Estabrook said that it was important to know the doctors and learn their viewpoint. He said that the bills in which the profession is especially interested may be classified as follows: education, public health and compensation. He said that House 34, which is designed to provide one standard for all who practice medicine, would fail because of one definite defect.

"Despite our boasts of educational standards," he said, "Massachusetts, in contrast with every other state, has no standards in medical education."

Such a proposed change as that contained in this bill would act in conformity with the plan of the board of regents in New York, where a candidate for registration in medicine is first obliged to pass an examination of standardized educational requirements. After passing this successfully, he can take the examination for registration in medicine. Such a plan in Massachusetts would promote reciprocity between states. Under present conditions, Massachusetts has been denied recognition throughout the country.

In the absence of these educational standards, students from other states come to Massachusetts and may pass the state registration board after failing elsewhere.

They are then allowed to practice in Massachusetts, thereby giving the state a large number of undesirable practitioners. If there were an amendment to the bill providing for a board of regents it would have a chance of passing, but doubt was expressed of its endorsement, in its present form, by the Legislature.

Representative Estabrook has worked for eight years to have such legislation as this enacted, but has been unable to bring it about.

Senator Nutting said that doctors should become interested in legislation relating to medicine and in form the legislators of their desires, for in no other way can the layman arrive at a satisfactory decision.

Representative Blake said that legislation should not be treated lightly. He felt that the legislators are trying to do the best they can for the public and if an occasional slip is made, it is because they are not informed.

Other business was discussed. A vote of thanks was given to the speakers. The fifty-five doctors present voted that the meeting had been both interesting and enlightening.

The Women's Guild of the Leominster Hospital served a delicious turkey dinner.

FRANCIS M. McMURREAY, M.D., *Secretary*

BOSTON TUBERCULOSIS ASSOCIATION

The Annual Meeting of the Boston Tuberculosis Association was held at the Sheltered Shop, 122 A Newbury Street, Boston, Friday, January 24, 1936, at 4 P.M. The following officers were re-elected: Dr. John B. Hawes, 2d, President, Mr. George S.

Mumford, Treasurer, Dr. James J. Minot, Vice-President, Mrs. Reginald Heber White, Clerk.

Dr. Hawes, in his annual report, which is the sixteenth he has given before this Association, summarized the salient and important features of the year's work, particularly that of the Prendergast Preventorium and the Sheltered Workshop. By means of a striking graph he showed the gratifying and steady increase in the sales of products made by the expatients at the Workshop. He commented on the educational work still being carried on since its beginning in 1927 among the Negroes of the South End district and upon the steady progress being made in the work with the Chinese. In concluding he emphasized as he has many times before that the Boston Tuberculosis Association was not primarily interested in dollars and cents or any figures and statistics or any gains or losses of weight but it is vitally interested in human beings who have tuberculosis and those who are threatened with it, in order that their lives may be made happier and better by this Association.

The annual address which was most illuminating was given by Dr. Cleaveland Floyd, Physician-in-Chief of the Boston Health Department Tuberculosis Clinics and member of the Executive Board of the Boston Tuberculosis Association. He commented on the drop in the tuberculosis death rate from 164.7 to 55.5 in the past twenty-five years, and on the improved facilities for the examination for diagnosis and the care of patients both at home and in the sanatoria. He stated that even today there is not a sufficient number of beds for tuberculous patients in Boston. He also stated that at present the common cold contracted by tuberculous patients makes it one of the greatest factors in causing them to break down a second time.

Dr. Elliott P. Joslin, an abstract of whose address appears below, spoke on "The Prendergast Preventorium Boarding School for Diabetics."

ABSTRACT OF DR. JOSLIN'S ADDRESS

The Boston Tuberculosis Association started something this year when it inaugurated the first Diabetic Boarding School in the country and, so far as I know, in the world. It is true this boarding school is chiefly for underprivileged children, but the significant point is that it is started and that the idea is sound and sure to spread to other communities.

For some years there have been diabetic camps in Massachusetts and, through the efforts of the Universalists and other friends, nearly 100 diabetic girls were cared for at the Clara Barton Homestead in North Oxford last summer. Thanks to the assistance of the Prendergast Preventorium and the ladies of the Unitarian Church, the Preventorium became available for diabetic children this last year and thirty boys had a good vacation thereby. In the autumn it seemed a shame to send them home and during this winter ten or more have been kept at

the Preventorium and allowed to go to school. Diabetic children are prone to tuberculosis and consequently it is especially appropriate for this association to be interested in them.

The arrangements for these children are quite ideal. They have good diabetic care there are enough of them so that they are not distinctive thanks to the School Committee of Boston they are provided with facilities for education and while gaining this they are securing diabetic training which will last them for years.

Diabetes for the Diabetics I firmly believe that the prevention and care of diabetes should rest upon the families of diabetics and upon the diabetics themselves. The number of diabetics who are very poor or very rich is small. There are I suppose half a million diabetics in the country and 15,000 in the state of Massachusetts but the great bulk of them are perfectly capable of looking out for themselves and one another. To the family of a diabetic one should look for the prevention of the disease among other members. This is accomplished first, by emphasizing the importance of obesity in middle life in favoring the onset of the disease and secondly by the simple rule that one diabetic should not marry another diabetic and thus transmit the disease to the children. In general it is better for a diabetic not to marry into another diabetic family.

Provision for the care and treatment of poor diabetics should be undertaken by diabetics. The more diabetics a patient in good circumstances can make it easy for his own physician or for hospitals and clinics to treat, the better that patient will be treated himself.

Improvement in treatment is what is needed all along the line in diabetes. In general we do not need large sums of money for hospital diabetic beds but instead moderate sums of money so that the occupants of these beds can be treated better and more expeditiously. Formerly a diabetic would occupy a bed for a month. Now treatment is carried out in ten days or a week, and three or four times as many patients get the benefit for the same cost. With more careful planning greater attention to the details of the education of the patient and last of all, with the help of the new and safer insulin hospital treatment can be speeded up still more.

Arrangements must be provided so that private physicians can secure laboratory facilities as easily as these are obtained by hospital physicians. I believe that a donation of \$1,000 annually to each of a dozen or more hospitals in this State for the promotion of its diabetic work, particularly for making available more generally the facilities of its laboratory would be of infinitely more value than that same sum if expended on the board of a few patients in these same hospitals. We need better facilities and it is true that we doctors need more brains to utilize the treatment already at hand.

At the Prendergast Preventorium fortunately the facilities are already available for good medical treatment of the children. A laboratory was erect-

ed last year and this is a *sine qua non* in diabetic treatment. The organization of your Prendergast Preventorium Mr. President, is splendid and so far as I can see your chief need and the diabetic chief need is for funds so that you can fill your beds to capacity with diabetic children at \$10 a week.

I appreciate the privilege of being able to say a word at this time for the Clara Barton Homestead Camp at North Oxford. That camp however not only needs money this year for the board of children but it requires an artesian well, a kitchen with modern refrigeration, and a dining room.

The cost of the diabetic camp and boarding school at the Prendergast Preventorium and the Clara Barton Homestead Camp last year reached about \$8,000. This year I certainly hope that more funds will be provided so that both of these camps can be made available to an even greater number of children. For equipment and children twice this sum could be advantageously expended. I hope you all realize that \$10 will do far more than provide board for a child for a week because there are many children whose parents can pay one-half or one-third of this sum, provided the balance is made up. Thus far I know of exactly \$300 available for providing 150 diabetic children a vacation in the camp at the Prendergast Preventorium or at the Clara Barton Homestead Camp but I am not going to worry about the balance needed because there are 15,000 diabetics in the state of Massachusetts and it is for the interest of each one to help himself or herself by seeing that this opportunity for diabetic children to get a vacation and good treatment is afforded. Every diabetic who is able to do anything for another diabetic should do so. It is bread cast on the waters and is sure to return many many fold.

Anyone wishing to give money for camps for diabetic children I hope will specify that it is for that purpose and send it either to the Boston Tuberculosis Association for its work at the Prendergast Preventorium or to the Women's National Missionary Association of the Universalist Church at 16 Beacon Street for the Clara Barton Homestead Diabetic camp. Should any funds be sent to me I will agree personally to be responsible for the expenditure in these two institutions and render an account of the same.

THE NEW ENGLAND PHYSICAL THERAPY SOCIETY

The regular meeting of the New England Physical Therapy Society was held at the Hotel Kenmore, Wednesday evening January 15 1936. The council met at six o'clock.

The scientific meeting was held following dinner. Dr. Charles W. McClure, president of the society, presided. The first part of the program was devoted to a report by Dr. DeWitt G. Wilcox of Newton and Dr. William D. McFee of Boston on evaluation and progress in the field of short wave therapy. Dr. Wilcox stated that he had had several cases of priapism probably partially on a neurotic basis which

had responded well to short wave therapy after other methods of treatment had failed. He also mentioned three cases of so-called "irritable bladder" (pain and frequency were the two most striking symptoms) which had responded well to treatment. As far as head colds and sinusitis are concerned, Dr Wilcox believes that he has obtained good results with this form of treatment. Dr McFee also said that he had obtained good results in frontal sinusitis and described a new electrode he is using in treatment of the prostate gland. In his opinion short wave therapy is a little better than diathermy in many cases, although it will not entirely displace it. Where bone structure is concerned there is definitely more penetration with the short wave.

The chief speakers of the evening were Dr George Rice and Dr Nathan L. Fineberg, who spoke on the treatment of hyperesthetic rhinitis and the modern treatment of the common cold. Dr Rice first showed slides demonstrating the anatomy of the nose and the paranasal sinuses. He then discussed the etiology of hyperesthetic rhinitis, with polyposis as a frequent complication of this disease. If the irritable areas are not too extensive, early cauterization helps. The condition is usually allergic in background, but this may not always be true. In the allergic state eosinophils are usually present in the nasal secretions. If the nasal mucosa is desensitized in these patients, usually there is clearing up of the associated asthma. The condition is either periodic (seasonal) or chronic. In seasonal types careful search for the causative agent is important. As for the treatment of the nose, there have been three types of procedure: ionization methods, cauterization with full strength phenol, and diathermy. Preliminary cocaine anesthesia is necessary and correction of underlying nasal deformities, if any, must be effected as a preliminary measure. Dr Fineberg discussed ionization methods in a little more detail, especially as developed by Warwick, and reported good results with this form of treatment in patients with marked hay fever and asthma and has also obtained satisfactory results with ionization in atrophic rhinitis and ozena. The most striking successes have been obtained in seasonal hay fever after it has developed, he also feels that there is a good chance of clearing up associated asthma, if that is present. Results have not been good with asthma unrelated to hyperesthesia in the nose. The speaker also emphasized the importance of correcting underlying deformities in the nose.

In discussing atrophic rhinitis, Dr Rice indicated that he had obtained good results by the use of ultraviolet light, and proceeded to discuss the modern treatment of the common cold. He stressed the importance of general hygiene and good physical condition, and mentioned local and general methods of treatment of the cold itself. Rest in bed, at least for the first twenty-four hours, hot drinks, and foot baths are important adjuncts to treatment. He has used sodium iodide subcutaneously and also

nonspecific protein injections. Two grain doses of ammoniated quinine are also recommended, and ultraviolet light and radiotherapy often help. After the acute stage is over, argyrol packs in the nose relieve ethmoiditis and complications.

In discussing this paper, Dr Fineberg pointed out the importance of attending to the patient's general condition, both in treatment and prevention.

A general discussion followed and Dr McClure closed the meeting with a few words on the importance of diet, proper nutrition, and food elements in health and disease.

PHYSICIANS' ART SOCIETY

At a meeting held December 10, 1935, the following officers were elected:

President Dr Frederic J. Cotton

Vice-President Dr Fritz B. Talbot

Secretary-Treasurer Mr James F. Ballard

Executive Committee Dr Eli C. Romberg (3 years), Dr Lewis W. Hill (2 years), Dr Somers H. Sturgis (1 year)

The Society has been very fortunate in enlisting the interest of Doll and Richards, who have offered the free use of their galleries for the spring exhibition. This will be held from April 27-May 9 and details will be published later. It is felt that the interest of such a prominent gallery does much to stimulate the Society, and it is urged that all members prepare new material, as nothing will be accepted that has been shown at any of the previous exhibitions. In addition to paintings, drawings and sculpture, other creative specimens of handicraft are eligible. Photographs will not be accepted. There is no limit to the number of subjects which can be sent by any one man, but a professional jury will select a limited number, and supervise their hanging.

All physicians who are interested in art and craftsmanship are cordially invited to join the Society. Application should be made to Mr Ballard at the Boston Medical Library.

WILLIAM HARVEY SOCIETY

The William Harvey Society met at the Beth Israel Hospital, January 10, 1936, with Dr W. F. Stearns presiding. Dr H. Houston Merritt, associate in neurology at Harvard Medical School, read the paper of the evening on "Syphilis of the Nervous System."

The important aspect of a syphilitic infection is the outcome of the disease fifteen or twenty years after the primary lesion, when the central nervous system and cardiovascular involvement overshadow the relatively unimportant first and second stages of the disease.

Brusgaard's study of 473 cases of untreated syphilis some forty years after the detection of the disease showed that twenty-two per cent had died of causes other than syphilis, twenty-eight per cent

had no clinical evidence of syphilis but had negative serology. Fourteen per cent had positive serology but no symptoms or clinical manifestations of the disease. Nine and five-tenths per cent suffered from neurosyphilis, twelve and eight-tenths per cent from cardiac syphilis and thirteen and five-tenths per cent from syphilis of the skin and bones.

In contrast to these figures Dr Merritt cited the results obtained by Moore from adequate therapy

markedly abnormal fluid means that serious neurosyphilis will most certainly develop unless proper therapy is given.

Acute syphilitic meningitis is not caused by arsenicals as was formerly believed by some workers but is due to spirochetal invasion of the meninges. Sixty four per cent of cases occur during the first year of infection and there is a subsequent steady fall in incidence. The blood Wassermann

Type of syphilis		Probable outcome expressed in approximate per cent		
Original diagnosis	Ultimate outcome	Untreated	Inadequately treated	Thoroughly treated
Early syphilis	Serious late syphilis	25	35-40	5-10
	Benign late syphilis	15	15	5
	Latent syphilis	30	30	5
	"Cure"	30	15-20	80-85

Consideration of these comparative figures clearly shows the value of early and thorough therapy of every case of syphilis.

Central nervous system involvement due to syphilis is seen more frequently in males than in females, and the white race is much more prone to develop lesions in this region than is the Negro race. Some investigators believe that ninety per cent of white males contracting syphilis develop central nervous system involvement to some degree. The true incidence of central nervous system involvement in the white male is probably not so high as indicated by these figures, but nevertheless is strikingly common.

Syphilitic involvement of the central nervous system may be classified in the order of increasing severity:

1. Asymptomatic
2. Meningeal
3. Vascular
4. Gumma
5. Tabes Dorsalis
6. Dementia Paralytica

Abnormalities in the spinal fluid are of great importance diagnostically and are an indication of the efficacy of therapy. Although thirty five per cent of individuals with syphilis exhibit abnormal spinal fluid findings in the first thirteen to eighteen months after infection those with positive findings three or more years after infection are the cases which will develop serious nervous system involvement if not treated properly. It is in this and earlier stages that therapy is most effective and can be expected to prevent the development of serious parenchymatous involvement. Dr Merritt advocates a spinal puncture and study of the spinal fluid in all cases of early syphilis before treatment is discontinued, and as soon as the diagnosis is made in the cases of late syphilis. A normal spinal fluid two years after infection is almost certain indication that there will be no nervous system involvement at a later date. A

in a series of seventy four cases was negative in thirty five per cent. Hinton determinations are more accurate and this percentage of negative results would be much lower for this test. A large percentage of the cases of syphilitic meningitis develop an acute hydrocephalus and practically all show an elevation of spinal fluid pressure. Signs of meningeal irritation and choked discs are also common manifestations. Paralysis of the cranial nerves occur in the basilar type the eighth seventh and third being most frequently involved. Pathologically acute syphilitic meningitis is characterized by small round cell infiltrations of the meninges and the blood vessels in the superficial layers of the brain.

Vascular neurosyphilis may occur early or many years after the primary lesion and a large percentage of cases may have a negative blood Wassermann. A smaller number of cases also have negative spinal fluid serology. The symptoms are those of a focal cerebral lesion i.e., hemiplegia hemianopia, aphasia, etc. The differential diagnosis of a cerebral thrombosis due to arteriosclerosis and that due to luetic endarteritis may be very difficult, but if symptoms indicative of such an accident occur in a comparatively young individual with a normal blood pressure syphilis should be seriously considered and the spinal fluid examined to exclude it.

Gummata of the central nervous system are extremely rare, and therefore of little clinical importance. When present surgical removal is usually necessary.

Involvement of the spinal cord by syphilis usually takes the form of a meningomyelitis vascular thrombosis, chronic anterior poliomyelitis or tabes dorsalis. Except for tabes dorsalis these manifestations are rather rare.

Tabes dorsalis is characterized by paresthesiae shooting pains, disturbance of gait, vision and sphincter control and the so-called "tabetic crises". The Romberg sign is frequently present, the deep reflexes are absent and position sense is lost in the

feet The true Argyll Robertson pupil is found in more than fifty per cent of the cases

The Argyll Robertson pupil is almost pathognomonic of central nervous system syphilis and may be defined as having the following characteristics

1 A retina which is sensitive to light (An intact retina and visual pathway)

2 The pupil is miotic (Due to paralysis of the sympathetic innervation of the iris)

3 The pupil maintains a constant size regardless of the amount of light admitted to the eye (Due to paralysis of the light reflex fibers)

4 Active accommodation of the pupil for near objects is maintained (Showing an intact pathway from the cortex to the third nucleus, and from the third nucleus to the ciliary muscles of the eye)

5 Imperfect dilatation following instillation of atropine and absence of dilatation when painful stimuli are applied to the skin. (Characteristic of paralysis of the sympathetic innervation of the eye)

Dr Merritt discussed the anatomical location of the lesion which would produce these symptoms, and stated that the Argyll Robertson pupil indicates parenchymatous involvement of the central nervous system, and although not absolutely diagnostic of any one form of neurosyphilis, is suggestive of involvement of the tabetic or dementia paralytic type

Dementia paralytica is the most severe of the various manifestations of central nervous system syphilis. Change of personality, mental deterioration, hallucinations, euphoria, speech and writing defects, convulsions, reflex disturbances, and Argyll Robertson pupils in combination are pathognomonic of paresis

Pathologically, paresis is characterized by a generalized infiltration of the meninges, blood vessels and occasionally the cortical substance with plasma cells, and degenerative changes in the nerve cells. Deposits of iron pigment in the microglia and in the walls of the blood vessels in the brain, as revealed by special iron stains, have come to be regarded as diagnostic of paresis. Spirochetes can be demonstrated in the cortical tissues

Spirochetal invasion of cortical matter is probably not the only cause of the lesions observed in paresis. The blood vessel changes characteristic of paresis and the subsequent decrease in blood supply probably play a large part in the degenerative changes

Therapy of central nervous system syphilis with various arsenical preparations has proved of great benefit. Arsphenamine is of greatest value in the treatment of the early stages of syphilis, but has been superseded by the less toxic neoarsphenamine in the later stages of the disease. Tryparsamide is almost specific for central nervous system syphilis, but is ineffectual in treating other luetic manifestations

Fever, artificially induced by means of diathermy or malaria has been the greatest recent advance in

the treatment of neurosyphilis. The malaria method of hyperthermia consists in the infection of the patient by intravenous administration of blood from an individual with malaria, and allowing the patient to experience ten to fifteen attacks of chills and fever. Cure of the malaria is easily achieved by the oral administration of quinine. Tryparsamide therapy should be instituted immediately after completion of the fever treatment. In dementia paralytica, clinical cures occur in percentages varying between twenty and thirty six per cent of the cases so treated, and partial relief is obtained in fourteen to fifty per cent of cases. Modern methods of therapy have changed central nervous system syphilis from a disease with a hopeless prognosis to a disease with a favorable outlook.

HAMPDEN DISTRICT MEDICAL SOCIETY

The Winter Meeting was held at the Springfield Academy of Medicine, 20 Maple Street, Springfield, on Tuesday, January 28, 1936, at 4 15 P M. Dr Theodore S. Bacon, President, was in the Chair. About 120 members attended.

The Secretary read a letter from Dr Charles G. Miles of Brockton, a member of the Legislature, regarding a bill to be introduced affording better protection to physicians called on for services in connection with automobile accident cases and appealing for funds for the purpose of giving radio addresses. The Society voted to appropriate the sum of twenty five dollars toward this purpose. An invitation to the New England States Regional Conference on Birth Control was read.

The paper of the afternoon was by Dr John Homans of the Peter Bent Brigham Hospital and the Harvard Medical School, Boston, on the subject of "Thrombosis in Veins as a Complication of Medical and Surgical Diseases." Dr Homans discussed the causes and manifestations of such thrombosis, especially postoperative and posttraumatic, the possible sequelae, such as pulmonary emboli, and the methods of prophylaxis and treatment. The paper was discussed by several members and questions answered. A rising vote of thanks was given Dr Homans for his very interesting and practical presentation, and a buffet supper was served.

ANDREW PETERS, M.D., Reporter

ROBERT BRECK BRIGHAM HOSPITAL CLINIC

Osteoarthritis was the subject of a clinic held at the Robert Breck Brigham Hospital, Wednesday, January 29, 1936. Two cases were presented. The first, a Scotch baker, aged fifty seven, had been troubled for ten years with pain in both knees. No other joints gave symptoms. During the past year he had been forced to give up two jobs because of the great pain he experienced when standing for any length of time.

The patient was short, stocky, muscular, and weighed 160 pounds. The positive physical findings were absence of teeth, round shoulders, large

abdomen, prominent knee joints, slight bowing of the legs and flat feet. All laboratory tests including the usual blood and urine studies Hinton test, gonorrheal complement fixation, blood uric acid, prostatic smear and basal metabolic rate were within normal limits. X-rays revealed osteoarthritic changes in the hands, knees, feet, spine and pelvis with marked spur formation and well-defined calcareous deposits, particularly in relation to tendinous attachments.

The second patient, a woman aged fifty-one had been troubled with increasing disability of the hip joints for twelve years. On admission she could walk with a cane. Other joints were symptom free except the knees, to which pain was referred from the hips.

She was a short, stout woman weighing 145 pounds. The striking physical finding was the great limitation of motion in the hips certainly less than half the normal range. Laboratory data were not unusual although the sedimentation rate was 47 mm./hr (Westergren). X-rays showed great changes in the hip joints with mushrooming of the femoral head, shortening of the neck of the femur narrowing of the joint space, shelving of the acetabulum and generalized atrophy.

In the discussion it was suggested that certain similarities existed in the two patients, i.e., they were over fifty years of age, the arthritic symptoms had been gradually developing over a ten year period, the larger joints were involved, both were overweight, they ran an afebrile course, blood counts and hemoglobin were normal, and improvement was achieved with supervised bedrest with graded postural exercises. The possibility of a developmental anatomic variation with respect to the hip joints in the second patient was mentioned as possibly contributing to the unusual change as demonstrated by x-ray.

The conclusion was reached in each case that it was doubtful if osteoarthritis could account for all the pathology demonstrated by x-ray. The element of wear and tear on large weight-bearing joints together with long repeated intra-articular trauma gave sufficient grounds however for grouping these cases in that category which includes degenerative hypertrophic or osteoarthritis.

With protection to the joints involved the knees in one case and the hips in the other and graded weight bearing exercises it is to be expected that both patients will again take up their usual work within a three to six months period.

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The semi-annual meeting of the Essex North District Medical Society was held at the Riverside Tavern Wednesday January 8 1936. Dinner was served at 12:30 P. M. after which the meeting was turned over to Dr. Charles E. Mongan of Somerville, President of the Massachusetts Medical Society by Dr. Warren of Amesbury President of the District Society.

Dr. Mongan requested the cooperation of the Fellows in the Society and touched briefly on the service the Society offers to its Fellows.

Dr. W. Reld Morrison of Boston Chairman of the Committee of Arrangements for the Annual Meeting was then introduced by Dr. Mongan. Dr. Morrison outlined the plans for the meeting to be held in Springfield June 8, 9 and 10 and urged every member to attend.

Dr. Mongan next presented Dr. Alexander S. Begg Secretary of the State Society and Dean of the Boston University School of Medicine. Dr. Begg asked that all Fellows get behind the Society in support of the legislation for elevation of the standards for admission to practice in Massachusetts. He forcefully emphasized the point that Massachusetts has the lowest standard of any state in the Union for the registration of physicians and the only state that does not give the Board of Registration power to discriminate against inferior medical schools. The Massachusetts Medical Society has been trying for several years to remedy this condition and it was suggested that if the Legislature continued to refuse changes the fight would be taken to the people.

Dr. Begg also discussed the proposed law of re-registration of physicians estimating that, if this law were put into effect, approximately one thousand illegal physicians would probably be discovered whom the Board of Registration in Medicine is now unable to locate.

Dr. Channing Frothingham of Boston Vice-President of the Massachusetts Medical Society and Chairman of the Subcommittee on Public Health and Practitioner asked that immunization work and other public health measures be more actively carried on by private practitioners. This brought out the fact that the State Department of Public Health does not wish to continue this work after the people have been educated to go to their family physicians for this service.

Dr. Michael A. Tighe of Lowell Chairman of the Subcommittee on Social Legislation and Insurance, was introduced by Dr. Mongan. Dr. Tighe reminded the Fellows that the House of Delegates of the American Medical Association in February 1935 went on record as opposed to Compulsory Sickness Insurance, because of the interposition of politics between the medical practitioner and the public. He called attention to the fact that the Public Relations Committee and Council had endorsed this stand and had resolved that they should endeavor to educate the public regarding the evils incident to the workings of Compulsory Sickness Insurance. Evidence of cooperation of the press was shown by Dr. Tighe, and the endorsement by the press of the attitude of the Massachusetts Medical Society in this matter.

The business meeting of the District Society was opened by Dr. Warren, the president. The minutes in abstract were read by the Secretary. The resolution on the death of Dr. Edward F. Lawlor of Lawrence was read and voted to be spread on the records and a copy sent to his family. The com-

mittee on the resolutions on the death of Dr John Massé of Lawrence was not ready to report.

Dr Burnham of Lawrence called attention to the fact that the District Society, in its membership records the name of every eligible physician in the District. Twenty-five per cent of these are not Fellows of the American Medical Association as compared with sixty per cent who are not Fellows in the state.

Dr Burnham urged support of the Legislature on annual reregistration of physicians in order to provide an investigator by the Board of Registration in Medicine. A two-dollar fee from each physician would yield approximately \$12,000 annually, he stated.

Dr F W Snow of Newburyport, Chairman of the Committee on Revision of By-Laws, reported that the committee met on January 3, 1936. Dr Snow read the revisions, which were advised by the Committee, and it was moved and seconded that the recommendations be accepted.*

It was moved that the communities within the jurisdiction of the Essex North District Medical Society be grouped as follows, for the organization of the Committee on Public Relations:

- 1 Lawrence
- 2 Methuen
- 3 Haverhill, Groveland, Georgetown, Merrimac, Boxford
- 4 Andover, North Andover
- 5 Amesbury, Salisbury
- 6 Newburyport, West Newbury, Newbury, Rowley

Dr Burnham objected to the splitting up of the Greater Lawrence district, the objection was not carried, and the original motion was seconded and unanimously adopted.

After explanatory remarks, Dr Edward Mack Smith moved that a committee of five, not officers and not residents of Lawrence, be appointed by the Chair (a member ex officio) to report, with a request to publish, whether the constitution has been followed in recent Board of Trial cases. The motion was seconded and unanimously adopted.

In the reports of the City Committees, the study of the City Physicians in Haverhill was presented. It was brought out that the three City Physicians in 1935 made approximately twelve thousand calls with an average gross compensation of fourteen and one-half cents per call.

Studies on free work by the Staff of the Gale Hospital showed that on a conservatively estimated fee basis, the physicians were contributing over eighty thousand dollars' worth of service to the city's poor each year without receiving any financial return.

The Committee felt that some of the work now being done by the City Physicians could properly be transferred elsewhere, that ultimately the inadequate compensation for this work must be considered if the city arrives at the position of being able to pay a fee basis for services rendered.

*See Appendix

A "panel" system was suggested whereby the patient could choose from a list of physicians who were willing to do this work on a reduced fee basis. It was also recommended that a central office be provided to facilitate the work of the City Physicians.

By unanimous consent of every physician in the city, lodge practice will not be carried on by any physician.

The meeting adjourned at 5 P M

E S BAGNALL, M.D., *Secretary*

APPENDIX

Revisions of the By-Laws of the Essex North District Medical Society Recommended by the Committee on the Revision of By-Laws

ARTICLE I

(Unchanged)

Fellowship

The Society shall be called the Essex North District Medical Society and shall consist of all the Fellows of the Massachusetts Medical Society credited to it by the latter, and residing in the cities of Haverhill, Lawrence and Newburyport, and in the towns of Amesbury, Andover, Boxford, Georgetown, Groveland, Merrimac, Methuen, Newbury, North Andover, Rowley, Salisbury, and West Newbury, and also all other Fellows credited by the Massachusetts Medical Society and residing elsewhere.

ARTICLE II

(Changed)

Meetings

SECTION 1 There shall be held each year the three stated meetings of the Society, on a Wednesday in January, May, and October respectively. The meeting in May shall be the annual meeting, and shall be held on or before the fifteenth of the month.

SECTION 2 Special meetings for social, scientific, or other purposes may be called, from time to time, by the President on his own initiative, or at the written request of five members. At a special meeting, there shall be transacted only such business as is specified in the call of the meeting.

SECTION 3 (A) At the annual meeting, there shall be elected by ballot the officers of the Society, as provided for in Article III, the Councillors, the Censors, the Committee of three on Funds, a Commissioner of Trials for the Massachusetts Medical Society, a Correspondent to the official organ of the Society, a Committee on Public Relations, a Delegate to the Public Relations Committee of the State Society who shall serve as chairman of the District Public Relations Committee, all of whom shall hold office for one year, or until their successors are elected.

(B) The Councillors shall be elected in number equal to one for every thirty active and retired Fellows, and a majority fraction thereof as of January 1. One Councilor and one Alternate shall be designated by the nominating committee to act as members

of the nominating committee of the Council.

(C) The Censors shall be five in number and must be elected from members of at least ten years' fellowship. One Censor who must also be a Councilor shall be designated by the nominating committee as Supervisor.

(D) All officers and members of the committee shall assume office on the day of election.

(E) At the annual meeting the nominating committee, the treasurer and the auditor shall present their respective reports.

SECTION 4. Five members shall constitute a quorum but a less number may adjourn the meeting from time to time.

ARTICLE III

(Changed)

Officers

The officers shall consist of a President, a Vice-President, Secretary, Treasurer and Auditor. One Fellow may serve as Secretary and Treasurer.

ARTICLE IV

(Formerly Article V—except for last sentence which was stricken out)

Duties of the President and Vice-President

The President shall call to order and preside at all meetings of the Society and shall have all the powers usually accorded to a presiding officer. He shall also perform such other duties as may devolve upon him as Vice-President ex-officio of the State Society.

In the absence of the President, his duties shall be discharged by the Vice-President and in the absence of both these officers, a chairman shall be chosen by the Society.

ARTICLE V

(Formerly Article VI—except for last sentence, which was stricken out)

Duties of the Secretary

The Secretary shall have charge and custody of the By Laws, Records and other papers of the Society. He shall send to each member a printed notice of each meeting of the Society and keep a fair record of all its doings, and read at the meetings all such communications as the President may direct to be made, he shall notify the chairman of each committee appointed by the Society in each case stating the commission and names of the committee, and he shall perform such other duties as may be assigned to him or as are required by the By Laws of the Massachusetts Medical Society or by any vote of said Society or its Councilors.

ARTICLE VI

(Replaces former Article VII)

Duties of the Treasurer

The Treasurer shall collect all moneys due the Society except such as are otherwise especially provided for. He shall keep an accurate account of all receipts and disbursements and shall make disbursements for all routine expenses under the authority of the Executive Committee or as may be ordered by vote of the Society in any regular meeting assembled. He shall annually make to the Society

a written report of the state of the treasury and shall subject all his accounts to the inspection of the Auditor. He shall also perform the duties required of him by the By Laws of the Massachusetts Medical Society or by any vote of said Society or its Councilors. He shall act as Secretary of the Committee on Funds but without a vote.

ARTICLE VII

(Replaces former Article VIII)

Of the Invested Funds

The general care and management of the permanent funds of the Society including those now in hand and any that may hereafter be acquired shall be invested by the Committee on Funds,—subject, always to such directions as may be given from time to time by the Society.

The duties of the committee in this regard shall be

1. To treat each separate gift or legacy or other acquisition designed for permanent investment, from whatever source received as a separate and independent fund, designating it be either the name of the donor or some other indicative of the use to which it is made applicable.
2. To keep all such funds constantly invested in interest bearing securities having at all times in the selection of such securities particular regard to the safety of the principal rather than to the rate of interest to be obtained.
3. To expend, or cause to be expended at their discretion the income derived from these investments for the purposes authorized by the terms under which the several funds are or shall be held and for no other.
4. To keep in a book provided for the purpose an account current with each fund,—which book and account shall at all times be open to the inspection of any member of the Society who may desire to examine them.
5. To lay before the Society at every annual meeting in writing and in detail, a complete report of the transactions of the year preceding, stating for each fund the income received the expenditures made (and for what) its present condition, and the name, character and amounts of the several securities in which it is held.

ARTICLE VIII

(N W)

Public Relations Committee

SECTION 1. The Public Relations Committee shall consist of one representative from each community or group of communities as defined by the Society who will be elected by ballot. The Public Relations Committee is to study the relations of the Medical Profession and the Society with the Public and will make such recommendations as may be indicated, from time to time, and take such action as may be directed by the Society. It shall also serve as an executive committee and a nominating committee.

SECTION 2. Each community or group of communities, shall be represented by a local Committee on

Public Relations Members of these local committees shall be appointed by the Public Relations Committee

SECTION 3 The chairman of each local committee shall be a member of the Public Relations Committee

SECTION 4 The President and Secretary of the Society shall be members of the Public Relations Committee

ARTICLE IX

Amendment of By Laws

The Society shall, at its discretion, incorporate into its By-Laws at a stated meeting, by a majority vote and without previous notice, the substance of any vote or resolution passed by the Councilors of the State Society, and affecting the duties, rights or privileges of this Society, or of any of its officers. Otherwise the By Laws of this Society may be amended by an affirmative vote of two-thirds of the members present and voting at a stated meeting, provided that notice of the proposed amendment shall have been given in writing at a previous meeting, and notice of the same sent by the Secretary to each member of the Society

MASSACHUSETTS GENERAL HOSPITAL

A Clinical Meeting of the Staff of the Massachusetts General Hospital will be held in the Moseley Memorial Building, on Thursday, February 27, 1936, at 8 15 P M

PROGRAM

- 1 Artificial Menopause in the Treatment of Carcinoma of Breast G W Taylor, M D
 - 2 Is It Angina Pectoris? H B Sprague, M D
- Physicians, medical students, nurses and social workers are cordially invited

Committee on Hospital Meetings,
WILLIAM B BREED, M D, *Chairman*,
MARSHALL K BARTLETT, M D, *Secretary*

BOSTON CITY HOSPITAL

STAFF CLINICAL MEETING

Wednesday, February 26, 1936, at 8 15 P M, Cheever Amphitheater

Contributions of Medical Social Service to Diagnosis, Treatment and Prevention.

The Function of Medical Social Service Dr Merrill Moore and Miss Mabel R Wilson.

Case Presentations I. Surgical Social Problems Dr Charles C Lund II Medical Social Problems Dr George P Reynolds

The Patient in His Social Environment Dr George R Minot.

COMMITTEE ON HOSPITAL CLINICS

CLOVER HILL HOSPITAL

Lawrence, Mass

The next medical meeting of the Clover Hill Hospital will be held in the reception room of the hospital at 161 Berkeley Street, Lawrence, on Thursday evening, February 27, 1936, at 9 P M

Speaker Louis E Phaneuf, M.D, of Boston
Subject The Management of Uterine and Vaginal Prolapse

The lecture will be illustrated with lantern slides Discussion will follow All physicians of Lawrence and vicinity are cordially invited to attend

Clover Hill Hospital,
N F DECESARE, M D, *Chairman*

NEW ENGLAND HOSPITAL ASSOCIATION

The annual meeting of this Association will be held February 27, 28, and 29 at the Hotel Statler, Boston

On February 28 there will be a special section meeting for Trustees

AMERICAN SOCIETY FOR THE CONTROL OF CANCER

The Annual Meeting of the members of the American Society for the Control of Cancer will be held at the office of the Society, Room 1501, 1250 Sixth Avenue, New York, N Y, on Friday, March 6, 1936, at 3 30 P M

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, February 25, at 8 15 P M

PROGRAM

- Presentation of Cases
Spontaneous Hypoglycemia By Dr Russell M Wilder, Mayo Clinic, Rochester, Minnesota.
Medical students and physicians are cordially invited to attend

MARSHALL N FULTON, M D, *Secretary*

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at the Memorial Hospital, Worcester, Mass (Knowles Hall, Nurses' Home), Monday, February 24, 1936, at 8 00 P M

PROGRAM

- 1 Effects of Contagious and Infectious Diseases on the Heart
 - A. General Statement of Main Topic Dr O H Stansfield
 - B Late Results of Contagious and Infectious Diseases on the Heart Dr E H Haloran
- 2 Acute Benign Pericarditis Dr F B Carr
- 3 Coronary Symptoms in Pernicious Anemia Dr J J Dumphy

All members of the New England Heart Association and interested physicians are invited to attend

JAMES M FAULKNER, M.D, *Secretary*

THE NORFOLK DISTRICT MEDICAL SOCIETY

A regular meeting of the Society will be held in the Massachusetts Memorial Hospitals, 82 East Concord

Street, Boston Tuesday evening February 25 1936
at 7 00 P.M.

PROGRAM

7 8 15 P.M.

Inspection of new building (Especially the operating rooms and viewing gallery)
Demonstration of Mechanical Heart. Dr George Layne
Demonstration of Electrocardiograph. Dr William Reid.

8 15-10 P.M.

Address of Welcome. Dr Henry Pollock, Superintendent, Massachusetts Memorial Hospitals

The Clinical Diagnosis of Hyperthyroidism. Dr Howard Clute
Congenital Factors in Urinary Infections. Dr Samuel Voss.

Is There an Inheritable Tendency to Practice Medicine Successfully? Dr Reginald Fitz.
Complications in Numps. Dr Conrad Wesselhoeft.

10 00 P.M.

Refreshments—Talbot Memorial
FRANK S. CRUICKSHANK, M.D. Secretary

CARNEY HOSPITAL

CLINICAL MEETING

The next clinical meeting of the Carney Hospital will be held on Monday February 24 at 8 30 P.M.

Subject Thoracic Surgery by Dr John Strieder (Lantern Slides)

Physicians and medical students are invited to attend

SOCIETY MEETINGS, CONGRESSES
AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY FEBRUARY 24 1936

Monday February 24—

8 30 P.M. Carney Hospital Clinical Meeting.

Tuesday, February 25—

9 10 A.M. Boston Dispensary 5 Bennet Street, Boston Case Presentation. Dr Francis McDonnell.

9 30 P.M. Pediatric Ward Visit Massachusetts Eye and Ear Infirmary

7 P.M. Norfolk District Medical Society Massachusetts Memorial Hospitals, 83 East Concord Street Boston.

8 15 P.M. Harvard Medical Society Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance)

Wednesday February 26—

9 10 A.M. Boston Dispensary 5 Bennet Street, Boston. The Present Role of the General Surgeon in a Modern Hospital. Dr Hubert F. Day

11 30 A.M. Clinico-Pathological Conference Children's Hospital

8 15 P.M. Boston City Hospital Staff Clinical Meeting Cheever Amphitheatre.

Thursday February 27—

New England Hospital Association. All day session Hotel Statler Boston.

8 30 9 30 A.M. Clinic Surgical and Orthopedic Staffs of Children's Hospital at the Children's Hospital.

9 10 A.M. Boston Dispensary 5 Bennet Street Boston Diabetic Clinic. Dr Jacob Schloss

8 30 P.M. Medical Clinic at the Peter Bent Brigham Hospital.

8 15 P.M. Massachusetts General Hospital Clinical Meeting of the Staff Moseley Memorial Building.

Friday February 28—

New England Hospital Association. All day session. Hotel Statler Boston.

9 10 A.M. Boston Dispensary 25 Bennet Street, Boston. Physiological Adventures Abroad. Dr G. Philip Grabfield

13 A.M. Massachusetts General Hospital. Clinical Meeting of the Staff of the Children's Medical Service Ether Dome.

Saturday February 29—

New England Hospital Association. All day session. Hotel Statler Boston

9 10 A.M. Boston Dispensary, 5 Bennet Street Boston Presentation of Ward Case. Dr H. Magendanz.

10 12 Staff rounds at the Peter Bent Brigham Hospital.

Sunday March 1—

4 P.M. Free Public Lecture Harvard Medical School Building D Longwood Avenue. Appendicitis. Dr Reginald Fitz and Dr E. C. Cutler

*Open to the medical profession

†Open to Fellows of the Massachusetts Medical Society

February 20—New York Harvey Society will meet at the New York Academy of Medicine

February 20—The Journal Club of the Department of Obstetrics Harvard Medical School, will meet at 8 15 P.M. at the Boston Lying in Hospital.

February 24—Carney Hospital Clinical Meeting See notice elsewhere on this page.

February 24—New England Heart Association. See page 398.

February 24—Springfield Medical Association, 8 30 P.M. at the rooms of the Springfield Academy of Medicine, 30 Maple Street.

February 24 to May 16—International Medical Post graduate Courses in Berlin. See page 1311 issue of December 12, 1935

February 25—Harvard Medical Society See page 398.

February 26—Boston City Hospital Staff Clinical Meeting See page 398.

February 27—Medical Clinic at the Peter Bent Brigham Hospital. See page 398

February 27—Massachusetts General Hospital, Clinical Meeting of Staff. See page 398.

February 27—Clover Hill Hospital Medical Meeting See page 398.

February 27 28, 29—New England Hospital Association. See page 398.

March 2-6—The American College of Physicians. See page 91, issue of January 9

March 6—American Society for the Control of Cancer See page 398

March 12—William Harvey Society Beth Israel Hospital, Boston at 8 P.M.

April 20-24—A Postgraduate Institute in Philadelphia. See page 14 issue of January 30

June 15-19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore Md.

June 16 July 28—Summer Course in Bacteriology See page 398

September 1935—First International Conference on Fever Therapy See page 1325 issue of December '35.

October 19 23—Clinical Congress of the American College of Surgeons. See page 189 issue of January 22

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

March 4—Wednesday Lynn Hospital. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr Timothy Leary Subject Arteriosclerosis.

April 1—Wednesday Essex Sanatorium Middleton. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr Richard H. Overholt of the Lahey Clinic. Subject Chest Surgery

May 7—Thursday Censors Meeting

May 15—Wednesday Annual Meeting Salem Country Club. Dinner at 7 P.M. Speaker: Dr Paul White. Subject to be announced later

It E. STONE M.D., Secretary

88 Lothrop Boulevard Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings are held on the second Tuesdays of March and May at the Weldon Hotel Greenfield, at 11 A.M.

CHARLES MOLLIN, M.D. Secretary

Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings to be held at the Bear Hill Golf Club Stoneham at 11 P.M.

March 11 May 6

IC. L. MACLACHLAN M.D., Secretary

1 Bellevue Avenue Melrose.

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PROGRAM

Presentation of Cases
Spontaneous Hypoglycemia By Dr Russell M. Wilder, Mayo Clinic, Rochester, Minnesota.

Medical students and physicians are cordially invited to attend

MARSHALL N FULTON, M.D., *Secretary*

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at the Memorial Hospital, Worcester, Mass (Knowles Hall, Nurses' Home), Monday, February 24, 1936, at 8 00 P M

PROGRAM

- 1 Effects of Contagious and Infectious Diseases on the Heart

A. General Statement of Main Topic Dr O H Stansfield

B Late Results of Contagious and Infectious Diseases on the Heart Dr E H Haloran

- 2 Acute Benign Pericarditis Dr F B Carr
- 3 Coronary Symptoms in Pernicious Anemia Dr J J Dumphy

All members of the New England Heart Association and interested physicians are invited to attend

JAMES M FAULKNER, M.D., *Secretary*

THE NORFOLK DISTRICT MEDICAL SOCIETY

A regular meeting of the Society will be held in the Massachusetts Memorial Hospitals, 82 East Concord

The New England Journal of Medicine

VOLUME 214

FEBRUARY 27, 1936

NUMBER 9

CANCER OF THE RECTUM AND SIGMOID

DI. E. PARKER HAYDEN, M.D. †

THE basis of this paper is a series of eighty one cases of cancer of the rectum and sigmoid which have come under my care in private practice, or on which I have operated at the Massachusetts General Hospital in the past nine years (table 1). Of the cases seen in private practice, fourteen had radical operations elsewhere, either before or after coming under my observation. Eleven of these are dead. Three are living for periods of eight years, two years, and three months after operation

TABLE 1
CANCER OF RECTUM AND SIGMOID
81 Cases

Radical excisions	51
Local excisions	3
Palliative operations	10
No operation	3
Operated elsewhere	14
Total	81

Of the remaining patients, sixty seven in number, three advanced cases did not come to surgery. I operated upon sixty four cases as enumerated in the accompanying tables. Of these, three showed an extremely early malignant degeneration of an adenomatous polyp and were treated only by local removal of the polyp for individual reasons outlined below under the subheading of "Early Cancer in Polyps."

There remain sixty-one cases, of which fifty one were subjected to radical removal of the growth and gland bearing areas, according to one of the several accepted procedures, and ten cases were explored and found to be inoperable. Thus, out of sixty seven cases, the growth was removed in fifty four giving an *apparent operability rate of eighty per cent*. This figure, however, is not quite a true expression of the facts, because those patients operated upon at the Massachusetts General had been selected from an indefinite larger group as being suitable for operation. It is safe to say however, that sixty five per cent to seventy per cent would represent approximately the *true operability rate*.

The *total operative mortality* was 15.4 per cent, which coincides closely with figures reported by several other writers in connection

with the same percentage of operability. A narrower selection of cases, excluding those in the older age group, and excluding the more advanced cases, would lower the operative mortality rate, but would offer relief from pain and a possibility of cure to a smaller number of sufferers from the disease.

A glance at table 4 will show that several cases died in from four to eight months after operation. In these patients the disease recurred rapidly, perirectal involvement being present at operation, and in three cases there had been a perforation with small abscess at the time of operation. I am sure that, in these instances the remaining months, though few, were spent more comfortably, with the growth removed, than would have been the case otherwise. Also, in table 5, one sees that of the eight patients who died in the hospital six were over sixty five years of age. One had a very extensive growth involving both ileum and uterus and two others had perirectal involvement. The odds were rather against these people though a two-stage procedure, in several cases, might have made a difference. One cannot compare mortality based on a high operability rate with mortality in a carefully selected group of cases, unless due allowance is made for all factors concerned. A summary of some comparative statistics on this point, from publications of other surgeons, may be found in a previous article.¹

CASES TOO ADVANCED FOR REMOVAL OF GROWTH

It is impossible in most instances to estimate accurately the operability of these tumors by any examination short of intra abdominal exploration. Thus it happens that one is often able to remove, apparently completely, a growth which on rectal examination had seemed very large and immovable, whereas, in another case, a much smaller tumor may prove to have already metastasized or invaded adjacent structures to an extent that would preclude any attempt at removal. As shown in table 2, *ten of the thirteen inoperable cases were explored and colostomy performed* in eight of these. The transverse colon was utilized in two cases, because of extensive pelvic involvement making it impossible to bring out a loop of descending colon. In two other cases because of the patient's situation at home, and the fact that immediate obstruction seemed unlikely, exploration without colostomy was done. To bring out

†Hayden, E. Parker—Assistant Surgeon, Massachusetts General Hospital. For record and address of author see "This Week Issue," page 436.

a loop of colon later on, under novocaine anesthesia, in the event of obstruction developing, would have been a simple procedure. As a matter of fact, one of these patients died without obstructing, and the other is still alive and as yet unobstructed. The ten cases explored were deemed inoperable on the basis of either extensive lateral pelvic wall involvement, invasion of bladder and ureters, metastasis to mesocolic nodes above the origin of the left colon.

TABLE 2
INOPERABLE GROUP
13 Cases

Left colostomy	6
Transverse colostomy	2
Exploration only	2
No operation	3
Total	13
Operative mortality	0
Died 24 hours to 1 yr 4 mos later	11
Still alive	2
Total	13

artery, extensive liver involvement, or a combination of these conditions. One woman had an independent carcinoma of the cecum also. One or two small liver nodules, though meaning eventual death, need not be a contraindication to palliative radical resection. A striking example of the truth of this point was brought to my attention by Dr. D. F. Jones, who related the story of a patient on whom he had performed an abdominoperineal resection in the presence of several small but definite liver metastases. Four and a half years later the man came to his office, having only recently been obliged to give up the work which he had been doing steadily since his postoperative recovery. His liver almost filled the abdomen, and death occurred shortly thereafter.

RADICAL OPERATIONS

In this group of fifty-two patients six different operations were employed. The first ten cases were done in two stages. Since then, with increasing experience, the tendency has been to do more single-stage operations. An analysis of the various types of operations used is set forth in table 3. This table includes, besides the fifty-one cases of cancer, one case of large benign adenoma in which a radical operation was done. The rationale of this procedure in the one benign case will be discussed later.

Of the six different operations employed in this series, abdominoperineal resection, in one or two stages, was used in forty-one of the fifty-two cases—about eighty per cent. There are several two-stage abdominoperineal operations, all of which have certain advantages and disadvantages, but I have used only the Jones² opera-

tion in the eleven cases listed in table 3. The one-stage procedures were performed according to the technique of Miles³, the perineal part of the operation being carried out with the patient in right Sims' position. All one-stage cases were transfused at the end of the operation, in order to give them an extra boost, and to minimize the shock which sometimes results.

TABLE 3
RADICAL OPERATIONS
52 Cases
(Including One Benign Adenoma)

Type of Operation	No Cases	Died in Hospital
Abdominoperineal one stage	30	5
Abdominoperineal two-stage (Jones)	11	1
Colostomy and posterior resection	3	0
Anterior resection	4	2
Mikulicz resection	2	0
Resection with end-to-end anastomosis	2	0
Total	52	8 (15.4%)
Results (in brief)		
Died in hospital		8
Died 4 mos to 5 yrs 10 mos later		20
Alive for varying periods up to 5 yrs 6 mos		24
Total		52

from this extensive procedure. The colostomy was established through a short left lateral rectus incision in most cases, and the long paramedian incision closed without drainage. In some instances, however, with a short mesentery, it is easier to bring the bowel out through the median incision because of the median attachment of the mesentery.

I have usually sutured the colon to the left parietal peritoneum so as to obliterate the aperture lateral to the colostomy. The small bowel may otherwise herniate and become obstructed. In several instances, also, I have sutured the internal openings of inguinal herniae from within the peritoneal cavity, without, of course, making any muscle or fascia repair.

A simple colostomy, with posterior resection at a later date, is probably the safest operation for rectal cancer one can do, but it is not possible to carry out posteriorly as complete and careful a removal of pelvic mesocolon and other gland-bearing areas in the pelvis as can be done in an abdominoperineal operation. However, posterior resection, for low growths in poor risk patients, is a good operation.

Anterior resection, with inversion of the rectal stump, and end colostomy, is the operation of choice when the tumor is high enough to

permit dissection well below it, but not high enough to allow a resection with direct suture, or a Mikulicz procedure. The rectal stump should be left within the peritoneal cavity not behind it, lest retroperitoneal sepsis occur. This remaining lower segment, usually about three inches in length can be excised posteriorly later if the margin of safety below the tumor has been such as to make it seem wise.

Coexistent Pathology

It has always seemed wise to resist the temptation to remove an appendix which often presents itself in the field of operation and some times actually impedes the packing upward of the cecum and small bowel. In one case a large Meckel's diverticulum, adherent in the pelvis was freed but not removed. The added time required for removal and the added risk of infection, in an operation already extensive are good reasons for deciding against removal of either of these appendages.

I am sure no one would ever consider favorably the extirpation of a gallbladder filled with stones in conjunction with a pelvic operation of this magnitude. In several cases in this series marked cholelithiasis did exist apparently without symptoms before or since the resection.

In females, prior to their menopause it is probably wise always to cut and tie the tubes, but I have never seen any reason for removing the ovaries, unless cystic or adherent to the tumor. The uterus, retroverted makes a firm support to which the lateral pelvic peritoneal flaps can be sutured in the construction of a new pelvic floor. None of my patients in whom this was done have complained later of any symptoms, such as backache, which is sometimes attributed to retroversion but is usually due to other causes.

In two instances, where the uterus was firmly adherent to the tumor I have done a hysterectomy removing the uterus and tumor en masse. This will seldom be necessary, however. Elevation of two or three small subserous fibroids was done on one occasion without prolonging the operation appreciably.

A most striking case with respect to coexistent pathology, was that of a man of fifty three who had had severe nightly attacks of asthma for nineteen years, glycosuria bordering on a true diabetes, an old syphilis apparently adequately treated, and exophthalmic goiter of over a year's duration with metabolism up to plus forty. After ten days on Lugol's solution with very little effect a subtotal right hemithyroidectomy was done. Difficulty with anesthesia and high pulse rate made it seem wise not to touch the left lobe. This operation brought the metabolism down to plus eleven and the attacks of asthma ceased. Two weeks later a one-stage abdominoperineal resection was done without difficulty and the convales-

cence was normal. There was no return of the asthma until a month after the last operation, but the attacks have gradually increased since then. This patient has resumed his work as editor on the staff of a daily paper for some months now, working full time, and with no recurrence of either hyperthyroidism or cancer as yet. The attacks of asthma, however have become about as severe and frequent as formerly.

In the preliminary search of the abdomen for metastases, prior to embarking on the actual resection, one should palpate carefully the whole colon for other independent carcinomas or polyps. If a second cancer is present it must of course, either be dealt with at the time, or perhaps more safely at a second operation not too distant. One case in this series did have an independent cancer in the cecum as previously stated, but was inoperable from the standpoint of the rectosigmoid growth. The cecal tumor was only three or four centimeters in diameter and could have been resected easily under other circumstances. It is desirable also, to know of the existence of simple polyps because of their tendency to become malignant at a future time. I have recently been shown a case, operated by a one-stage resection, with end colostomy, in which a good sized and unsuspected, polyp prolapsed from the colostomy several days after the resection. It was a simple matter for the surgeon to remove it without anesthesia of any sort.

Points in Technique

Abdominoperineal resection can be done with equal ease through a left or a right paramedian incision which should extend just above the umbilicus to give adequate exposure. A high Trendelenburg position is a great help if it does not hamper the patient's respirations. Spinal anesthesia gives perfect relaxation but there is always the uncertainty as to its duration and for this reason I have used ether in most cases. Large square pads are most useful in securing a good walling off of all the intestines except the lower descending colon and sigmoid. A Balfour self retaining retractor with deep supra pubic blade facilitates the operation by freeing the assistants' hands for other purposes. The deep blade will retract bladder or uterus.

Since it is very necessary to have adequate peritoneum for the construction of a new pelvic floor after the abdominal dissection is finished it is essential to estimate the possibilities in this respect before starting to construct lateral peritoneal flaps from the mesosigmoid. If the uterus is to be used in closure the flaps need not be so long. Also if the back of the bladder is free from any question of tumor involvement, a surprisingly good peritoneal flap can be constructed from this region in the male and drawn backward to join the lateral flaps.

Eleven inch, blunt pointed, straight and curved scissors are most useful instruments in the deep pelvic dissection necessary. In addition to their convenience for deep cutting, they are even more useful as a dissecting tool when closed. Planes of cleavage posteriorly and anteriorly can be readily developed down to the coccyx behind and to the prostate or below the cervix in front. Laterally, the rectal stalks must be cut, but this can be done without much bleeding and often without the necessity of any tying. The lower these stalks are divided, the easier the perineal part of the operation will be. In cutting these lateral supports, great care must be taken not to cut the ureters close to the bladder. There should be no difficulty in visualizing them above this point, and the dissection should then progress downward with the two ureters as the lateral boundaries.

After ligation of the superior hemorrhoidal artery and vein just below the origin of the left colic, and ligation of the sigmoidal artery and the sigmoidal branches of the left colic, the mesocolon is divided up to the bowel wall, if the operation is to be completed in one stage. I have found the quickest method of dividing the bowel to be as follows: rubber covered or wire clamps are applied to the bowel six inches apart, above and below the point of resection. Then two heavy silk threads are tied tightly around the bowel three-quarters of an inch apart, the bowel severed with a cautery between the ties, and the puckered mucous membrane of the two ends well cauterized. A four inch square of rubber dam is then placed over each end and tied around with another heavy silk tie. I have had no trouble from using this method, and it eliminates the suturing necessary when the bowel is severed between crushing clamps. The ends, protected by rubber, can be handled freely.

Use of the right Sims' position in the perineal part of the operation, for a right-handed operator, affords definite advantages. After closure of the anus, an incision is made encircling the anus and extending up to the level of, but lateral to, the coccyx, and the coccyx is disarticulated. There is always to be found a firm attachment of the levators and coccygei to the presacral fascia just above this point. A sweep of the scalpel laterally just under and anterior to the sacrum will divide this attachment and admit the index finger to the cavity developed during the abdominal part of the procedure. It is then very easy to sweep the index finger around laterally between rectum and levators on each side and cut the levators with scissors while the finger as a guide shields the bowel from harm. If the rubber covered distal end of gut has been carried down behind the rectum from above, it can be easily felt and hooked out with the finger and all of the previously freed sigmoid and rectum delivered outside as a long

handle on which traction is exerted with the left hand as the dissection is continued *from above downward* in the now easily visible plane of cleavage between prostate and rectum or posterior vaginal wall and rectum, and the specimen removed.

After tying the necessary bleeders, and reducing ooze to a minimum, the large cavity is drained by a rather lightly packed gauze roll inside of a sheet of rubber dam, brought out anteriorly in the perineal incision, and the wound sutured.

Postoperative Course

I have usually removed the gauze on the third or fourth day and the rubber a day or two later. The colostomy is opened after twenty-four or forty-eight hours, or if there has been any obstruction, it is opened at the close of the operation. A vent for gas is thus obtained, but irrigation of the bowel is probably best delayed until the third or fourth day. The posterior wound is irrigated with saline as necessary.

A catheter is inserted in the bladder before operation, kept in place for eight to ten days and after removal is reinserted at eight hour intervals for several days or longer according to the amount of residual. Some degree of bladder sepsis is difficult to avoid.

If no complications ensue, the patient can start getting up in two weeks and is ready to go home in from three to five weeks after operation.

Results

Accurate details on end results are set forth in tables 4, 5 and 6. In table 4 are tabulated the people who have died since leaving the hospital. Twelve of the twenty had either perirectal glandular metastases or perforation of the bowel, or both, at the time of operation, and in four others we did not have definite data on this point. It is therefore not surprising that nine cases died in less than a year after discharge from the hospital. On the other hand, eleven lived over a year, one for five years and ten months, and another, with extensive regional metastases at time of operation, lived three and a half years and worked during most of that time. Most of the more malignant tumors also occurred in this group (table 4).

In table 5 are listed the cases that died in the hospital. Pulmonary complications and intestinal obstruction accounted for six of these deaths. One death (case 50) was due to peritonitis from a small intestinal anastomosis leak, following an extensive resection in a very advanced case with enterocolic fistula. The remaining patient (case 22) died at the close of an easy second stage which had been delayed for twelve days because of a heart condition. We felt that spinal anesthesia contributed to

TABLE 4
LATER DEATHS—AFTER RADICAL OPERATION
20 Cases

Case No	Age	Postop.	Cause of Death	Pathology	Regional Metastases	Type Operation
1	69	1 yr 4 mo	Recurrence	Adeno 2	?	{ Cecostomy—Resec With E to E Suture
2	46	2 yr 1 mo	Recurrence	Malign Adenoma	?	A P 2 Stage
3	61	7 mo	Recurrence	Carc Simplex 3	?	{ Coloa. and Post Resection
4	48	5 yr 10 mo	{ Recurrence in Ileum	{ Adeno 2 and Polyp	?	A P 2 Stage
5	63	4 mo	Pneumonia	Adeno 2	Perirectal	A P 2 Stage
6	56	2 yr 10 mo	Recurrence	Adeno	0	A P 2 Stage
7	43	7 mo	Recurrence	{ Adeno 2 and Polyposis	Perirectal	A P 2 Stage
9	36	2 yr 3 mo	Recurrence	Adenr 3	Perirectal	A P 2 Stage
13	67	1 yr 3 mo	{ Coronary Occlusion (Recurrence)	Epiderm	Iligubal	A P 2 Stage
15	44	3 yr 6 mo	Recurrence	Adeno 3	Extensive Perirect	A P 1 Stage
16	25	8 mo.	Recurrence	{ Adeno 3 (Early Malign Polyp Above)	{ Bowel Perforated 6 Nodes Negative	{ Cecostomy A P 1 Stage
20	74	1 yr	Recurrence	{ Adeno 2 (and Polyp)	0	A P 2 Stage
24	50	5 mo	{ Recurrence (in Bones)	Adeno 2	Perirectal	A P 1 Stage
25	70	6 mo	Recurrence	{ Adeno 3 (Colloid)	{ Perirectal and Perforation	A P 1 Stage
28	52	1 yr 7 mo	Recurrence	Adeno 3	Perirectal	A P 1 Stage
33	58	1 yr	{ Intes. Obstruction No Recurrence	Carc Simplex	0	A P 1 Stage
35	43	6 mo	Recurrence	{ Adeno (Colloid)	Perirectal	A P 1 Stage
36	64	1 yr	Recurrence	{ Adeno 3 (Colloid)	0	{ Cecostomy—Resec With E to E Suture
37	58	4 mo	Recurrence	Adeno 3	{ Bowel Perforated Liver Involved	{ Colostomy and Post Resection
51	50	8 mo	Recurrence	Adeno 2	Bowel Perforated	Ant Resection

TABLE 5
DIED IN HOSPITAL—AFTER RADICAL OPERATION
8 Cases

Case No	Age	Postop	Cause of Death	Autopsy	Pathology	Regional Metastases	Type Operation
11	70	24 Hours	Atelectasis Bronchopneumonia Septicemia, Streptococcus	+	Adeno 2	Glands 0	Ant Resection
14	66	7 Days	Massive Collapse Bronchopneumonia	0	Adeno 3	Glands +	A P 1 Stage
22	69	{ On Table at End of 2nd Op'n	Spinal Anesthesia of Cardiac Death	0	Adeno 2	Glands 0	A P 2 Stage
30	69	9 Days	Intestinal Obstruction	0	Adeno 2	Glands +	A P 1 Stage
31	54	8 Days	Pneumonia Urinary Shutdown Intestinal Obstruction (Ileostomy)	0	Adeno 2	Glands 0	A P 1 Stage
39	69	4 Days	Pulmonary Emboli Left Iliac Thrombosis	+	Adeno 3	Glands 0	A-P 1 Stage
40	57	16 Days	Pneumonia Intestinal Obstruction	+	Adeno 3	Glands ?	A-P 1 Stage
50	68	5 Days	Peritonitis Leak in Small Intestinal Anastomosis	+	Adeno 2	Glands +	Ant Resection Incl Loop of Ileum and Uterus

TABLE 6
LIVING AND WELL AFTER RADICAL REMOVAL

24 Cases

Case No.	Age	Postop	Condition	Pathology	Regional Metastases	Type Operation
8	56	5 yr 6 mo	O K	Adeno 2	0	A P 2 Stage
10	56	5 yr 4 mo	O K	Adeno 2	0	A P 2 Stage
12	44	5 yr	O K	Adeno 2	0	A P 1 Stage
17	47	4 yr	O K	Adeno 3	0	A P 1 Stage
18	39	4 yr	O K	Adeno 2	0	A P 1 Stage
19	69	3 yr 6 mo	O K	{ Adeno 2 and Polyp }	0	A P 1 Stage
21	44	3 yr 6 mo	O K	Malign Adenoma	0	A P 1 Stage
23	63	3 yr 4 mo	O K	Adeno 2	0	A P 1 Stage
26	50	3 yr	O K	Adeno -	0	Mikuller Resec
27	58	3 yr	O K	Aden -	0	A P 1 Stage
29	60	2 yr 6 mo	O K	{ Aden (Colloid) }	Perirectal	A P 1 Stage
31	48	2 yr 6 mo	O K	Adeno 2	0	A P 1 Stage
34	62	2 yr 6 mo	O K	Adeno 3	Perirectal	A P 1 Stage
38	67	1 yr 6 mo	O K	Adeno 2	0	A P 1 Stage
41	44	1 yr 3 mo	O K	{ Adeno 2 and Polyp }	Perirectal	A P 1 Stage
42	65	1 yr	O K	Epiderm 3	0	{ Colostomy and Perineal Resec }
43	71	1 yr	O K	Malign Adenoma	Perirectal	A P 1 Stage
44	53	9 mo	O K	Adeno 2	0	A P 1 Stage
45	66	9 mo	O K	{ Adeno 3 and Polyp }	0	A P 1 Stage
46	34	8 mo	O K	Adeno 2	Pelvic Mesocolon	A P 1 Stage
47	60	6 mo	O K	Adeno 2	{ Bowel Perforated But No Glands Found }	Mikuller Resec
48	63	6 mo	O K	Adeno 2	0	A P 1 Stage
49	67	6 mo	O K	{ Adeno 2 and Polyp }	Perirectal	Ant. Resection
51	52	4 mo	O K	{ Benign Adenoma }	—	A P 1 Stage

the death in this case but could not secure an autopsy

There are twenty-four patients living without definite evidence of disease, and in most cases free from any symptoms and in excellent health (table 6). Some of the later ones, of course, will recur. Three have survived for five years, two for four years, five for three years, three for two and a half years, and four others over a year. Seven were operated upon within the past year. It is significant that of the ten cases alive and well for three years or more *none had regional metastases*. Also, in these twenty-four cases, there were only four in which the tumor was graded as highly malignant.

SINGLE AND MULTIPLE ADENOMAS

There is abundant evidence to establish beyond doubt the importance of adenomas of the colon and rectum as precancerous lesions. That they are capable of producing bleeding, while still benign, is also certain. And so, for both of these reasons, it is desirable to remove them when possible.

Adenomas Beyond Reach of the Proctoscope

In the investigation of a source of bleeding from the bowel, one must always consider the possibility of polyp or cancer higher up when proctoscopy fails to reveal either condition in rectum or sigmoid. If a barium enema shows no cancer, and a contrast enema fails to demonstrate any polyps, and if internal hemorrhoids and other sources of bleeding have been excluded, there arises a real problem in trying to decide whether to adopt a policy of watchful waiting or to explore the abdomen. This decision must be based on the likelihood of the patient having cancer. If the general condition and history suggest this possibility quite strongly, exploration should certainly be advised. If, on the other hand, malignancy seems unlikely, it is better, in general, to delay operation because of the rather slim chance of being able to palpate a small polyp if present. Then, too, if a polyp should be felt through the wall of the colon, it need not necessarily be the source of bleeding, and there might be other polyps present. To open the colon, excise a polyp locally, and resuture the bowel is a procedure which, of course, opens up the possibility of peritonitis. This risk is justifiable only in selected cases.

Adenomas Visible Through the Proctoscope

A much simpler problem is presented in the definite localization of polyps by direct vision. Their removal, however, must depend on several considerations.

In the case of multiple polyposis, as determined by proctoscopy, the condition is likely to involve most if not all of the colon. The pos-

sibility of malignant degeneration, through sheer force of numbers, is high. Total colectomy, though not without risk, and though involving the establishment of a preliminary and permanent ileostomy, is still the only method of cure. Cancer is almost sure to develop in such a colon if the individual lives long enough.

When one or two or three polyps only are seen, their removal becomes relatively simple. Under these circumstances, however, two important questions arise: (1) Is the polyp, in fact, still benign? (2) If benign, is it of such size, shape, and location that it can be removed with safety through a proctoscope, or by use of retractors to secure an adequate exposure? A pedunculated polyp may be just becoming malignant, and a biopsy may or may not happen to catch the area of degeneration. Usually a polyp with definite, small, soft pedicle can be considered benign and may be removed in one of several ways: (1) A tie may be placed around the pedicle for hemostasis and the polyp then cut off distally, or allowed to slough off later on. (2) The pedicle may be coagulated by cautery or diathermy with or without immediate removal of the polyp. (3) The polyp, if more sessile, can be removed with excision of a surrounding area of normal mucous membrane and suture of the mucosal defect. This type of polyp is rather more likely to show early malignant change, and therefore a removal with area of normal mucosa is a safer procedure in case the subsequent pathological examination should show cancer.

Early Cancer in Polyps

I now have under observation a man of fifty-six in whom this type of removal of a one and one-half centimeter polyp low in the rectum was performed one and one-half years ago. The situation was made clear to him after the pathological report was returned, and he elected, with my approval, to remain under observation rather than to undergo a resection of the rectum at that time. There has been no recurrence as yet, either locally or otherwise.

A woman of sixty-two with coronary disease had a single adenoma easily accessible on the posterior wall of the rectum. A biopsy from several areas was reported as "mucous polyp." The lesion had a narrow, ribbon-like pedicle and was removed with an area of normal mucosa, and suture of the defect. This polyp measured two and one-half by two by one and one-half centimeters in size and was subsequently determined to be a malignant adenoma. This patient died a year or so later of intra-abdominal metastasis without local recurrence. Radical operation was not considered advisable because of her cardiac situation and poor general condition.

Any type of local removal is not without risk.

if the polyp is located above the peritoneal reflexion in the upper rectum. I have known of one case in which an attempt to remove such a polyp resulted in a perforation of the bowel which was observed and immediate laparotomy performed. Death resulted from peritonitis.

About one and a half years ago a patient of my own, aged sixty, with a history of intermittent bleeding, showed a raspberry sized pedunculated polyp at the end of a ten inch proctoscope. Biopsy showed no malignancy, but when repeated four months later, the report was "malignant adenoma." I could see no change in the gross appearance of the polyp. Laparotomy was performed, the polyp easily palpated and found to be about four inches above the peritoneal reflexion. It felt soft and freely movable. Its location was such that a Mikulicz resection would not have been possible. Resection with end-to-end suture could have been done with difficulty, but this would have been the least safe of any of the possible procedures. A tube resection would likewise have been risky. Any other operation would have included permanent colostomy. I therefore decided, in view of the known pedunculated nature of the polyp, to do a local excision. Rubber clamps were applied to the sigmoid above and below the polyp, and an inch long incision was made on the anterior wall of the bowel. The polyp, which was attached on the mesenteric side of the bowel, was easily delivered into the incision in the bowel and was excised with a border of mucosa and the defect sutured. The bowel incision was then carefully sewed and the abdomen closed without drainage. The polyp measured one and one-half by one and two-tenths by one centimeter in size. This patient is now free of symptoms a year later and will probably remain so. In her case, considering all factors, a local removal of this polyp just becoming malignant, seemed justifiable. As a general principle, however, radical operation should be applied to even the smallest cancers

Radical Operation for a Large Villous Adenoma.

Several months ago a man of fifty two presented the largest benign adenoma of the rectum I have ever seen. It was attached to the anterior and lateral walls of the rectum over the bladder, and had a broad base. The tumor measured six and one-half by six and one-half by three and one-half centimeters in size, and the attachment to the bowel was three and one-half centimeters in diameter. Biopsies on three occasions were returned as negative for malignancy. Despite this fact, it seemed best to advise radical removal for two reasons. (1) The center of the area of attachment might well be malignant and in any event there was great likelihood of this large tumor soon becoming malignant. (2) Local removal was unsafe and almost impossible because of its location

against the bladder and because of the diameter of the base of the tumor. Knowing all the facts, then, the patient acquiesced, and a single stage abdominoperineal excision was performed. Subsequent examination of the area of attachment of the tumor still failed to reveal any area of malignant change. Knowledge of this fact was received by the patient with a great feeling of relief rather than with any feeling that perhaps a less radical procedure should have been carried out. This is the only instance in which I have performed a radical operation for a benign adenoma (fig 1).



FIG 1

BENIGN ADENOMA.

6.4 x 6.4 x 3.4 cm. in size with short, broad pedicle 1.4 cm. diameter. Lower border 8 cm. above anus.

UNUSUAL TYPES OF EXTENSION AND METASTASIS

Perirectal Adenocarcinoma.

I have had two cases in which the carcinoma though it must have originated from the depths of a mucosal gland possibly from a small diverticulum nevertheless had extended entirely perirectally, producing, in each case, a stenosis in the rectosigmoid region with only normal mucous membrane visible by proctoscope. There had been no bleeding in either. Definite diagnosis, in each case was made by intra abdominal biopsy and frozen section. In one case resection was not feasible because of a firm collar of tumor around the bowel and involving the bladder. In the other case, number thirty five in the series, the growth was higher, and resection was carried out. In fig 2 the point of biopsy can be seen lateral to the bowel and above the peritoneal reflexion. With the specimen opened up (fig 3) the tumor encircling

the bowel and the normal mucosa can be seen. This was a grade three colloid cancer, and the patient died in six months of extensive intra-abdominal recurrence. It should be said also, that the possibility of these two tumors being

detail, with points on operative technique and an analysis and tabulation of end results in those cases subjected to radical operation.

The apparent cures consist largely of the cases with no perirectal involvement at time

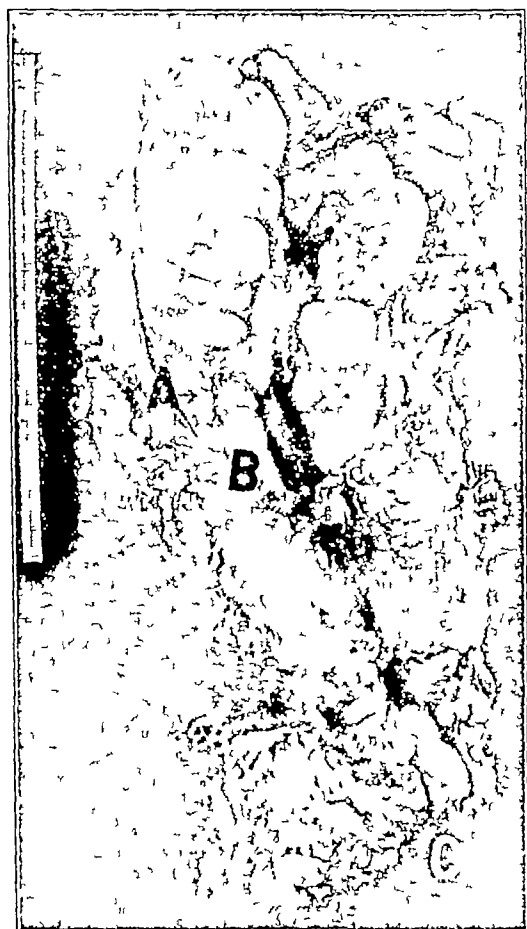


FIG 2

PERIRECTAL ADENOCARCINOMA (Case 35)

- A—Biopsy lateral to the bowel made the diagnosis
B—Peritoneal reflexion
C—Anal outlet



FIG 3

PERIRECTAL ADENOCARCINOMA (Case 35)

This tumor presumably originated from the depths of a mucous gland or possibly from a diverticulum and extended entirely perirectally. Normal mucous membrane throughout.

- A—The growth
B—Anal outlet

metastatic was definitely eliminated by careful exploration at operation.

Distant Bone Metastases

It is quite unusual for tumors of the colon and rectum to metastasize to the skeletal system, though a few cases have been reported. Metastatic adenocarcinoma in the bones originates, in most cases, from a tumor primary in either the breast or the prostate. It is therefore of interest that in case twenty-four of this series, metastases occurred in the left clavicle, left humerus, spine, and ribs. Visible and painful nodules over the left sternoclavicular joint and over one of the left lower ribs made evident the site of two of the areas, and the others were demonstrated by x-ray.

CONCLUSIONS

A series of personal cases of cancer of the rectum and sigmoid has been presented in some

of operation, and cases in which the tumor was graded as a malignant adenoma or adenocarcinoma grade two. The group of cases, dying later of recurrence, were more highly malignant, in general, and many had regional metastases at time of operation. On the other hand, there were enough conspicuous examples in which the reverse was true, to suggest the wisdom of a liberal standard of operability.

The problem of diagnosis and treatment of benign adenomas is also discussed.

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CALCIFICATION IN THE ANNULUS FIBROSUS
OF THE MITRAL VALVE

BY JOSEPH H. MARKS, M.D.*

ROENTGENOLOGISTS have for years been interested in the problems of heart disease but recently this interest has been renewed and extended. The primary diagnosis of heart disease has for the most part remained in the hands of the internist but the roentgenologist has been of aid to the clinician in determining heart size and he has also given objective evidence of cardiac function or dysfunction with the aid of the fluoroscope he has been able to demonstrate abnormalities in rhythm. These aids to the cardiologist and internist have been dependent upon a study of the cardiac contour and upon examination of the lung fields for evidence of decompensation, little or no attention has been paid to the possible demonstration of the heart valves or other intracardiac structures, although the pathologist has known for years that calcification might occur in the valve leaflets in the late stages of rheumatic heart disease and in other parts of the heart in certain degenerative processes.

In 1921 Klason¹ reported the first proved case of intracardiac calcification which had been demonstrated antemortem by x-ray. Since that time, and especially since the report of Saul in 1932², several groups of roentgenologists have become interested in the inner structure of the heart and a number of reports of antemortem demonstration of intracardiac calcification have appeared in the European and American literature. Surprisingly enough as Sosman and Wosika³ have pointed out the areas of calcification can be visualized with the same conventional model of fluoroscope which has been in use for twenty years the only necessary added factors being that the examiner make a careful search of the deeper parts of the heart through a small aperture and with the eyes fully accommodated. For a clear cut film record of such calcification in the living subject it is of course necessary to have the newer fast screens and fast films, a fine focus tube and a machine which is capable of delivering relatively high milliamperage for short exposures.

Calcification has now been demonstrated in the living subject in the pericardium and in the coronary arteries in mural infarcts in the leaflets of the aortic and mitral valves, and in the annulus fibrosus of the mitral valve. No cases have been reported in which calcium was demonstrated in an intracardiac tumor during life but there is obviously no reason why such a demonstration cannot be made.

Up to the present time four cases have been reported in which calcification was demonstrated in the annulus fibrosus during life and subsequently proved by autopsy. One of these was reported by Klason in 1921¹, one by Fleischner in 1925⁴ and two by Saul in 1932.² The case to be reported here is the first proved case to appear in the American literature.

M. C. Sosman of the Peter Bent Brigham Hospital has now made the diagnosis of intra cardiac calcification in about 150 cases during life⁵ and he has reported proved cases in which the deposit of calcium was correctly localized antemortem in the valve leaflets⁶ and in the coronary arteries.⁶ Yater and Cornell⁷ have recently reported a series of forty seven cases of complete heart block, nine of which showed calcareous deposits involving the bundle of His but in none of these was the calcium deposit demonstrated before death. Patients with heart block are therefore worthy of more careful study by the roentgenologist in the future.

It is of interest that approximately one third of the 150 cases seen by Sosman showed the calcification in the mitral annulus. Of the remaining cases about one-half showed the calcium to be in the mitral valve leaflets and about one half in the aortic leaflets but a few have been seen in which the calcium was in the coronary arteries and a few others in which it was in the pericardium. The calcareous deposits which occur in the mitral annulus are found in patients past middle life most of those reported being over sixty years of age, and the deposit is in all probability the result of a degenerative process. These cases do not give a history of rheumatic fever their hearts are usually well within the limits of normal size and they do not show clinical evidence of cardiac valvular disease. On the other hand many of the cases showing calcium in the valve leaflets give definite histories of rheumatic fever and most have definite clinical evidence of valvular disease. The clinical history is therefore of real help in the differential diagnosis of these two main types of intracardiac calcification further help is found in the difference in character and position of the calcium deposits. The deposit in the annulus is usually a mass of rather fine granules without the appearance of any definite structure although actual bone may occasionally be demonstrated in the histological sections, as in the case to be reported here. The deposits in the valve leaflets usually suggest dense masses without the finely granular appearance. The total mass of the calcium in the annulus is usually

Markes Joseph H.—Roentgenologist, Trueman Hospital Fall River, Mass. For record and address of author see This Week's Issue page 446.

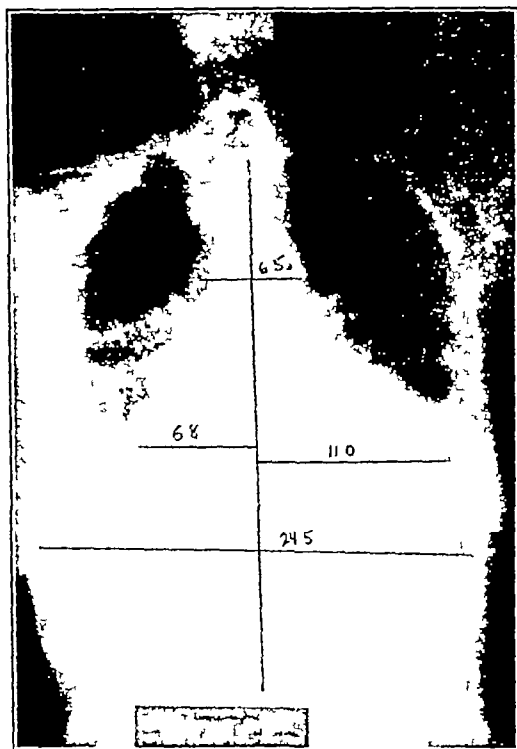
much larger than that found in the valve leaflets and is therefore more readily seen, it is frequently sickle-shaped with the convexity downward and toward the left. If the calcification is within the valve leaflets the contour of the heart is of great aid in differentiating the mitral and aortic lesions. Other points of difference have been well brought out by Sosman and Wosika⁸

Calcification within the coronary arteries is more difficult to demonstrate during life but that it can be shown has already been proved⁹. The postmortem films of the case reported here show an amount of calcium within the coronaries which should be ample for antemortem visualization, it was probably overlooked simply because the interest was focused on the more readily seen mass in the mitral annulus.

CASE REPORT

Mrs. M. P., housewife aged seventy-two years, was first seen by Dr. William Mason on June 1, 1934 with a complaint of shortness of breath. She was admitted to the Truesdale Hospital on the same day.

Her past and family histories were not remarkable. She had been married fifty-three years and



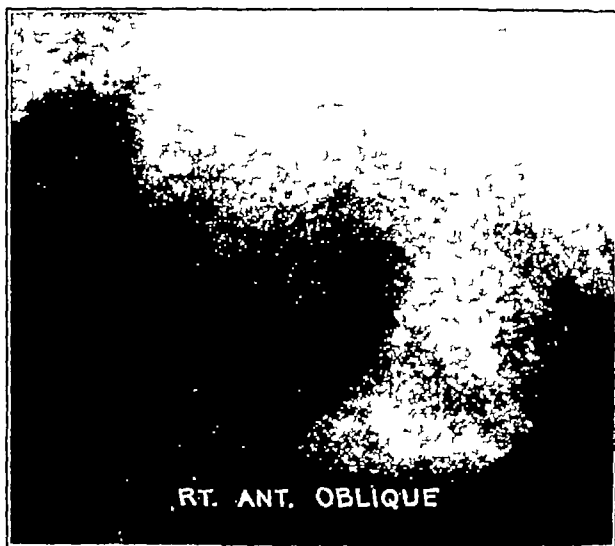
Seven foot film of the chest showing rather marked cardiac enlargement, heavy hilus shadows and fluid at the right base.

had had one child who died shortly after birth; there were no miscarriages. Husband living and well. Father died at seventy-five of 'heart trouble'. Mother died suddenly at seventy-eight. Two brothers living and well, aged sixty-three and seventy-four. There was no history of rheumatic fever.

The history of her present illness is rather fragmentary but apparently began about two years before, when she was awakened suddenly one night with a severe choking sensation, cough and shortness of breath, she spat up frothy sputum but no

blood. She was in bed two weeks at that time. Since then she has suffered from shortness of breath on exertion, there has been occasional palpitation, and she has, sometimes, been troubled with a feeling of tightness in the anterior chest which has been relieved by belching. There was no definite history of edema.

Physical examination showed a well-developed and well-nourished elderly woman who was orthopaedic. Mucous membranes were slightly cyanosed. There was a well-marked arcus senilis. Retinal vessels showed moderate caliber changes and slight nicking at the arteriovenous crossings. The chest



Fast film at 30 inches showing the U shaped mass of calcium deep within the heart.

was barrel-shaped and the lungs were emphysematous. The left border of the heart was in the anterior axillary line, sounds of fair quality, rate about 100, rhythm regular, there was a short, apical, systolic murmur but no diastolic murmur. Radial vessels were thickened. Blood pressure 140/80. Liver edge was palpable about 7.8 cm below the right costal margin. There was moderate pitting edema of the legs and over the sacrum.

Röntgen examination on the day after admission showed rather marked cardiac enlargement both to the right and left with a small amount of free fluid at the right base. The lung markings around the hilus were heavier than normal and the supra-cardiac vessels were moderately dilated. Fluoroscopic copy showed a regular heart beat of poor quality. Deep within the heart and just to the left of the spine there was a U-shaped area of calcification, this mass was visible in all positions but was most clearly seen when the patient was turned so that the right chest was slightly forward. The open end of the U-shaped mass was directed upward, inward and backward and its limbs appeared to approximate each other during systole of the heart. Calcification was also seen in the aortic arch and in the descending aorta just above the diaphragm. Röntgen diagnosis was arteriosclerosis with cardiac hypertrophy, cardiac decompensation and calcification in the annulus fibrosus of the mitral valve.

Laboratory findings were as follows: RBC 4,120,000, hemoglobin 80 per cent by Tallqvist, WBC 6,400 with 86 per cent polymorphonuclears, NPN 26 mgm., blood sugar 80 mgm., Kahn negative, urine negative for albumin and sugar.

Clinical diagnosis was arteriosclerotic heart disease with congestive failure. She had not responded well to digitalis or to the usual coronary dilators at home and had been brought to the hospital.

for observation. She was quite comfortable in bed but died suddenly forty four hours after admission.

At autopsy there was about 900 cc. of clear fluid in the right pleural cavity and about 200 cc. in the left. There was also about 100 cc. of clear fluid in the pericardial cavity. Heart weighed 510 grams. Valve measurements were considered normal and



Postmortem film showing the granular mass of calcium in the mitral annulus and also showing the calcification in the coronary arteries.

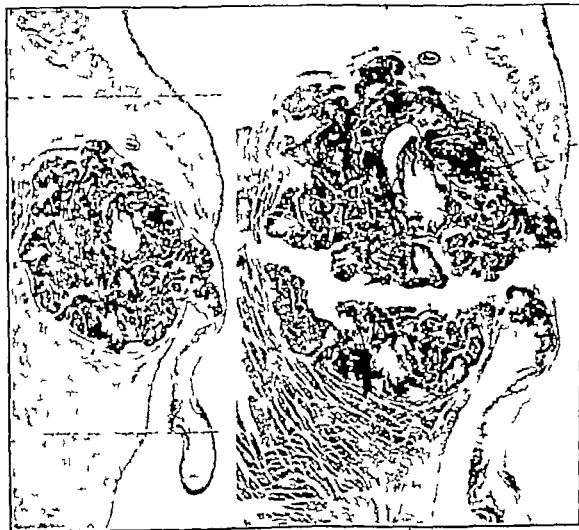
were as follows: mitral 9.5 cm, aortic 8.0 cm, tricuspid 12.5 cm, pulmonary 8.0 cm. The left ventricular wall measured 17 mm in thickness and the right measured 6 mm. The descending branch of the left coronary artery was completely occluded and there was an infarct which measured 5 cm in diameter in the wall of the left ventricle. The ventricular wall in this area measured only 4 mm in thickness and there was a fibrinous clot attached to it. Both coronary arteries were markedly calci-

fied so that they were cut with difficulty and the lumen of the right was diminished in size. That portion of the annulus fibrosus which surrounded the mitral orifice was calcified except in its medial one-third. This granular mass of calcium when viewed from above was of the shape of a crescent having an internal diameter of 3 cm. and a thickness of almost 1 cm. in its widest part. There was a small amount of calcium at the base of the aortic cusps and there was marked sclerosis and calcification of the entire aorta. Other findings outside the chest included a small fibroid of the uterus and a single gall stone. Histological examination added little of interest except that a few areas of bone were demonstrated within the granular mass of calcification in the annulus.

COMMENT

The above report has been presented in order to record a proved case of calcification in the annulus fibrosus of the mitral valve which was correctly diagnosed by roentgen ray during life. It should be recalled that the annulus fibrosus is a figure-of-eight structure which surrounds both the mitral and tricuspid orifices, but the degenerative process which leads to calcification has been noted only in that portion which surrounds the mitral orifice, this is perhaps related to the greater amount of work done by the left side of the heart.

It should be noted that these areas of calcification can be demonstrated with any fluoroscope using five milliamperes of current at about 58 kilovolts provided the examiner searches care-



Sketch and roentgenograph showing the mass of calcium extending to the wall of the heart from the base of the mitral valve leaflet. The aortic wall is shown above and the ventricular wall below. The pictures of bone fail to show in the roentgenograph due to the fact that

fully the deeper parts of the heart through a small aperture and with his eyes fully accommodated. It is well to begin at the aorticuloventricular groove on the left border and then gradually move inward and downward at an angle of about forty-five degrees. If a mass of calcium is present, its characteristic dancing movement will be noted when the patient holds his breath. Once the mass is found, more accurate localization is made by gradually rotating the patient. Unless the heart rate is too rapid, the exercise of care and patience will be productive of good film records even though the more expensive, high speed equipment is not available.

That intracardiac calcification may be diagnosed during life and that this calcification may be correctly localized is of real interest to the cardiologist. Difficulty is frequently encountered in establishing the diagnosis of aortic stenosis clinically, but a roentgen demonstration of calcification in the aortic cusps dismisses all doubt. Likewise a demonstrable mass of cal-

cium in the annulus would aid in establishing the prognosis in cases of complete heart block. The internist and cardiologist may thus expect more from the roentgenologist in the future than a mere statement as to the cardiac size and contour and the appearance of the lung fields.

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AFFAIRS IN CONNECTICUT

MEDICAL TESTIMONY AND DRUNKEN DRIVERS

During January the medical profession in Connecticut received an unexpected broadside when Joseph F. Gogan, President of the Connecticut Police Chiefs Association, and Michael A. Connor, Commissioner of Motor Vehicles, charged the physicians with conducting a racket in fixing drunken driving cases. The West Hartford Chief of Police stated that the \$50.00 which a doctor takes to pronounce a man in a borderline condition after the police physician has found him under the influence of liquor is just a racket. Commissioner Connor added, Doctors must start practicing medicine and the lawyers must start practicing law instead of fixing cases.

These two gentlemen, in letters written by the President of the Hartford County Medical Association were asked for specific instances of such alleged practices. To date Chief Gogan has not replied and Commissioner Connor has very lamely stepped back a few paces saying he meant nothing but encouragement to our profession. The *Hartford Courant* has taken up the controversy and in an excellent editorial calls attention to the unsatisfactory situation of providing expert medical testimony as it now exists in Connecticut.

The Board of Directors of the Hartford County Medical Association, feeling that the situation demanded concerted action by organized medicine published the following statement in the Hartford press:

'According to recent articles in the local press, physicians in Hartford are said to be making a

'racket' of examining the so-called drunken driver. The board of directors of the Hartford County Medical Association feels that these accusations may be entirely unjustified and our board feels impelled to make a public statement concerning this situation. 'The whole matter of expert testimony has been a source of great dissatisfaction to the medical profession for many years. In many European countries expert testimony is provided by the Court itself, physicians and other experts being selected by the court, whereas in this country technical testimony is offered by each party to the controversy. This gives rise to the unfortunate spectacle of hired experts of opposing sides differing in their opinions for reasons which seem to the public to be other than honest differences of opinion.

'The Connecticut State Medical Society is at the present time investigating the possibility of altering our current practices by having expert testimony provided by the Court itself, though not denying to either party the right to bring in its own experts.

We believe that no satisfactory solution of the present problem of the examination of so-called drunken drivers will be reached until medical examination of such persons is made obligatory and the examination is made by a court appointed and court paid physician. Such a physician will then be testifying on behalf of neither prosecution nor defence but solely for the information of the court.

'In this connection it must be remembered that at present any so-called drunken driver, if he so wishes, may refuse to submit to any medical examination and it would seem that the law should be changed to make such examination obligatory.

'We would call to the attention of the authorities the fact that our County Medical Association has duly constituted committees to handle matters of medical ethics which involve any of its members. We would suggest that the county association be

(Continued on Page 424)

NEW ENGLAND SURGICAL SOCIETY

UROLOGIC ASPECTS OF VESICOVAGINAL FISTULA*

BY WILLIAM C. QUINBY, M.D.†

A SINGLE woman aged forty-six years entered the Peter Bent Brigham Hospital in June 1935 complaining of leakage of urine following a total hysterectomy which had been done a year before for fibroids. The note of operation on the fourth of June is as follows:

Since previous operation the patient has been seen on several occasions and it has become evident that she is suffering from a vesicovaginal fistula as the cause of her incontinence of urine. The opening seems to be a very minute affair high on the anterior vault of the vagina and very hard indeed to see because of the absence of the uterus and a nulliparous condition of the parts. The bladder was opened today through a midline suprapubic incision and above the interureteral bar there was found a slightly depressed area somewhat puckered at the level of the upper limit of the vagina through which a fine probe could be passed. This sinus tract was surrounded by a circular incision through which an attempt was made by right angle dissection with scissors to deliver the bladder free from the subjacent vagina. This was done in an only partially satisfactory manner on account of the scar beneath. The bladder mucous membrane was closed by two fine sutures of catgut and the bladder wall united in the usual way a tube being left in the upper angle of the wound. With the patient in the lithotomy position an attempt was then made to reach the sinus from the vaginal side and again although it was possible to free the tissues somewhat, entire relaxation was not obtained on account of scarring. One or two silk sutures were placed however in the hope that they would permit the vagina to heal separately from the bladder.

The wound of operation healed without event and the patient was discharged on the eighteenth post operative day. She still had some difficulty in urinary control but whether this was due to relaxation of the sphincter or to persistence of the fistula it was impossible to determine because extreme tenderness of both urethra and vagina made examination very difficult.

About a month after discharge the patient appeared for follow up examination. Her incontinence had been much benefited by the operation but was still present in moderate degree especially on coughing or sneezing. Cystoscopic examination showed in the area of operation a small granulating spot as evidence of failure to heal on the part of the bladder. In order to stimulate this it was carefully fulgurated by an electrode. Today the patient returns reporting herself entirely dry and on investigation there is absolutely no longer any evidence of lack of healing in the bladder floor. There is no cystitis and although rarely the patient has slight urgency of urination, she is absolutely dry and very much pleased.

The first deduction to be drawn from this case is that the failure to get primary heal-

ing was without doubt due to an insufficient operative mobilization of the tissues. This is in part to be ascribed to the density of the scar at the upper end of the vagina which followed the total hysterectomy. Because of the nulliparous vagina with absent cervix a transvesical approach was proper but, on opening, the bladder mobilization was not carried out extensively enough to allow approximation without tension. Hence healing was not quite perfect. Fortunately stimulation by the fulgurating electric current through a cystoscope was sufficient to bring this about. We may note further therefore that when the fistulous tract is very small closure can be accomplished by this means.

A second case is that of a woman of thirty-six years who entered the Brigham Hospital on October 8, 1929 complaining of incontinence of urine, a painful bladder and during the past seven months the occasional passage of gravel.

Her first delivery was five years earlier by Caesarian section. Two subsequent pregnancies followed at yearly intervals at which high forceps were used. Her fourth delivery was somewhat over a year past and was followed by leakage of urine for which two operations had already been undertaken without success by the vaginal route.

The note of operation which was undertaken on the second of November 1929 is as follows:

Owing to several misadventures primarily associated with pregnancy (for the details of which see previous history) this patient now presents (1) stones in the bladder, (2) a high vesicovaginal fistula, (3) an irregularly split and scarred uterine cervix, the exact canal of which it has been impossible to locate. Satisfactory cystoscopy has been impossible on account of the painful condition of the bladder because of the stones, so that the exact relation of these pathological conditions to the ureteral orifices is not known. For this reason, as well as because of the high position of the fistula, it seems that it had best be approached by the superior route.

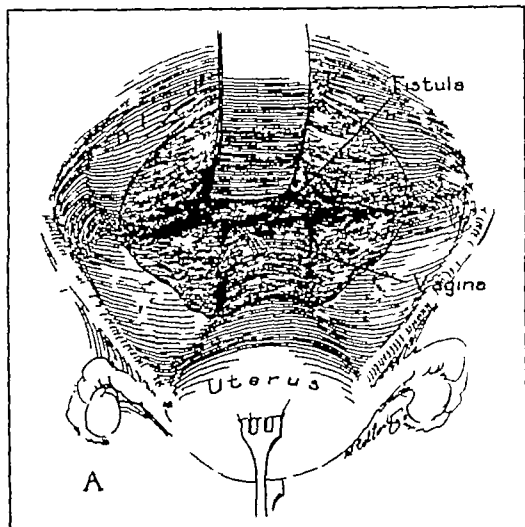
"An incision was therefore made above the pubes incising the scar of previous operation and opening the bladder. From the bladder were extracted two stones after which there was found to be a definite deformity of its floor. An irregular band of tissue ran from the approximate region of the interureteral bar upward for a distance of about 1½ cm. This was cut across and below it there was found to be the orifice of the fistula into the vagina. The right ureteral orifice was found below this but because of the chronic granulation tissue probably caused by the stones the left ureteral orifice could not be identified. The problem of separating the bladder from the vagina was then approached. The bladder was freed from the peritoneum over its vault, and from the anterior surface of the uterus. On reaching the region of the cervix dense scar was found which could not be separated except by sharp dissection. In order to reach this area for further dissection better exposure was necessary so that the posterior wall of the bladder was incised in the mid-

*From the Urological Clinic of the Peter Bent Brigham Hospital, Boston, Mass.

†Read at the Annual Meeting of the New England Surgical Society, March 12, 1936, in W. H. Ingraham, September 3, 1935.

1 Quincy, William C.—Clinical Professor of Gynecology and Surgery, Harvard University Medical School. For record and address of author see This Week's Issue, page 426.

line and this, together with the incision previously made in the anterior wall, divided the whole detrusor portion of the bladder into two lateral halves. Comfortable access to the floor of the bladder and anterior wall of the cervix was thus obtained, and eventually by sharp dissection it was possible to separate the bladder from the cervix and from the anterior vaginal wall over an extent sufficient to allow the wound in the bladder to be turned inward and closed by suture. During this dissection, care was taken to stay as near as possible to the mid-



line, because of the fact that the exact course of neither ureter was known. One or two sutures were also placed in the anterior vaginal wall in an attempt to unite this, but the approximation here was not good. The two halves of the bladder were then united by interrupted sutures upward as far as the vault, and drains placed both inside and outside the bladder. The vagina was also drained by a cigarette wick."

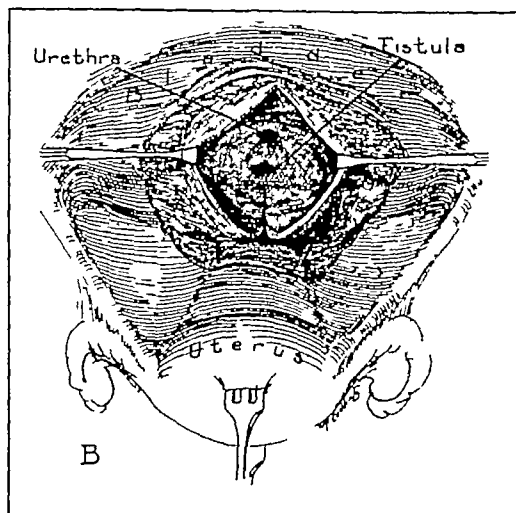
The patient's convalescence was uneventful and she was discharged well on the twenty eighth day after operation. Six months later the patient wrote that she was entirely well.

From this experience one can fairly draw several conclusions. First, as regards the approach by the suprapubic route the indications were clear because of the extensive vaginal scarring and contraction which evidently followed the previous operation by the vaginal route. In view of the aberrant band of intravesical tissue seen as soon as the bladder was opened no closure could have been successful until this was removed, a procedure which would have been quite impossible by the vaginal approach. Secondly, complete mobilization of the floor of the bladder from the adherent underlying vagina is always necessary before the bladder can be closed without tension. In order to achieve this, the bladder was split into halves. Due to the fact that its blood supply comes mainly from the lateral vesical arteries, healing followed without interruption. The increased accessibility of the area of the fistula thus gained was of the greatest aid. Thirdly, if the bladder is closed accurately and without tension, the vaginal wall will heal satisfactorily by granulation

even though the approximation of the edges of its wound cannot be carried out perfectly.

These two cases illustrate sufficiently the problem of vesicovaginal fistula as seen by the urologist today. Those cases of fistula due to accidents of childbirth are fortunately not nearly so frequent as in the past. For the simplest of these the classic operation of Sims is still quite sufficient, although here no attempt is made to dissect the bladder away from the vagina. The edges of the fistula are merely refreshed and united by sutures which include both bladder wall and vagina. More commonly today fistulae are seen which follow previous operations such as total hysterectomy. Here the cervix has also been removed so that the fistula is very hard to reach by the vaginal route because of lack of anything on which to make traction. Other more complicated cases are seen as those in which the opening in the bladder communicates with the canal of the cervix or as those in which the ureter as well as the bladder has been injured with a resulting ueterovesicovaginal fistula. For all such instances it is my firm belief that the operation carried out from above is much more likely to be followed by cure than any attack by way of the vagina.

Other instances of vesical fistulae more recently seen are those in which the floor of the bladder has been caused to slough over a smaller or larger extent as a result of the application of radium for cancer of the uterine cervix. In such instances the resulting scar is usually very



dense and the loss of tissue of the bladder floor and vaginal vault extensive. In two such instances relief was obtained by implantation of the ureters into the sigmoid colon, thus abandoning the bladder entirely as a functioning organ.

Our experience with the treatment of cases of vesicovaginal fistula leads us to the following conclusions:

The object of operation for vesicovaginal fistula is to get a tight bladder the bladder must hold urine, the vagina cannot

Closure of the bladder should be as perfect as possible closure of the vagina is an entirely secondary consideration, it need not be perfect for it will heal by granulation

The easiest and most complete access to the bladder is by the suprapubic route and this should be employed in all but the simplest cases.

Sufficient mobilization of the floor of the bladder from the vagina is imperative. If necessary this can be much facilitated by splitting the whole detrusor portion of the bladder in a sagittal direction

Opening the peritoneal cavity during operation is not dangerous if the subsequent repair of the bladder is perfect.

After operation the bladder should always be kept in complete rest by constant drainage until healing has taken place

Serious and extensive loss of bladder tissue with dislocation of the ureters and much scar ring is in most instances best treated by bilateral uretero-sigmoidostomy

DISCUSSION

DR. JOHN HOMANS Boston Mass. I would like to ask Dr. Quinby a question which he may or may not thank me for. I do not feel quite clear in my mind as to whether he begins by going into the peritoneal cavity at all. One would suppose the approach would always be easier from outside the bladder and indeed he showed in one of his pictures an approach behind the bladder and between the bladder and the uterus. He speaks first, however as if he had entered only the bladder itself.

I ask this question partly because I have just closed a rectovaginal fistula very high and inaccessible, through the abdominal cavity with comparative ease, although there was a tremendous amount of scar tissue, owing to a large foreign body which had sloughed out. It was not at all difficult to close the rectal wall from inside the pelvis and I should think the same thing would apply to the bladder

DR. J. D. BARNES Boston Mass. I am very much interested in what Dr. Quinby had to say about vesicovaginal fistula. I have nothing to add except I agree thoroughly with all his ideas about the importance and real necessity of going at these things from above. It has been my experience that the

repair of the vaginal defect is by no means so important as I was always led to suppose. If the defect in the bladder is repaired I think the injury to the vagina will generally take care of itself

As a matter of fact, I found it very difficult in a great many cases to do anything about the repair of the vaginal aspect of the fistula, because it is so high up in a cone-shaped cavity one cannot see it well much less work on it. That is particularly true I think, where the uterus has been previously taken out.

The last two cases I have had within a year were in women who had had hysterectomy. They came from the same district and were done by the same surgeon. Both resulted in fistulae through which one could easily put the thumb right at the junction of the bladder and vaginal wall. The scar tissue was such that there was a tight ring as it were

I did them from above and found in my desperation in the doing of the second case, that I was much aided by the use of the tonsil knife, which has the blade at right angles to the shaft. There is a right handed and a left handed one.

I found working in that deep hole, that I could put these down one this way and one the other way and undermine the mucosa for a considerable distance around the fistula. By careful use of the knife, I could also separate the bladder wall from the vaginal wall.

I have never used it before and do not know whether it is an original idea but I suggest it for just what it may be worth.

PRESIDENT JOHNSON Is there any further discussion? If not, Dr. Quinby will you close the discussion?

DR. QUINBY Do I quite get your question Dr. Homans, in regard to the peritoneum? I simply mentioned the peritoneum to go on record as stating that it makes no difference whether the operation is done via the peritoneal cavity or not.

As a rule, one does not open the peritoneal cavity. One does almost always open the bladder but sometimes it is possible to dissect the bladder away from the anterior vaginal wall without opening the bladder. In that case one is in front of the peritoneum, between the bladder and the uterus assuming that one is left.

DR. JOHN HOMANS It was my idea to ask you whether you objected to that route. It would seem to me to be preferred.

DR. QUINBY Splendid only very frequently one opens the bladder first which usually does not necessitate entering the peritoneal cavity. According to what one finds and the room one needs the peritoneum is either opened subsequently or not as the case may be. It makes no difference. As you say it is frequently much easier to do it that way

Does that answer your question?

DR. HOMANS Yes.

VERMONT STATE MEDICAL SOCIETY

TYPES OF EDEMA AND THEIR TREATMENT*.

BY HENRY A. CHRISTIAN, M.D.†

TYPES of edema may be summarized somewhat schematically as follows

Circulatory failure edema	{ cardiac hepatic
Renal edema	{ of acute nephritis of renal protein loss
Nutritional edema	{ of plasma protein deficiency { albuminuria diarrhea starvation unbalanced diet anemia of abnormality of plasma protein formation
Inflammatory edema	
Anaphylactic edema	
Obstructional edema	{ venous lymphatic
Myxedema	
Endocrinal edema other than myxedema	

In this schema there is a place for most, if not all, of the edemas encountered clinically. Certain types of edema can be placed in more than one category in this scheme. For example, that type of edema seen in the nephrosis syndrome can be grouped under renal edema or under nutritional edema, and the ascites of cirrhosis of the liver can be placed under circulatory failure edema, hepatic or under obstructional edema, venous, affecting a particular venous system, the portal. However, such overlapping of subdivisions is of no serious moment, since the schema is merely a diagrammatic way of showing the various causes that are operative in the production of edema.

From the point of view of clinicians edema should be regarded from two different angles, (1) edema as an index or sign of pathologic disturbances and their progression and (2) edema as a cause of discomfort and disability to the patient, this occurring when the edema is very considerable in amount or in a confined space.

Edema may be the cause of the patient's seeking medical advice, or it may be discovered by the physician during physical examination of the patient and direct the physician's attention toward demonstrating its cause. Increasing or decreasing edema may be important evidence of progression or regression of underlying function disturbances in the patient, or it may serve as an index of the effectiveness or ineffectiveness

of the therapeutic management of the patient. Lesser degrees of edema cause the patient no discomfort and call for no methods for removal of the edema beyond such procedures as are being carried out in the treatment of the pathologic condition causative of the edema.

It is only when the edema increases in amount to a degree causing the patient discomfort or disability that it should be specially dealt with. It is edema of such a degree to which we refer today, and it is to be assumed that in each individual patient methods appropriate for the management of the disturbances underlying the formation of edema are being carried out, and that, in spite of these, the edema persists in amount to cause discomfort or disability to the patient.

Of the types of edema indicated in the schema circulatory failure edema, both cardiac and hepatic, renal edema of renal protein loss (or nutritional edema of plasma protein deficiency due to albuminuria) and the rare nutritional edema of abnormality of plasma protein formation are, as a rule, the only types of edema which require special therapy over and above the therapy appropriate to the underlying causative pathologic disturbances of function. Of these it is the cardiac circulatory failure edema in which we obtain the most striking therapeutic responses from diuretic drugs.

In cardiac circulatory failure it should be recognized that treatment should vary in accordance with the distribution in the body of the edema fluid. Fluid in the pleural cavity is far more disturbing to the patient than any other collection of edema fluid of comparable amount because of the lack of distensibility of the thoracic cage and the direct hindrance to respiration and circulation, by reason of the compression, of lungs, heart and intrathoracic veins by an accumulation of fluid in the thoracic cage, all of this markedly accentuated in the patient with cardiac insufficiency of the degree in which pleural fluid usually appears. Furthermore I have the impression that pleural fluid is much less effectively reabsorbed as a result of giving diuretics than fluid in other places in the body such as the abdominal cavity and subcutaneous tissues.

Clinical experience anyhow indicates that, so far as pleural fluid accumulations are concerned, they are so much more disturbing to patients that it is wisest to remove them by mechanical measures promptly at the outset of treatment of these patients. My own practice

*Read at the Annual Meeting of the Vermont State Medical Society at Rutland October 17 1935

†Christian Henry A.—Harvey Professor of Theory and Practice of Physic Harvard University Medical School. For record and address of author see This Week's Issue page 436

is to remove pleural fluid in patients with circulatory failure as soon as any considerable dullness is detected in the percussion of the chest. As a rule, with hospital patients this is done along with the institution of bed rest and digitalis on the day of admission, followed by 15 mgm (1/4 grain) of morphia sulphate at bed time as the most effective way of managing such patients. Ascites and subcutaneous edema on the other hand, in this type of patient with few exceptions respond well to the proper diuretics and do not need mechanical removal. When they do not, mechanical drainage of both should be resorted to.

Some types of cardiac disease are much more apt to show extensive general anasarca than others. The patient with chronic nonvalvular heart disease, with or without hypertension, oftenest with regular rhythm but at times with auricular fibrillation, is the type of cardiac disease in which oftenest we see marked edema and such patients frequently respond to diuretics with a truly remarkable outpouring of fluid, which in eight to ten days will reduce the patient's weight by from twenty to sixty or even more pounds. This therapeutic response may be obtained over and over again in such patients.

If such a patient is given adequate digitalis with fluid intake restricted to 800 or 1000 cc for from three to five days, there may be a marked diuresis as the result. Usually however, the edema remains marked after this period of digitalis, and now diuretics will be strikingly effective.

In these patients often the xanthine diuretics are very effective. These have the advantage of being effective by mouth dosage and so more convenient to give and more comfortable for the patient to take. In my experience of these theocin (theophyllin) is most effective. The best way to give this diuretic is in two doses of 0.3 to 0.5 Gm ($4\frac{1}{2}$ to $7\frac{1}{2}$ grains) with half a glassful of water at 7 and 10 A.M. If a diuretic is given early in the morning, the active diuresis will come during the patient's waking hours and not interfere with the night's sleep. An interval of forty-eight to seventy-two hours between the administration of diuretic drugs is preferable, although at times daily dosage is advantageous. These last two statements apply both to the xanthine and mercurial diuretics.

If xanthine diuretics fail to give good results mercurial diuretics should be given. They almost always are more effective but have the disadvantage of requiring dosage by a parenteral route preferably the intravenous route though intramuscular dosage may be entirely satisfactory. Either route will give a good diuretic response but often intramuscular dosage may cause irritation and hence discomfort. Subcutaneous dosage with mercurial diuretics

almost always is too irritating to be used and at times causes necrosis and sloughing of the skin.

There are now generally available three mercurial diuretics, novasurol (merbaphen), salyrgan (mersaly) and mercupurin. Of these novasurol is the most likely to cause toxic symptoms while salyrgan and mercupurin, though containing more mercury, are less toxic. I have the impression too that salyrgan and mercupurin cause a greater diuresis than does novasurol. In my experience salyrgan and mercupurin are equally effective as diuretics and there is no difference in irritating qualities between the two when given intramuscularly.

All of these three mercurial diuretics have a further disadvantage in that their maximum activity is when the reaction of the blood and probably of the tissue fluids is shifted toward the acid side. This entails preceding by forty-eight to seventy-two hours the administration of the mercurial diuretic by quite large doses of acid salts such as ammonium chloride 2 to 4 grams (60 to 120 grains), three or four times a day. Recent studies in the laboratory of the Department of Medicine at Harvard by Dr. Marshall N. Fulton and his associates have shown that this is clearly a relationship to the shift toward the acid side and not related to the ingestion of the chloride ion.

Very recently a definite advance has been made in that a mercurial diuretic has been prepared by the Campbell Products, Inc., which is very satisfactorily effective when given by rectum in the form of a suppository. This is the highly complex organic mercury compound which is present in mercupurin there combined with a xanthine substance. This obviates the necessity of intravenous or intramuscular dosage for mercurial diuretics, but still requires the preliminary days on ammonium chloride.

These mercurial diuretics are dispensed in sterile form as a ten per cent solution of the drug, and the dose is 1 to 2 cc. of this ten per cent solution to be given the first thing in the morning and repeated if necessary, on the third or fourth day so long as considerable edema persists. The dose in suppository form is five times the dose for intravenous or intramuscular use. Experience shows that this treatment may be kept up for months with no bad effects.

As some are said to be very sensitive to mercurials, it is a common practice to give first a test dose of $\frac{1}{2}$ cc one or two days before giving the larger dose. This has always been our practice at the Peter Bent Brigham Hospital but I can recall no instance of the detection of undue sensitivity to the mercurial.

Actually it is very rare to see any toxic action from mercurial diuretics given as described above, certainly this is true for salyrgan and mercupurin which we have used to the exclu-

sion of novasurol ever since each of these was sent to us for trial prior to being put on general sale. This seems an unexpected result, when you recall that mercury often causes toxic disturbances, stomatitis, colitis, proctitis, nephritis, and that in many patients with edema there is a coincident or causative renal lesion, either chronic passive congestion or nephritis. Furthermore in normal animals these mercurials regularly cause albuminuria. The fact, however, remains that in proper therapeutic use, we are rarely, if at all, disturbed by the development of manifestations of toxicity.

In the ascites caused by cirrhosis of the liver the xanthine diuretics in my experience have been ineffective. The mercurial diuretics, used as described above, quite often cause a considerable diuresis, but unfortunately it is rare for their effectiveness to be sufficient to control the ascites, and mechanical removal must be resorted to. The use of the mercurial diuretics in patients with cirrhosis of the liver may serve at times to prolong the interval between necessary taps of the abdomen and so they should be used. However, at the Peter Bent Brigham Hospital, as shown in a recent study by Dr. Marshall N. Fulton of thirty-seven patients, the results of the use of mercurial diuretics in patients with cirrhosis of the liver were disappointing, the response to mercurial diuretics in cirrhosis of the liver is almost always very much less than in patients with either edema of cardiac insufficiency or the nephrosis type of renal edema. In an occasional patient with ascites from cirrhosis of the liver, I have seen a good diuresis from large doses of urea.

In edema of renal origin, the nephrosis syndrome, the xanthine diuretics have almost no effectiveness. The mercurial diuretics, however, used as already described, may produce a very marked diuresis. Fortunately they do not injure the kidney in this form of renal disease and so may be used repeatedly with entire safety. In those forms of nephritis in which there is marked nitrogen retention mercurial diuretics should not be used.

Certain patients with this nephrosis form of edema, however, are not responsive to the mercurial diuretics. Occasionally for them large doses of urea, 60 to 90 grains per day, may give a good diuresis. Urea is not to be used when there is already an existing nitrogen retention.

Urea failing to give diuresis, this type of edema may be treated satisfactorily by intravenous injections of fifteen per cent solution of gum acacia, in amounts from 400 to 500 cc. Recently gum acacia has been available in satisfactory purity so that these intravenous injections may be given without disturbing reactions. The principle on which the acacia works is to raise the osmotic pressure of the blood, the lowered osmotic pressure from the deficiency

in plasma albumin in this type of edema being the chief causative factor in causing the edema. This form of treatment, of course, is applicable to any form of edema due to lowered osmotic pressure in the circulating blood.

In recent years there has been much investigation of the mechanism of activity of diuretics. One view, formerly held, that diuretics acted chiefly extrarenally, that is by producing changes in the tissue fluids that caused an increased drainage into the blood stream with resultant increased excretion by the kidney, has largely been given up. The great majority of investigators now consider that the xanthine and mercurial diuretics both have a direct action on the kidneys.

The two ways in which a diuretic drug might be expected to work are (1) increased glomerular filtration and (2) decreased tubular reabsorption. We have no satisfactory way of determining the activity of these mechanisms. The Rehberg formula, based on creatinin excretion taking place only through the glomerulus, is not well supported by recent studies. Its application has led to the view that the xanthine diuretics act chiefly by increasing glomerular filtration and the mercurial ones by decreasing tubular reabsorption. Possibly this difference in action may exist. Certain it is that normal urine excretion depends on a proper balance between glomerular filtration and tubular reabsorption. How great tubular reabsorption is under normal conditions of urine formation is not generally realized. According to Cushny in order to form one liter of urine, sixty-two liters of water are filtered through the glomeruli, sixty-one liters of which is reabsorbed in the tubules. Obviously not much retardation of this tubular absorption would be required to increase an average 1,000 cc urine flow to 5,000 cc or to 6,000 cc, which would be regarded as a very good diuretic effect.

SUMMARY

A schema showing the various types of edema is presented. Clinically edema should be regarded from two angles, (1) as an index or sign of pathologic disturbances and their progression and (2) as a cause of discomfort and disability to the patient. Edema causing no discomfort or disability needs no special treatment.

Circulatory and renal edema, as a rule, are the types requiring special therapy.

In cardiac circulatory edema, hydrothorax should be removed early by thoracentesis, edema elsewhere, if persisting after proper digitalis therapy, should be treated with diuretics. Xanthine diuretics often are effective, they have the advantage of mouth dosage and require no preliminary drug other than digitalis. These failing, mercurial diuretics are available, they

require preliminary treatment with ammonium chloride and are effective only when given parenterally, intravenously or intramuscularly. Recently one has been discovered effective by rectum.

In ascites from portal obstruction xanthine diuretics are ineffective, mercurials produce a diuresis but rarely great enough to obviate paracentesis of the abdomen.

In renal edema xanthine diuretics cause very little diuresis, while mercurials usually are effective and do not cause renal damage. Mercurials failing to be effective, intravenous injections of acacia solutions may cause effective diuresis.

In all of these conditions urea, in very large doses, may be effective. All diuretics should be given in the early morning hours and at intervals of forty eight to seventy two hours. The xanthine and mercurial diuretics seem to act directly on the kidney.

DISCUSSION

Dr. BERNHEIM. I wish to congratulate the Society on being privileged to hear so able a presentation. I think if the members will take this material home with them they can do their edematous patients a lot of good.

Dr. HILL. I would like to ask Dr. Christian's opinion of the Niemeyer pill which when I was in college fifty years ago was lauded beyond any question.

Dr. CHRISTIAN. The Niemeyer pill is like many older preparations that fall into disuse because they are complex and because it was difficult to use them to give the necessary variation in the case of each constituent. Some of those old preparations are very effective, but you can fill your individual patients' needs with therapeutic doses if you give the ingredients separately. We have made great progress in these newer synthetic combinations and they practically replace a lot of the so-called galenicals.

MISCELLANY

VERMONT DEPARTMENT OF PUBLIC HEALTH

JANUARY 1936

The following communicable diseases were reported to the office of the Department of Public Health during the month of January: chickenpox 3, diphtheria 2, smallpox 1, measles 689, German measles 64, mumps 177, typhoid fever 1, poliomyelitis 2, scarlet fever 68, whooping cough 166 and tuberculosis 8.

The Laboratory of Hygiene made 2,395 examinations; the details of which are as follows:

Examinations for diphtheria bacilli	694
Widal reaction for typhoid fever	36
undulant fever	59
gonococci in pus	133
tubercle bacilli	201
syphilis	678
of water chemical and bacteriological	31
water bacteriological	187
milk market	229
milk submitted for chemical only	5
milk submitted for microbiological only	58
foods	3
drugs	0
for courts autopsies	0
courts miscellaneous	11
miscellaneous	69
Autopsies to complete death returns	1

The Director of the Division of Venereal Diseases reports thirty-nine cases of gonorrhea and forty-four cases of syphilis made to this Division in January. Eight hundred and fifty Wassermann outfits and 384 slides for gonorrhea were distributed from this Division.

The After-Care Nurses of the Infantile Paralysis After-Care Division made forty-two home visits calling on forty-six patients. Three patients were admitted to the Audubon Hospital and one discharged from that hospital. Five patients were discharged from the Children's Hospital. Eighteen new pieces of apparatus were fitted, two pieces were altered and sixteen orthopedic corrections were made to shoes. The Vocational Worker of this Division reports sales made amounting to \$129.52.

Four towns of the state were visited by the State Advisory Nurse of the Public Health Nursing Division. The first half of the month was devoted to drawing up the budget and planning the proposed Social Security projects. The WPA State Nursing Project is increasing. There are now twenty-eight staff nurses, two supervisory nurses, one dental hygienist and two stenographers. Seven hundred and fifty-five notifications of birth registration were sent out in January, also 241 baby booklets.

HARTFORD MEDICAL SOCIETY

PRESIDENTIAL ADDRESS*

BY PATRICK F. MCPARTLAND, M.D.†

I HAVE listened to the retiring address of every president since I first became a member of this society. These addresses have awakened various reactions, generally a feeling of satisfaction but occasionally a small degree of disappointment so that I will not feel entirely abashed if my short address does not meet with your entire approval. We have had a number of meetings devoted to a discussion of economic problems during the past year and whether any advantage was gained from them I do not know. It may be that they will prove ultimately to have had some educational value which we as yet cannot fully estimate.

During the past year I have heard the opinion frequently expressed by many members of this Society that, with a return to normal conditions, all talk of these various economic problems would disappear and they would soon be forgotten. I certainly trust and anticipate that that forecast of the probabilities will prove unfounded. This is a conservative medical body, in a conservative city, in a conservative state, and changes are brought about with the utmost difficulties accompanied by many disappointments. It requires no prophet nor need one be possessed of an analytical mind, to foresee that we are at present wholly inadequately organized in our city, county and state societies to cope with medical problems as befits our position in the community either to advance or even protect our own interests.

Conditions in the medical profession are somewhat better than they were three years ago and in the opinion of many competent authorities it may confidently be expected that they will continue to improve for the next three or four years. Practically all economists agree that the standards of living in this country will decline for the next few years. Secondly, almost all students of world politics agree that we shall have a marked extension of all forms of social service legislation during the coming years. Thirdly, the most superficial observer can readily grasp the fact that organization of all industry and workers is proceeding at a rapid pace. These three facts are readily apparent to the most cursory student of economics. It is also self-evident that it is impossible to have any form of extension of social service or social security without vitally or at least seriously affecting the medical profession, regardless of whether it is unemployment insurance, old-age pensions, maternity aid, health insurance or any

other of the many forms. Social extension and medical involvement are synonymous. Hence, if organization of industry with all its ramifications is the watchword and social extension one of the ultimate fruits of that organization, then it seems to me that organization of the medical profession should become a paramount issue with us.

It is true that we now have an organization, but not an organization that has any material control over its members, or that has an authoritative representative qualified to express an opinion on any medical subject, or that could do business with any other organization and hope to adjust itself to circumstances that might arise and yet remain conscious of the support of the organization. Efficient organizations cannot be built in one day or overnight when we are confronted by some issue which may be of tremendous importance to our future and which has aroused the interest of every member.

This address then will be restricted to a few suggestions for a change or changes which I personally feel would be of inestimable advantage to the Society, yet I fully appreciate that at first thought scarcely any member of the Society may agree with me. However, I do hope that I will get a sufficient number of individual reactions and expressions of opinions, both favorable and unfavorable, so that it or they may be modified to a satisfactory and acceptable degree.

Let us consider the Board of Censors. According to our By-Laws the principles of medical ethics adopted by the American Medical Association shall govern our conduct. Subsequent to one of the recent regular meetings I inquired of eight members if they had ever read the Code of Ethics and of the eight, one stated that he had so done. One of the eight had seen service as a member of the Board of Censors of one of our medical societies. However, he was not the one who had read it. This is related merely as a passing incident. The Board of Censors is friendly to and with all of our members and to institute action against any member becomes a very disagreeable, difficult, and at times might well prove to be an almost insurmountable act. Hence, action is seldom instituted.

Let us assume that the president of any local hospital should violate the rule concerning unwarranted professional publicity and had obtained considerable desirable or undesirable publicity, according to the point of view. Further assume that the Chairman of the Board of Censors is a member of the same hospital staff. In

*Presented at the Annual Meeting of the Hartford Medical Society January 6, 1936 by the retiring President.

†McPartland, Patrick F. — Attending Surgeon, St. Francis Hospital, Hartford, Conn. For record and address of author see This Week's Issue page 436.

that event is there any member so naïve as to expect that any action would be taken by the Board? No, that is too much to expect. Now I like publicity as much as anyone and appreciate it at its full value. I have also had sufficient experience with newspapers to realize that practically all publicity is with the approval if not the instigation, of the professional beneficiary.

Again let me clarify the situation by stating that it is not my intention to direct thoughts toward past conditions. I am thinking wholly of the future. You might well answer that no president of any local hospital could be guilty or permit such an incident to occur to which I reply that no condition should be permitted to continue to exist where he or anyone else could permit it without full realization that he would be obliged to explain it promptly and, more to the point, satisfactorily to the Board of Censors.

During the period of my membership in the Society, if my memory serves me well, but one member has been expelled from this Society. As I recall it three other members were recommended for expulsion but because of legal entanglement no one of these three was expelled. Actually it is practically impossible to expel a member and who of you can recall any member who ever received any sort of punishment? Fortunately the circumstance rarely arises where such action is necessary or has to be considered but to my mind that makes it all the more imperative to have some means to carry out the desires of the Society when the occasion requires it.

Here is where the Bolshevik within me asserts itself and I suppose where we all part company. First, let all complaints having to do with violations of ethical conduct be referred to the Clerk of the Society. Secondly let her arrange the time of meeting after communicating with the Chairman of the Board of Censors and with the accused. Thirdly, let all actions of the Board of Censors involving ethical conduct be reported at the next meeting of the State Medical Society following the completion of the hearings. Let the action of the Board be final but reversible by a two thirds vote the report being one for information including the name of the member involved. Fourthly with all applications for membership let the applicant fill out at the same time his or her prospective resignation from the Society at the pleasure of the Board of Censors for just cause. This blank shall contain an explanatory legend informing the applicant of his rights. Fifthly if adopted ask each present member to sign voluntarily his or her resignation under the same conditions.

To recapitulate a method is suggested that will remove initiative for violations of ethical principles from the Board of Censors and place

it where such reports will be invited. Secondly, a provision is made for publicity within the Society for accused members. Thirdly a method is suggested that will permit the Society to terminate the membership of undesirable members. A possible criticism is that the Board if composed of one group of which the accused was not a member, would accept his resignation but the two-thirds rule would protect him and anyway I think that the reasoning is absurd.

Another criticism is, how can a member resign before he is elected? He cannot. But I am informed that the phrasing of the application can be formed to cover these objections. In any event it is my hope that enough suggestions can be offered both in favor of and against so that it may be made acceptable. I will frankly state that I have no motive except to correct one of the weaknesses of our present By Laws.

Another method that could be adopted which would be simpler and probably one that would not provoke the same element of controversy would be to have each applicant for membership in the Society sign a waiver to his right in the Trust Funds of the Society providing the Society found it necessary to terminate his membership with the organization for just cause. In any event some method should be adopted not because there is any immediate necessity for it but to protect the Society in the future.

Our Economics Committee is assumed to have some direction over practices of the members in relation to each other or in groups, or with corporations. They are supposed to keep the Society informed as to various activities of these groups. Sometime within the past two years a group of specialists within the Society after several meetings, agreed on prices and other conditions pertaining to their particular line of work. It seems to me that practices of this kind should be reported to the Economics Committee and so placed on record. This applies as well to the Hospital groups which have agreed to pool all funds received from certain types of patients and to divide them equally among all participants. I do not mean to imply that there is anything wrong with the practices referred to. Nevertheless, I cannot help but feel that for the best interests of all concerned such arrangement should be placed on record. It may be that the next group to adopt similar practices founded on those previously put into operation will have been sufficiently changed in their construction and operation to make them questionable.

Another change which it appears to me might well be adopted during the coming year is the appointment of a Hospital Committee. This committee should consist of members associated with each of the various hospitals in the city. It might well make an effort to have adopted by each of the local hospitals an agreement which would permit only those approved by the

Medical Society to practice in such hospitals. This could be brought about by having all applications for courtesy staff privileges in the various hospitals referred to this committee. The findings of this committee to be adopted by all hospitals and the privileges allotted then to become uniform. This would apply to all, whether they were members of any society or not. Secondly, an agreement that when the society withdrew privileges from any doctor the hospitals should do likewise. This committee might well consider an effort to have modified the marked variation between ward and semi-private patients. The \$15 difference is against the best interests of the private practitioner. The tonsil situation, and soon the maternity situation, could be given considerable attention by such a committee. Indeed, the whole question of admission of patients and a proper amount of investigation by each of the various hospitals would result in much benefit. My object is not to approach the hospitals with anything of a dictatorial attitude, but rather to attempt to cooperate with them and bring about some uniformity in many methods now in vogue, some of which are at the present time detrimental to the profession in general.

Of course many members will promptly dismiss these suggestions with disapproval and confess that nothing can be accomplished. It is also true that if we adopt that attitude nothing will be accomplished. However, practically everyone will admit that today the hospitals are actively competing with the individual doctors and it is only by organized effort to control or restrict them that it will be possible to accomplish any material change.

I believe that any move to improve the medical profession, either the conditions under which we operate, or the character and quality of the work that we do, yes, even to modify the sentiment of the community toward the profession, either individually or collectively, is worthy of our attention. It is because of this belief that I am referring to the supposedly drunken automobile driver. On numerous occasions during the past year the newspapers have referred to cases where two doctors examining a supposedly drunken automobile driver in from ten to thirty minutes of each other have produced sworn testimony diametrically opposed. The frequent repetition of these instances is decidedly antagonistic to the best interests of our profession and any effort which we can contribute to the solution of this problem would produce an equally favorable reaction. The suggestion has been made that the Society go on record as recommending that two doctors be required to examine all individuals suspected of this condition. Before doing so it would appear to be the part of wisdom to have either the Economics Committee or the Board of Censors consider the entire question.

I appreciate the fact that this entire paper will seem to many to be an unusual one to bring before our Society at this time. However, conditions over which we have no apparent control are also unusual as well as the outlook for our future. It is because of these facts and with the hope that some discussion may be stimulated among our members that it has been presented to you as the final gesture of my one year of a pleasant, instructive experience. I thank you.

AFFAIRS IN CONNECTICUT

(Continued from Page 414)

approached in such instances instead of making sweeping accusations against the whole profession.

"We would call attention to the very uncomfortable situation in which a family physician finds himself when he is asked to testify 'on behalf' of one of his patients, and we believe that our members, whenever it is possible, should disqualify themselves from giving testimony under such circumstances.

"We are very jealous of the good repute in which physicians, as a class, are held, and the Hartford County Medical Association will go to any reasonable length to curb such practices of its members as would impair that good repute. The authorities may rest assured of the fullest cooperation of the organized medical profession in stamping out any so-called 'rackets' if they are found to exist."

THE CLOSING OF THE CHARTER OAK HOSPITAL

On February 1, 1936, the Charter Oak Hospital in Hartford, Conn., closed its doors after twenty-nine years of service. Founded in 1907 by the late Miss Mary C. McGarry, the hospital specialized in the care of surgical patients. One of the first, if not the first, operation for removal of the thyroid gland was performed there in 1911 by the late Dr. O. C. Smith. This surgeon performed there one of the first prostatectomies in Connecticut. In this hospital in 1910, Dr. Henry C. Russ carried out one of the first Wassermann tests.

It is planned to conduct the Charter Oak Nurses' Club in the building formerly used as a hospital. In a statement to the local press Miss Mary Cummins, superintendent of the hospital, stated that "the decision to close the hospital was taken on the belief that no private hospital could survive in modern times without an endowment fund."

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22091

PRESENTATION OF CASE

A fifty-nine year old Hebrew physician entered complaining of pain in the lower back.

About five months prior to admission the patient developed, rather rapidly, dull aching pain in the lower back, more marked on the left side. The pain radiated into the left flank and hip, became progressively worse, and was marked by frequent sharp exacerbations. Approximately two months after the onset of his illness he began to suffer from periods of apathy and somnolence during which he appeared confused and disoriented. There was some increase in urinary frequency and occasional incontinence. His appetite became quite poor. He was subsequently admitted to a hospital where traction was applied to the left hip with some relief of his pain. He also received therapeutic doses of bacteriophage. While in the hospital he was observed to have paroxysmal attacks of auricular fibrillation occasionally with rather slow rate. During one of these episodes his apical rate was found to be 36. The blood pressure was 135-80/75. Examination of the blood showed a red cell count of 3,500,000 with a hemoglobin of 70 per cent. The white cell count was normal. A blood urea nitrogen was 30 milligrams per cent. Electrocardiograms at times showed normal rhythm and at other times absolute arrhythmia. The T waves were considered significant of myocardial damage and there was left ventricular predominance. The blood calcium was 165 to 168 milligrams per cent, the phosphorus 3.2 milligrams per cent. The serum protein was 5.6 grams per cent, of which the albumin was 4.3 and the globulin 1.24. He showed a well-defined negative calcium balance. Eleven days prior to entry he was referred to another hospital where further studies were made. A phenolsulphonephthalein test showed 10 per cent excretion in two hours. A blood calcium was 14.6 milligrams the phosphorus 6.0 and the phosphatase 0.51 K units. Examination for Bence-Jones protein was negative. The nonprotein nitrogen of the blood was 75 milligrams. The total protein was 7.4

grams per cent. X-ray examination showed moderate decalcification of the lumbar vertebrae, pelvis, sternum and ribs. The lungs were clear except for a few areas of fibrosis in the left apex. The skull contained multiple small, clear cut areas of decreased density. There was no evidence of increased intracranial pressure. A later film showed destruction of the first lumbar vertebra with collapse of its body. Films of the bones of the upper and lower extremities showed no decalcification or mottling. At the end of a week he was referred to this hospital for exploration for a parathyroid tumor.

Twenty-one years prior to entry the patient began to suffer attacks of precordial pain which were precipitated by exertion. These attacks occurred at fairly frequent intervals for six years, at the end of which time a thyroidectomy was done with subsequent relief. The pathological report was said to have been "mildly toxic thyroid adenoma." Ten years before admission a left nephrectomy was done for hypernephroma. Following this he received an intensive course of x-ray treatment. A vague story was obtained of his having suffered from both pneumonia and rheumatic fever in childhood.

Physical examination showed a slightly undernourished man who, though somewhat somnolent, responded well to questioning. He complained of pain in his back. The left pupil was slightly larger than the right. They both reacted to light. Ocular movements were normal and the fundi showed nothing of significance. The apex impulse of the heart was not felt. The left border of dullness was 12.5 centimeters from the midsternal line in the fifth interspace. The right border of dullness was 4.5 centimeters to the right of the midsternum. The supracardiac dullness was 4 centimeters. The sounds were forceful and of good quality, and the action was regular. Heard over most of the precordium but loudest at the apex were a soft, early systolic, blowing murmur and a rather loud blowing early to mid-diastolic murmur. There was no transmission toward the axilla. The sounds were heard best over the neck vessels. No thrills were felt. There was tenderness over the left sacroiliac joint and also bilateral costovertebral tenderness. The tendon reflexes were normal and no Babinski sign was elicited.

The temperature, pulse, and respirations were normal.

Examination of the blood showed a red cell count of 3,000,000, with a hemoglobin of 55 per cent. The white cell count was 7,000. 80 per cent polymorphonuclears. The urine showed a slight trace of albumin. The sediment contained occasional white blood cells and one to four red blood cells. The blood calcium was 15.6 and the phosphorus 3.64. The serum protein was 5.5. The nonprotein nitrogen of the blood was 82 milligrams per cent.

Shortly after entry operation was performed. The patient responded poorly, went downhill rapidly and died quietly on the fifteenth hospital day, eleven days postoperatively.

DIFFERENTIAL DIAGNOSIS

DR WALTER BAUER: Will Dr Hampton show the x-rays? The points that will be of most interest to us are (1) Are the observed areas of bone destruction consistent with metastatic malignant disease? (2) Does the skull show any decalcification in addition to the punched-out areas?

DR AUBREY O HAMPTON: No, the skull does not show any diffuse decalcification. It shows sharply localized round areas of bone destruction varying in size from a millimeter up to a centimeter. They are separated by as much as two or three centimeters, not so close together as one would expect in diffuse decalcification. He has some changes in his ribs, not so well seen. There is a small round hole in a rib on the left and one there on the right which is not very distinct. He does have a little deformity of his chest, a Harrison groove, the type of thing he might have had all his life or may have developed in this disease. I do not see any pathologic fractures of the ribs.

The lung fields are clear as described and I cannot see much wrong with the heart in a portable film taken with the film at the back, such enlargement as is apparent is probably mostly magnification.

Here is the first lumbar vertebra, which is described as being definitely wedge-shaped. It is grossly irregular. In fact, you cannot see the anterior margin. It disappears as if it were destroyed. None of the other vertebrae show similar destruction or any bone deformity, but they do appear decalcified. The extremities as described are absolutely normal, no decalcification. There is calcification in the blood vessels, but not much. They look like perfectly normal extremities.

DR BAUER: I think the x-ray findings are of considerable help in the discussion of this case. I would like first of all to discuss the findings concerning the heart and then come back to the real problem.

He might well have had rheumatic fever in childhood. If so, we have reason to believe that he developed rheumatic heart disease. The attacks of precordial pain always precipitated by exertion may have been due to angina pectoris, or may have represented attacks of either paroxysmal tachycardia or paroxysmal fibrillation. In all events it would appear that he had suffered from a mild thyrotoxicosis, which was in part responsible for the production of this particular symptom because it disappeared following the removal of what was interpreted as a mild toxic thyroid adenoma. If I interpret the

notes correctly the murmurs were transmitted to the neck, particularly the systolic murmur. If this was true I should be inclined to think that he probably had both aortic and mitral valve disease. He may well have developed subsequent calcification of his aortic valve which in turn may have been responsible for the heart block which was observed on at least one occasion. I do know that associated with calcification of the aortic valve one does observe recurrent attacks of Adams-Stokes syndrome. Therefore, I would interpret the cardiac findings as follows: rheumatic heart disease with aortic and mitral involvement and probably calcification of the aortic valve.

The only other thing in his past history which must be seriously considered is the note pertaining to the operation performed ten years prior to this admission. A left nephrectomy was done for a hypernephroma. As you can all see from the record, the final question to be answered is: Did this patient have hyperparathyroidism? He entered with a complaint, which in many cases is a very difficult one to interpret, that is, backache. As we go on we find that we have sufficient additional information to allow us to consider various leads. I do not know why traction was applied to the left hip. The hip at that time may have shown some hypertrophic changes. These changes may have been interpreted as the cause of his pain and in consequence traction was applied to afford relief. I do not know but I should imagine that traction was employed for some other disease state than the one he was finally suspected of having.

Did this man have hyperparathyroidism? When one suspects this disease one must always attempt to ascertain what symptoms are consistent with such a diagnosis. In going over this man's history one finds that he had none of the symptoms attributable to hypercalcemia, such as lassitude, weakness, constipation and others. There are no symptoms referable to an increased calcium excretion, such as polyuria, polydipsia, renal colic, passing of gravel, etc. The only symptom suggestive of hyperparathyroidism in this individual is the one referable to the skeletal system and this is pain. This lone finding should not necessarily disturb us or prevent us from considering the disease, hyperparathyroidism. The presenting symptoms in this disease are many and varied. We know that in certain instances the first symptom may be that of renal colic. Such individuals may have no skeletal symptoms, and the skeletal x-rays may show no evidence of decalcification, etc. In others the presenting symptom is referable to the bony skeleton. Such patients enter because of bone tumors, fractures or skeletal aches and pain. The latter may be not unlike that presented by this particular patient. Therefore, the history in this particular case

does not enable one to rule hyperparathyroidism in or out. All we can say is that he does not have the symptoms of classical hyperparathyroidism.

The next question is: How shall we interpret the Roentgen ray findings? We know that the x rays are described as showing moderate decalcification of the spine, pelvis and sternum. In addition the first lumbar vertebra appeared to be destroyed in part and had collapsed. The x rays of the skull revealed punched out areas without associated decalcification. We further see from the x rays that there was no demonstrable decalcification of the bones of either the upper or lower extremities. This localized type of decalcification (spine) is encountered in patients with a pituitary basophilic adenoma, adrenal tumors, senile osteoporosis, metastatic malignant disease or multiple myeloma. The x ray findings are more consistent with a diagnosis of metastatic malignant disease or multiple myeloma than hyperparathyroidism. In this instance the well-defined decalcification is limited to the vertebrae. There is little to suggest generalized decalcification. Therefore the x ray findings are anything but suggestive of hyperparathyroidism.

The serum calcium varied from 14.6 to 15.5 and the serum phosphorus from 3.2 to 6.0 milligrams per 100 cubic centimeters. The serum phosphatase was 51 units, a figure which is at the upper limit of normal. In other words the patient had a hypercalcemia. The serum phosphorus was on the low side of the normal limit. Are these the findings of hyperparathyroidism or can they be explained on some other basis? If they are due to hyperparathyroidism the patient had developed one of the complications of the disease, namely, calcification of the kidney or nephrocalcinosis. Such renal complications allow for a hypercalcemia of this grade without an associated hypophosphatemia. If this individual had had nephrocalcinosis it should have been demonstrated on x ray examination. It was not. Therefore, I think it can be ruled out.

What other disease might give us these findings? In widespread metastatic malignant disease we obtain such chemical findings. Mason and Warren reported such a case several years ago. The patient had a serum calcium of 17.3 and phosphorus of 4.1. In such cases the serum calcium is high but the serum phosphorus is normal or increased. The x rays showed moderate decalcification. If this decalcification was due to hyperparathyroidism one would expect the serum phosphatase to have been definitely elevated. However there are exceptions. In individuals with mild hyperparathyroidism have a normal or only slightly elevated serum phosphatase. One must also appreciate the fact that individuals with marked hyperparathyroidism remaining on a high calcium intake will have a

high serum calcium, a low serum phosphorus, a normal serum phosphatase and very little x ray evidence of bone involvement. In other words the phosphatase tells one the degree and extent of bone involvement existing in patients with hyperparathyroidism. In this particular case the blood chemical findings do not allow one to make a diagnosis of hyperparathyroidism.

This man when first seen had an anemia as shown by a red cell count of 3,500,000. Later it fell to 3,000,000. Patients with hyperparathyroidism may develop anemia but only when marked bone changes are demonstrable, in other words the classical form of hyperparathyroidism. We know that the extensive fibrosis in such cases does interfere with hematopoiesis and in consequence hypochromic anemia and leukopenia result. In this case I think the anemia without marked decalcification etc., allows one to state it was not secondary to hyperparathyroidism. An anemia of this grade would speak for marked hyperparathyroidism. Thus we know he did not have.

This man had obvious evidence of kidney impairment as shown by two nonprotein nitrogens which were well above normal, 75 and 82 milligrams per 100 cubic centimeters. His urine had a slight trace of albumin. Evidently no casts were seen. He did have a few white blood cells and one to four red blood cells. If this man had had nephrocalcinosis casts should have been present. When present one should determine whether they do or do not contain calcium. He did not have kidney failure due to nephrocalcinosis of hyperparathyroidism.

I think that we can gather a fair amount of evidence which would allow one to doubt the diagnosis of hyperparathyroidism. In doing so one has to lean very heavily upon the x ray findings, although the blood chemical findings are also helpful. The most reasonable interpretation, I think, is some form of metastatic malignant disease. Such a diagnosis would best explain all that we are dealing with. In this instance we know that the man was operated upon some ten years previously for a hypernephroma. Therefore, rather than entertain a long list of possibilities it would seem better to stick to a diagnosis of metastatic hypernephroma. This would also explain the cerebral symptoms which were encountered in this particular individual. I know of no case of hyperparathyroidism seen in this clinic in which cerebral symptoms of this sort have been encountered. Therefore in summary I should say that we are dealing with an individual whose findings are best explained on the basis of widespread metastatic disease, in this instance the metastatic disease being hypernephroma. It is also the cause of his renal failure. In addition I think he had rheumatic heart disease with aortic and mitral valve involvement. There probably existed calcification

of the aortic valve. In view of the fact that the man had obvious renal insufficiency one might contend that he had in consequence developed secondary hyperparathyroidism. This only occurs in long-standing renal disease. We know this patient had a normal nonprotein nitrogen two months prior to his entry, therefore I should say that secondary hyperparathyroidism did not exist.

DR TRACY B. MALLORY: Dr. Aub, will you tell us your opinion about this man?

DR JOSEPH C. AUB: I have seen the man, yet I think it is only fair to say that before I saw him I wrote to his doctor saying, as Dr. Bauer did, that he most likely had a hypernephroma, on the basis of the fact that he did not have an elevated blood phosphate or characteristic x-rays. Incidentally, the nephrectomy was done thirteen years ago. The man took a very long trip and arrived here very ill. We looked all over his body for bone metastases that could be biopsied, but none could be found by x-ray. On the bare possibility that he might have hyperparathyroidism and because the remaining single kidney was very badly damaged, it seemed justifiable to attempt an operation for a curable disease, though none of us thought the diagnosis likely.

He had had a toxic goiter two years before and we thought his heart was fibrillating and that he had associated arteriosclerosis. He had an inadequate kidney, a single kidney. We thought he died of pneumonia.

CLINICAL DIAGNOSIS

Metastatic malignant disease

DR. WALTER BAUER'S DIAGNOSES

Metastatic hypernephroma

Rheumatic heart disease — aortic and mitral stenosis

Chronic nephritis

ANATOMIC DIAGNOSES

Recurrent and metastatic renal cell carcinoma of the left kidney

Primary hypernephroma of the right kidney

Chronic vascular nephritis

Pulmonary edema, bilateral

Operative wound. Parathyroid exploration

Operative scars. Left hemithyroidectomy, left nephrectomy

Arteriosclerosis, marked coronary, slight aortic and cerebral

Prostatic hyperplasia

Mitral stenosis

PATHOLOGIC DISCUSSION

DR. MALLORY: I think Dr. Aub has brought out a point which both he and Dr. Churchill felt before the operation. This man had a

disease from which he was undoubtedly going to die unless something in the nature of a miracle could be done for him. There was a bare possibility that he might have hyperparathyroidism and as long as that was a possibility it seemed worthwhile to operate even though the hope of helping him seemed very slight.

We found at autopsy that he did have a recurrence of his hypernephroma in the area from which the kidney had been removed. It had also grown in the form of tumor thrombus into the renal vein and started up the vena cava, as these tumors so often do. It had invaded the vertebral column with destruction of the lumbar vertebrae. Two small metastases were found in the lungs and numerous minute foci in the bones. It is noteworthy that the punched-out areas in the skull proved to be not metastases but areas of bone absorption about blood vessels.

The opposite kidney proved very interesting. It showed a circumscribed tumor nodule about three centimeters in diameter. On microscopic examination this tumor is entirely different in appearance from the recurrent tumor on the left. The recurrent tumor is a wild, highly malignant growth with no vacuolization of the cells, no longer recognizable as hypernephroma. The one in the right kidney is a very well differentiated, slowly growing, typical hypernephroma so that I think there is no question we are dealing with a second primary renal tumor, not a metastasis from the first one. The difference in type of the histologic picture on the two sides is sharp enough to make me feel I can be dogmatic about that.

At operation no parathyroid tumor was found, in fact no parathyroid tissue could be identified and we had no better success at autopsy. The man had had a previous thyroidectomy and the normal anatomical landmarks were obliterated which made it a pretty difficult job.

The heart showed mitral stenosis, but the aortic valve was negative. It was slightly hypertrophied. The remaining renal tissue in the right kidney amounted to about 200 grams after deducting the weight of the tumor. It showed a moderate grade of vascular nephritis.

CASE 22092

PRESENTATION OF CASE

First Admission. A twenty-nine year old white American bank teller entered complaining of abdominal pain.

Four years prior to entry the patient began to have a "lumpy" sensation in the midepigastrium which usually came on several hours after meals. This discomfort was relieved by soda and occasionally by spontaneous emesis. About six months after onset a gastrointestinal series was said to be negative. An inguinal hernia which had recently appeared was repaired at

this time. Following this he was free from significant symptoms until ten months before entry when he suffered from occasional shaking chills which usually came on about one hour after meals, lasted for about an hour and a half and terminated spontaneously with a drenching sweat. These attacks were sufficiently severe to cause him to return to his home and go to bed. Vomiting sometimes produced complete relief. He had four such episodes at intervals of about two months none of them associated with actual abdominal discomfort. Nine weeks before entry he began to suffer from a sensation of generalized abdominal distention, occasionally more marked in the epigastrium which came on when he arose in the morning. This was relieved by the ingestion of a small breakfast but recurred shortly thereafter and usually persisted until he had eaten his evening meal. It frequently returned later in the evening and occasionally disturbed his sleep. Rarely did he feel nauseated or vomit during these attacks. His bowel movements which had previously been regular now became costive, requiring a daily cathartic. After six weeks they became quite watery and despite the cessation of cathartics continued so until admission. There was no mucus or blood present. Ten days before admission colicky pain appeared in the abdomen and the sensation of distention became much less evident. The pain was relieved by eructation or the passage of flatus. After about a week the pains became much more severe, recurred every five minutes, and persisted for about one minute.

Physical examination showed an emaciated pale young man. The skin was warm dry, scaly. The heart and lungs were normal. Other than the presence of hernial scars no other findings in the abdomen were noted. Rectal examination showed small hemorrhoidal tags. The finger nails were cyanotic and thought to be clubbed.

The temperature was 98°, the pulse 94. The respirations were 30.

Examination of the urine was negative. The blood showed a red cell count of 4,580,000 with a hemoglobin of 65 per cent. The white cell count was 5,950. 67 per cent polymorphonuclears. The stools were yellow partly formed and contained a large amount of mucus. There was no blood, parasites or ova present. Microscopic examination showed the presence of moderate amounts of starch and fat. A Hinton test was negative.

X-ray examination of the chest was negative except for areas of calcification in the lung roots. A Graham test showed the gallbladder to be normal. The urinary tract was normal. A barium enema showed the colon to be normal except for the cecum, which exhibited slight concavity of its inferior medial aspect. There was intermittent spasm of the cecum, and the

ileum did not fill. A gastrointestinal series was normal except for a twenty-four hour retention of barium within the loops of what appeared to be the ileum. A large amount of gas was present in the same region. At the end of forty-eight hours the small intestine had emptied.

On the third day a laparotomy was performed. A large amount of amber-colored fluid was found in the peritoneal cavity. A mass about the size of a billiard ball was palpated on the right rim of the pelvis, and the terminal eight inches of the ileum and the bladder were adherent to it. The small intestine appeared to be very much hypertrophied. A lateral anastomosis was made between the terminal ileum and the ascending colon. The patient responded well postoperatively and was discharged on the nineteenth hospital day.

Second Admission, four years later

Following his discharge from the hospital the patient had recurrence of the chills noted above but these gradually became less frequent. He often had rumbling sensations in both lower quadrants which recurred about twice a month. Seven weeks before reentry he was awakened in the middle of the night by the first chill he had had in two years. Induced vomiting consisted of a large amount of undigested food. This was followed by profuse perspiration and considerable relief. He felt rather listless for several days thereafter and then remained well until five days before admission, when he had a similar chill directly after a meal. There was no associated abdominal pain or abnormality of the stools. He had lost about seven pounds in one year, five of them during the preceding two weeks.

Physical examination showed the patient to be thin but in no apparent distress. The heart and lungs were normal. The blood pressure was 120/65. The abdomen was tympanitic and slightly spastic. The abdominal scars were well healed. Tenderness was elicited in the right lower quadrant.

The temperature, pulse and respirations were normal.

Examination of the blood showed a red cell count of 4,300,000 with a hemoglobin of 70 per cent. The white cell count was 11,500. 80 per cent polymorphonuclears. The stools were brown and liquid. There was no mucus or blood present.

A gastrointestinal series showed that the ileocolostomy was functioning well. The cecum was flattened and there was a small pressure defect at its apex near the site of the appendix. The terminal ileum no longer appeared to be obstructed. The appendix was not visualized.

On the fourth day a laparotomy was done. An indurated mass was found behind the cecum and the terminal ileum. The cecum was mobilized and an indurated adherent appendix was found lying behind it. This was removed.

and the area was drained. The patient had a moderately febrile postoperative course. The temperature varied between 98° and 101° for two and a half weeks. He was discharged afebrile on the twenty-sixth hospital day.

Third Admission, one year later

About ten days after leaving the hospital the region through which the abdominal drain had protruded became inflamed. It broke down and fecal material drained from it. It remained open for a short time and then closed spontaneously. Following this it opened spontaneously at irregular intervals, and occasionally had to be opened surgically to allow for drainage of accumulated feces. Each time drainage occurred he suffered chilly sensations, lassitude and malaise for several days thereafter, but there was no recurrence of his old symptoms.

Physical examination showed no change from that previously noted except for a small sinus wound from which a catheter protruded. This was surrounded by a moderately tender red, indurated area.

The temperature was 99.6°, the pulse 80. The respirations were 20.

Examination of the blood showed a white cell count of 11,000, 65 per cent polymorphonuclears, 12 lymphocytes, 13 monocytes, 10 eosinophils.

A barium enema showed a mass which lay behind the ascending colon opposite the drainage tube. The colon was spastic in this region and there was evidence of marked mucosal thickening. The ileum filled, evidently through the ileocolostomy stoma. The terminal portion of the ileum was not visualized.

A laparotomy was performed on the seventh day.

DIFFERENTIAL DIAGNOSIS

DR RICHARD H. MILLER. This is a long and detailed history and I shall not attempt to read it all but run over it briefly picking out the salient points.

Four years before entry there was a vague story of epigastric distress, not mentioned again, and I would assume that he probably had a duodenal ulcer, though one cannot be sure. It is not of particular significance, I think. Ten months before he came in he had the onset of shaking chills, followed by drenching sweats, occurring once in two weeks. Then the story changes.

"Nine weeks before entry he began to suffer from a sensation of generalized abdominal distention, occasionally more marked in the epigastrium, which came on when he arose in the morning, and usually persisted during the day." The onset of distention, constipation, diarrhea, and colicky pain would, to my mind, suggest some type of narrowing of the lumen of the colon. I should think it meant a partial ob-

struction. The constipation would suggest that and the diarrhea would not, I think, rule it out.

"The finger nails were cyanotic and thought to be clubbed." In this particular case I do not know exactly how to evaluate this and will pass it over for the moment.

We find a mild anemia probably of a normocytic and hypochromic variety and suggesting some deficiency.

The stool examination is not particularly helpful.

You will note that he had calcification of the lung roots, which means to me old and probably healed tuberculosis. He had a normal gall-bladder, and x-ray shows slight deformity of the cecum with some retention of barium which would probably mean that there is a lesion in or around the cecum causing obstruction at the ileocecal valve.

"A large amount of amber-colored fluid was found in the peritoneal cavity." This would mean either an irritation of the peritoneum with an outpouring of fluid, or some interference in the liver, and, ruling out the latter, one would assume that some process was taking place in the peritoneum that gave rise to an exudation.

"A mass about the size of a billiard ball was palpated on the right rim of the pelvis, and the terminal eight inches of the ileum and the bladder were adherent to it. The small intestine appeared to be very much hypertrophied." That means some process, as I said a moment ago, near or in the cecum giving rise to a certain amount of stasis in the ileum, and the hypertrophy of the small intestine can be accounted for in that way. Operation was performed at this time but inasmuch as this tumor of the region of the cecum recurs again in the history I will not stop to discuss it at this moment.

Four years later, having been pretty well, he appeared again and stated that seven weeks before entry he had another of these chills and after this vomited and had profuse perspiration. He was well for five days, when the same thing recurred. I find it difficult to explain these chills and drenching sweats occurring at such long intervals. I associate the diseases which result in chills and sweats with the frequent occurrence of these phenomena, perhaps every day or more often, and therefore I do not know exactly how to explain them, but I feel nevertheless that they are evidence of an infection somewhere in the body which has not manifested itself in any other particular way.

Physical examination is again negative with the exception of tenderness in the right lower quadrant.

I do not look on the laboratory findings as particularly significant or indicative.

Here again x-ray shows flattening of the cecum but the terminal ileum was, as one would expect, no longer distended because it was emptying itself through the stoma.

I should be inclined to think that the appendix had nothing much to do with the process. I believe it is an infectious condition and it may conceivably have started in the appendix but I think that is not the primary source of the disease. A second operation was now performed the appendix removed and an unidentifiable mass discovered behind the cecum.

He again came back in a year five years after the first admission. The story is that the wound had broken open from time to time and discharged fecal matter. I should have thought that he would have had the malaise before the wound was opened rather than afterward.

The physical examination is not materially different from the other times, except that he had a slight temperature and a draining wound surrounded by a tender, red and indurated area.

The blood examination is interesting showing a white cell count of 11,000. The thing that strikes one is the 10 per cent of eosinophils. I will refer to that in a moment.

In order to arrive at a diagnosis in this case it seems to me that first, in the consideration of this tumor mass around the cecum, one must decide whether it is of a neoplastic nature or whether it is of infectious origin. I do not think it is neoplastic and in that term I include cancer, sarcoma, Hodgkin's type of lymphoblastoma and other tumors of lymphoid tissue. I do not think so because it seems to me that any type of new growth would have progressed in these five years so far that the patient would have had evidence of disease elsewhere in the body or what is more probable would have been dead. That brings me down to the decision that this is a tumor of infectious origin. What might that be? First of all, tuberculosis. Secondly, syphilis and I am going to rule out syphilis because he has a negative blood test. Thirdly, a nonspecific infection resulting from the original disease in the appendix itself. I am going to rule that out because it is so rare and would be so extraordinary. The occurrence of ten per cent eosinophils makes one think of some parasitic disease and yet there is really no parasitic disease, which I can think of, that would ordinarily cause the picture as we see it here. Actinomycosis might account for the lesion as it occurs in this case, and yet it would be very unusual for actinomycosis to remain limited in the region of the cecum for five years. We have seen a substantial number of cases of actinomycosis and they always progressed to a degree that either the patient died of the disease in the course of a few months or there have been other foci of infection scattered through the

body which have made the diagnosis more obvious. I am going to rule out actinomycosis and that brings me back to what seems the most probable diagnosis in this case which is tuberculosis. I do not think tuberculosis fits the picture entirely but it accounts for the different elements of this case better than any other disease. I should expect ordinarily in tuberculosis that there would be an ulcer in the cecum and the discovery of blood in the stool examination. I am surprised that there was no more change for four years following the first operation. But I do know that tuberculosis will occasionally remain more or less dormant for a period as long as that and I think it is quite conceivable that it may have done so in this case. Therefore, I say it is tuberculosis.

DR. TRACY B. MALLORY. Perhaps Dr Hampton can give you some help.

DR. AUBREY O. HAMPTON. This man was examined several times and we followed him with considerable interest. At the first barium enema these loops of dilated small bowel and this concave pressure defect on the cecum were found. The cecum is fairly smooth and there is very little spasm at this time. This may indicate that this is not tuberculosis, the cecum being so normal—except for evidence of extrinsic pressure. We could not fill the ileum by enema. Barium by mouth filled the ileum and remained there for forty eight hours and although he had pain, as I remember it he did not act as though he were actually obstructed. I think he tolerated the barium unusually well. At the seventy two hour examination no barium was retained. The stomach and duodenum were perfectly normal. The chest was normal, gall bladder normal, in fact everything was normal except the terminal ileum.

This is the film taken after the second operation and it just shows the location of the abscess that was drained. This film was taken after lipiodol injection of the abscess and there was no doubt about its being behind and lateral to the ascending colon.

At the time of his third admission we filled the terminal ileum for the first time. There is a grossly irregular constriction of the terminal ileum and a fairly smooth cecum.

At the time we made the first examination we would have agreed with Dr. Miller that this disease was tuberculosis, but that was five years ago and I think that now we might change our diagnosis in fact we did.

DR. MALLORY. Have you anything to add Dr. Miller?

DR. MILLER. As a matter of fact I did not know you were going to ask me to say anything further about the diagnosis and while Dr. Hampton was speaking I asked Dr. Smithwick what it was and now I know. But as I reviewed it I thought of regional ileitis and ruled it out because I rather felt that the mass must be in

the cecum I interpreted the thickening of the ileum as being due to the hypertrophy from constant working against obstruction

CLINICAL DISCUSSION

DR REGINALD H SMITHWICK If the operative findings of the second and third operations had been more fully described in the summary I am sure Dr Miller would have reached the correct diagnosis

This case was a very interesting one to us who saw the patient for a period of six years. When he first came to the hospital he presented the picture of chronic obstruction of the small intestine. At the first operation his small intestine was tremendously hypertrophied and thickened throughout. In the right lower quadrant was a mass which, as I remember it now, was the size of a small grapefruit—a little larger than that described in the record—and also it could be felt by rectum before operation. At operation about a foot of small intestine was very adherent and ran around medially to the mass. The bladder was drawn over it and it was impossible to tell what it was except that it appeared to be behind and beneath the terminal ileum. The cecum was slightly thickened but apparently only by continuity to the mass. I think if that had been brought out it would have been obvious that the disease was not primary in the cecum. However, we had no idea what it was at that time and the only thing to do was to short-circuit this area, which was done, and he made a satisfactory convalescence and remained well for several years.

DR MILLER What was the mass?

DR SMITHWICK It was a chronic inflammatory mass, the character or origin of which we could not interpret. It gradually and entirely disappeared so far as one could tell on abdominal and rectal examination. In the course of two or three months after his short circuiting operation he felt so well that he went back to work and he was loathe to have anything further done at that time. At the end of four years, however, he began to lose weight, was tired, had anemia, chills and fever, and became so run down that further operation became necessary.

At the second operation, some four years later, there was no very large mass. When this was exposed, as contrary to the summary here, an abscess was found beneath the terminal ileum. The abscess cavity contained about two ounces of thick pus and in this cavity lay a thickened appendix. In the wall of the appendix was an opening, in other words a fistula into the appendix, and apparently this pus was draining back into the intestine, probably through the appendix, although, as Dr Miller pointed out,

I do not believe and did not think at that time that the appendix was the origin of the abscess. In the presence of this abscess and thick pus it seemed inadvisable to resect the terminal ileum and colon at that time. Therefore, the abscess was drained and, as the record shows, it kept opening and discharging, and the record is correct in saying that after the abscess had discharged he felt much worse than before. He began to feel very miserable for a week or ten days every time we opened the fecal fistula and the abscess discharged.

At the third operation he had a large abscess which ran up behind the ascending colon, up to the third portion of the duodenum. At that time he was so miserable that something radical had to be done. The terminal ileum, cecum and ascending colon were removed. In separating the transverse colon and hepatic flexure from the duodenum a large opening was made in the second portion of the duodenum, because it presented as a part of the chronic inflammatory wall of the abscess cavity. Whether there was an actual fistula into the duodenum at this point before operation, I am not sure. Anyway, this hole in the duodenum was closed with great difficulty and at the time it did not seem a very satisfactory closure. His terminal ileum and right colon were removed and anastomosis was not done at that time. They were brought out of the upper end of the incision à la Mikulicz. He made an uneventful convalescence. Surprisingly enough the duodenum did not break open. He developed no duodenal fistula and later on the colostomy was closed.

At the third operation it was obvious that the process was regional ileitis. At the time of the first operation I had never heard of that disease. At the second operation we thought that diagnosis probable, and at the third operation it was perfectly obvious that that was what it was, and there were fistulae between the loops of small intestine and large intestine and this large abscess behind the descending colon, which represents practically all of the multiple complications and features of this disease which now is fairly frequently recognized but rarely seen in this form. Usually it is an acute abdominal emergency and usually the patients are operated on for acute appendicitis and an area of thickened terminal ileum, often with fibrin on its surface, is found. This represents the end result of treating these patients with multiple stage operation. I believe the present feeling is that immediate one-stage resection and anastomosis when the condition of the patient is satisfactory is perhaps the best way to do it because the longer you leave the lesion untreated the more complicated the process can become, so many fistulae form between the loops of adjacent duodenum and bowel.

PREOPERATIVE DIAGNOSES

First Operation Intestinal obstruction
Second Operation Subacute appendicitis
Third Operation Fecal fistula.

DR. RICHARD H. MILLER'S DIAGNOSIS

Tuberculosis of the cecum and surrounding tissues.

PATHOLOGIC DIAGNOSIS

Regional ileitis

PATHOLOGIC DISCUSSION

DR. MALLORY The resected specimen showed about what these cases usually do. The last portion of the ileum was markedly thickened, the wall very edematous. There were no perforations or open fistulae, the mucosa was deeply ulcerated and showed numerous tabs of hemorrhagic granulation tissue replacing the epithelium. The histologic picture of these

cases varies a good deal from case to case. A characteristic of many of the cases is the finding of collections of foreign body giant cells, sometimes simulate tuberculosis very closely, undoubtedly in the past some of these have been mistaken for tuberculosis. In particular case that was not a prominent feature and one would not even think of tuberculosis from the histologic picture.

Whether the appendix was involved by the same process I am not quite sure. On going over the sections again it seems to me the appendix is a little peculiar in type. The mucosa is hemorrhagic, whereas the rest of the appendix shows only a subacute infectious process. One might say that in the inflammatory cells in the ileum and the appendix eosinophils are very numerous, so that probably correlates with the high blood eosinophilia.

The cecum as usual was entirely negative. Occasionally the process has been reported to involve the cecum but in most instances it is short at the ileocecal valve.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$8.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass

"A DOCTOR'S ODYSSEY"

Dr Le Roy Crummei, physician, teacher, and collector of old books, died in January 1934. Shortly after his death, on February 15, a brief review of his life and work was published in *The New England Journal of Medicine*, augmented by an appreciation of the man written by Mr J Christian Bay, librarian of the John Cierar Library in Chicago. To Bay's thoughtful essay are now added the estimations of others, in the form of a book*, supplemented with a brief life of Dr Crummei and a partial description of his books. Even more important than the tributes paid him by his friends are the numerous letters from and to Crummei which depict his world-wide travels, his flair for book-collecting and his love of life as a humanitarian.

In the course of twenty-five years Dr Crummei built up a superb collection of books on the history of medicine. Beginning with a few

*Beaman A Gaylord. *A Doctor's Odyssey. A Sentimental Record of Le Roy Crummei. Physician. Author. Bibliophile. Artist in Living 1872-1934.* Baltimore: The Johns Hopkins Press 1935. Price \$2.50.

standard reference works, he soon completed, except for one edition, all the printings of Sir Thomas Browne's *Religio Medici* and added the American medical classics of Drake, Rush, Morgan and others, ninety per cent of the great anatomies mentioned by Choulant in his *Geschichte der Anatomischen Abbildung*, every edition of the works of Gideon Harvey many of the publications of Paracelsus, Paré, Jenner, Sydenham, Bright, the Hunters and numerous other great physicians. We now know what has happened to most of this great collection, for it has enriched the libraries of the University of Nebraska Medical School at Omaha and the University of Michigan at Ann Arbor. Omaha received the Americana and most of the books printed after 1640, while the bulk of the collection, including about five thousand portraits of physicians, is now in Ann Arbor. Two catalogues of the collection were issued by his wife: one in mimeograph in 1925 and a second, printed in 1927. Each was limited to one hundred copies and they are now almost as hard to come by as some of Crummei's own books.

Thus gradually great private collections are added to permanent shelves, making the value of each rare book proportionately greater. With the Oslei books in Montreal, the Streeter collection in New York, Jacobs' in Baltimore, Crummei's in Omaha and Ann Arbor, only a few outstanding medical libraries in this country are now in private hands. With two more great libraries almost on University shelves, it is indeed an expensive time for book-collectors but a glorious epoch for students of medical history. Canadian and American medical life has been made richer by Oslei and Crummei, and men of their stamp, who have seen the need of such collections and, withal, have enjoyed the fun of book hunting and book bargaining. That men as far apart as Crummei and Oslei could each find joy in building up great libraries speaks well for such an avocation for the physician.

THE MANHATTAN MEDICAL SOCIETY

The Manhattan Medical Society, founded in 1930 by Negro physicians of New York, has recently found it desirable to publish a pamphlet detailing its past, present and future activities. The main purpose of this brochure is to expound the conception of the Society of the Negro physician's place in the community, its thesis is an emphatic protest against any and all forms of segregation based on color.

Particularly abhorrent to the Society is the activity of the Julius Rosenwald Fund in establishing and aiding in the establishment of Negro institutions and hospitals. According to an open letter to Mr Edwin R. Embree, presi-

dent of the Julius Rosenwald Fund "The Rosenwald hospitals are 'Jim-crow' in spirit and 'Jim-crow' in fact, and they establish in the minds of the white doctor and citizen a superiority complex and they also establish in the minds of the colored doctor and colored citizen an inferiority complex."

Other causes of discontent are variously dealt with the staffing of Veterans' hospitals and the activities of the Harlem Health Center.

The question of Afro-American relations has long remained a vexing discussion and no immediate solution is in sight. Temperate and thinking members of neither race would care to see the Negro's opportunities bounded by any limits other than his own abilities. The means of producing these opportunities is not so clearly seen. Unfortunately certain social prejudices exist and must be faced.

It would be well occasionally, to call back to mind the words of Booker T. Washington in his great Atlanta speech in 1895. In all things that are purely social we can be as separate as the fingers, yet one as the hand in all things essential to mutual progress.

"There is no defence or security for any of us except in the highest intelligence and development of all. If anywhere there are efforts tending to curtail the fullest growth of the Negro, let these efforts be turned into stimulating, encouraging and making him the most useful and intelligent citizen. Effort or means so invested will pay a thousand per cent interest. These efforts will be twice blessed—blessing him that gives and him that takes."

"There is no escape through law of man or God from the inevitable—"

The laws of changeless justice bind
Oppressor with oppressed
And close as sin and suffering, joined
We march to fate abreast."

The Massachusetts Medical Society

ANNUAL MEETING OF THE MEDICAL SECTION

THE primary object of the Annual Meeting of the Massachusetts Medical Society is to enable the members to foregather in good fellowship to renew old acquaintances and to make new friends among the physicians drawn to the meeting from all parts of the state. It is fitting that the meeting this year should be held in Springfield not only to permit the attendance of many men from the western part of the state who otherwise would find it difficult to be present but also to shake members from the eastern districts out of their medical ruts and allow them to enjoy the admirable medical and civic hospitality which will be offered.

The chief attractions on the program are the papers which are presented before the various sections. The quality and character of these papers determine to a large extent the success of the meeting. The program of the Section on Medicine has been so planned that it will appeal to all who attend. The general practitioners who will constitute the larger percentage of those in attendance, will find material that is of practical value presented by experts who speak their language. The specialist and more scientifically minded clinician will find information that is both timely and authoritative. The program has not been arranged with the purpose of presenting speculative medical hypotheses with intricate experimental procedures and results. To broaden the scope of the discussion no attempt has been made to arrange a symposium on one subject, but topics have deliberately been chosen from several fields.

Pathological states dependent on or conditioned by industrial hazards are assuming an increasing importance in medicine today. Dr. Alice Hamilton, the well known authority in this field, will speak on some phase of the subject.

Angina pectoris is a condition which is exacting its toll throughout this State as elsewhere. Any presentation of the successful management of this condition will be appreciated. It will be particularly pertinent therefore, to have the views of Dr. John Sproull of Haverhill who combines the standpoint of the general practitioner and the expert in the subject.

There is no clinician who has not been confronted with the problem of whether a transfusion may not be indicated and all such will be helped by the authoritative discussion of Dr. Arlie V. Bock of Cambridge on the uses and abuses of this procedure.

There is hardly a field in medicine in which more experimental and clinical work has been done in recent years than in liver disease. New theories of etiology, new classifications, new tests of hepatic function are all so numerous that it is difficult to winnow the wheat from the chaff. Dr. Chester M. Jones of Boston will summarize some of the newer knowledge in this field.

In spite or perhaps because of the fact that salt is such an integral part of our normal diet physicians have paid very little attention to the proper administration of sodium chloride in disease states and the rules they follow are more likely to be founded on tradition than on modern scientific knowledge. Much can be done to enhance the comfort of patients, to control symptoms and even to ameliorate the course of disease by a proper appreciation of the use of this ubiquitous and very necessary substance. Dr. Allen S. Johnson of Springfield will present a paper on sodium chloride therapy.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

HAYDEN, E PARKER A B, M D Columbia University College of Physicians and Surgeons 1919 F A C S Assistant Surgeon, Massachusetts General Hospital Assistant in Surgery, Harvard University Medical School His subject is Cancer of the Rectum and Sigmoid Page 401 Address 270 Commonwealth Avenue, Boston, Mass

MARKS, JOSEPH H B A, M A, M D Harvard University Medical School 1929 Roentgenologist, Truesdale Hospital, Fall River, Mass His subject is Calcification in the Annulus Fibrosus of the Mitral Valve Page 411 Address 151 Rock Street, Fall River, Mass

QUINBY, WILLIAM C M D Harvard University Medical School 1902 F A C S Clinical Professor of Genito-Urinary Surgery, Harvard University Medical School Urologist, Peter Bent Brigham Hospital, Boston, Mass His subject is Urologic Aspects of Vesicovaginal Fistula Page 415 Address Peter Bent Brigham Hospital, Boston, Mass

CHRISTIAN, HENRY A A M, L L D, Sc D (Hon), M D Johns Hopkins University School of Medicine 1900 Hersey Professor of Theory and Practice of Physic, Harvard University Medical School Physician-in-Chief, Peter Bent Brigham Hospital His subject is Types of Edema and Their Treatment Page 418 Address Peter Bent Brigham Hospital, Boston, Mass

MCPARTLAND, PATRICK F M D University of Maryland School of Medicine and College of Physicians and Surgeons (Baltimore Medical College) 1905 F A C S Attending Surgeon, St Francis Hospital, Hartford, Conn His subject is Presidential Address Page 422 Address 410 Asylum Street, Hartford, Conn

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

C J KICKHAM, M D, R S TITUS, M D,
Chairman Secretary
524 Commonwealth Ave, 472 Commonwealth Ave,
Boston, Mass Boston, Mass

DIET AND PREGNANCY

The ideal diet during pregnancy is one which provides all the essentials, eliminates the un-

*A series of short selected articles by members of the Section is being published weekly
Comments and questions by subscribers are solicited and will be discussed by members of the Section

essentials, and keeps the patient from gaining too much weight Diet is no problem in the normal pregnancy during the first three months The average patient keeps herself well by eating frequently every one and one-half hours or every two hours rather than three times a day, and usually eating anything that she wants to eat The only aim at this time is that food shall be eaten The question of weight at this time does not arise because it is the unusual patient who gains much of any during the first three months The average patient, eating more than she normally would eat, doing much less than she normally would do, because of the demands of pregnancy for rest, and losing no meals, often loses, and very, very rarely gains much of any weight

After the need of frequent meals to control the normal nausea and vomiting of pregnancy has passed, the question of what to eat and how much to eat arises An ideal diet is a mixed diet containing protein, carbohydrate, fat, calcium and vitamins in sufficient quantity to provide for the growing fetus and at the same time keep the mother's weight from increasing unnecessarily As the average patient gains none during the first three months in pregnancy so does the average patient gain very little the last ten days or two weeks of pregnancy, unless she develops edema, so it is between three and one-half and eight and one-half months that the question of excessive weight is to be fought against One-half pound a week gain during these months allows the patient to maintain almost her normal weight What she puts on is mostly pregnancy

The average caloric need for twenty-four hours, without putting on excessive weight, is met by the ingestion of, first, a quart of skimmed milk This may be taken raw or used in soups It contains protein, carbohydrate, very little fat and plenty of calcium Orange juice, because it contains calcium and carbohydrate, should be used in generous quantities Tomato juice, rich in vitamins, should be taken once or twice a day Beyond the carbohydrate found in milk, orange juice and tomato juice, the five and ten per cent vegetables, taken in liberal quantities, provide all the additional carbohydrate that is necessary, without putting on unnecessary weight

Protein is a constituent of milk, beef, chicken, lamb, fish and eggs The pregnant patient needs a lot of protein, and protein is protein whether it is taken in the form of milk or in the form of meat It is an old-fashioned idea that meat should be restricted, and the average pregnant patient should consume daily at least three-quarters of a pound of beef or its equivalent Liver, sweetbreads and kidneys, because of their blood-stimulating properties, are foods

which pregnant patients should eat frequently. One of the three of these twice a week is almost an essential. Fat free cottage cheese is one method of supplying plenty of protein.

Fat is necessary in only small amounts and is best obtained by eating a pat of butter with each meal. Fried foods, pork and fat on meat are contraindicated.

On a diet mixed with the above-mentioned foods, the average patient is perfectly happy, gains satisfactorily, keeps down her increase in weight to the minimum, saves energy by not wasting energy in storing up too much fat, saves fatigue by not carrying around the unnecessary burden which an abnormal gain in weight necessitates.

Between meals a glass of skimmed milk and a few rye crisps appease hunger, relieve indigestion and do not add weight. Of course there are pregnant patients who gain very little no matter what they eat. If they will eat the essentials and not gain much weight, it does not make any difference what other foods they eat, but the patient who adds too much weight usually gains because she eats too many carbohydrates, and if the increase in weight is extravagant, all bread, potato, thick soups with a flour base, marmalade, canned fruits, preserves, candy, and excessive fat should carefully be eliminated.

At present there is no way by diet of specifically limiting fetal weights. It is a fair assumption that if the mother is not gaining morbidly, her baby is not gaining too much, but this is only an assumption.

The need of iron during pregnancy has been well established and all pregnant patients, although they are on a good mixed diet, which should provide all the iron that they need, should take some form of ferrous sulphate the equivalent of 12 grains a day. This keeps the blood picture at a normal level and does away with the secondary anemias that may otherwise result.

From the standpoint of calcium metabolism, in this climate, when the amount of sunlight is not to be depended upon, patients should routinely take some form of haliver oil.

Condiments may be taken as desired with the exception that salt should never be eaten lavishly.

FELLOWS, TAKE NOTICE!

An analysis of the unpaid annual dues of Fellows of the Massachusetts Medical Society is underway. By vote of the Council, the names of those Fellows whose dues have not been paid by March 2 will be taken from the mailing list of *The New England Journal of Medicine*.

Fellows are urged therefore, to pay promptly their annual dues to their District Treasurers so

that their names will not be removed from the mailing list.

Delay in making payment leads to disappointment on the part of Fellows who will not, therefore, receive the *Journal*.

Treasurers, also, of the several District Medical Societies should forward to the Treasurer of the Massachusetts Medical Society a record of all payments of annual dues.

BOSTON MEDICAL LIBRARY

DR. RICHARD BRIGHT, 1789-1858

It is so frequently the case that a man's name becomes associated with some one disease or even a particular symptom, that the generality of physicians may be unaware that the particular discovery was only one of many made by the individual in question. It furthermore, not infrequently happens that the observation which becomes attached to the name is of less importance than some other discovery he may have made. What is pretty certainly true is that whatever it may have been which has been singled out and associated with the observer's name, was found out as the result not of chance alone, but in consequence of persistent and painstaking study on the part of the individual so distinguished. It is, therefore, important that this fact should not be too heedlessly passed over if we are to arrive at the true significance of the lives of those who have made a reputation for themselves in the medical world. It cannot be too strongly emphasized that no real advances can be made in the progress of medicine without someone putting in hard and time-consuming drudgery and it is to those who are not discouraged by repeated failures that reward for their effort ultimately comes.

This was notably the case with Richard Bright. Born in Bristol, England, in 1789, he began a medical education so far as its preliminary stages were concerned at Edinburgh and continued it later in London. In 1808, he matriculated in the arts course at Edinburgh under Dugald Stewart, Playfair and Leslie and a year later joined the medical school under Monro, Hope and Duncan. Fondness for travel led him to interrupt the courses at Edinburgh for a year which was passed in Iceland studying botany and zoölogy. Returning to London, medical studies were resumed under Currie and Babington and, through the latter interest was aroused in geology. It was during this period that he is supposed to have been stimulated by Sir Astley Cooper to study pathology. Besides Cooper's influence, Travers and Cline were important factors in shaping his career. In 1812, after returning to Edinburgh, medical studies were undertaken with the then celebrated

Dr. Gregory's interest in the study of geology and natural history was continued under Professor Jameson.

After graduation here in 1813, two terms were spent at Cambridge but, not being able to follow up his interests there, he again went to London to work in the Dispensary with Dr. Bateman. The urge for travel induced him to spend the winter of 1814-15 in Berlin and Vienna, studying particularly with Hildenbrandt. On the way home, he visited Hungary and stopped at Brussels, which place was reached shortly after the battle of Waterloo. Here time was devoted to study among the many sick and wounded in the hospitals of that city. Upon a third return to London, he became attached to the London Fever Hospital and the Public Dispensary. At the Fever Hospital, fever was contracted which threatened to end his career. This experience was made an occasion for again undertaking a continental travel tour, visiting France, Italy and Germany.

In 1820 he finally settled in London, was elected to become an assistant physician at Guy's Hospital where the most arduous years of his life were destined to be spent. During a continued service in this institution until 1843, advancement at first from the position of assistant, to full physician and after 1840 to consultant, followed. He was instrumental in building up the reputation of the medical school of Guy's Hospital, largely through indefatigable energy. Besides giving prepared lectures, he spent for several years, six hours a day in the wards and postmortem rooms of that institution. As an expositor of knowledge, he was not in the same class as some of his colleagues with whom, however, he worked in harmony.

It was from the wards of Guy's and its postmortem room that the data were accumulated that enabled him, in 1827, to identify the presence of albuminuria with pathological conditions in the kidneys. The presence of a coagulable albumin in the urine had been recognized for generations but its association with kidney lesions had never been demonstrated. As a result of repeated observations, he was able to announce that he had never seen a coagulable albumin in the urine of a patient, whose kidneys were subjected to examination, that did not have a demonstrable lesion of the kidney substance and it must be remembered that this conclusion was reached almost wholly from a study of gross pathology. Besides this work on the kidney, he made numerous other important observations. He was not a theorizer but a very keen observer and had the happy faculty of synthesizing his observations.

Bright was one of the first to describe acute yellow atrophy of the liver and the first to call attention to the frequent association of a heart murmur with chorea. Lack of ability to teach

made him less well known among his English colleagues than his more brilliant associate at Guy's, Dr. Addison, but he was far better known abroad. He wrote quite extensively for current periodical literature and was the author of two or three books, the most important being a two volume collection of "Reports on Medical Cases", said to be the most important contribution to the subject of morbid anatomy ever made by any one person in England. From the time in 1836 that Guy's Hospital Reports were first published, Bright was a frequent contributor. In 1816, he was admitted as a licentiate of the College of Physicians and became a Fellow in 1832. He gave the Gulstonian lecture in 1833, and in 1837 was the Lumlan lecturer upon "Disorders of the Brain."

When Queen Victoria came to the throne in 1837, Bright was appointed physician extraordinary. The Royal Society honored him with membership in 1821 and at about the same time he was awarded a medal by the Institute of France. He did not make such a brilliant and rapid rise to prominence in practice in London as many another but eventually was probably consulted upon more important cases than any of his contemporaries. He had an attractive personality, was a linguist of note, cultivated in art and had considerable technical ability as an artist, was well informed in two or three sciences and had profited much through travel and his social connections. Withal, he was simple, gracious and tactful in all contacts with his fellow man. At his death, which occurred on the sixteenth of December, 1858, he was survived by his second wife, three sons and two daughters. One son was at one time Master of University College at Oxford and another was a physician practicing in Cannes. Though he was not to be classed as a brilliant man, his work upon the diseases of the kidney has ranked him along with Laennec, as one of the two physicians who contributed the most valuable discoveries in the first half of the nineteenth century. Certainly he has earned a place among the first fifteen or twenty on the roster of outstanding English physicians.

MISCELLANY

RADIO BROADCAST

February 8, 1936

Yankee Network

Introduction by Radio Announcer
Ladies and Gentlemen

For the next thirty minutes the facilities of this Station have been placed at the disposal of the Massachusetts Medical Society. This organization is represented here tonight by its President, Dr.

Charles E. Mongan, of Somerville by its Secretary Dr. Alexander Begg of Boston, and by the Chairman of its subcommittee on Social Legislation and Insurance, Dr. Michael A. Tighe of Lowell.

Dr. Begg is the Dean of the School of Medicine of Boston University. Dr. Mongan and Dr. Tighe are practicing physicians of many years standing and both are Fellows of the American College of Surgeons. All three are members of the American Medical Association and are generally recognized by their professional brethren as well qualified to present the views of the Massachusetts Medical Society in the matter of Compulsory Sickness Insurance—the subject of this broadcast.

You will first hear from Dr. Mongan who will speak to you briefly about the history aims and purposes of the Massachusetts Medical Society. He will then develop the subject matter of the broadcast by means of certain questions to which Dr. Begg and Tighe will respond.

May I present Dr. Charles E. Mongan, President of the Massachusetts Medical Society.

Dr. Mongan

The Massachusetts Medical Society numbering 5106 members was founded in 1781. It is the oldest Medical Society in the United States with a record of uninterrupted meetings from its incorporation to the present time. Its life is nearly coincident with that of the Republic. At the time of its incorporation there were only two Medical Schools in the Country one at New York and one at Philadelphia and many of the thirty-one incorporators of the Society obtained their medical training in foreign countries.

The Massachusetts Medical Society has since its earliest days stood for the highest ideals in medical standards. It has insisted that the practitioners of medicine should have some premedical education. When our Society was first organized strange as it may seem to us of the present day there were some practitioners of medicine who were almost illiterate. The Medical Society's aim was to improve medical education, to guide the progress of medical practice to eliminate charlatans and quacks by insisting upon sane and scientific methods in the practice of medicine and to create as soon as possible a medical school where the future practitioners of medicine might be trained.

The Society took interest, very early in matters of Public Health. In 1842 it successfully petitioned the Legislature to pass a law compelling the reporting of births, marriages, and deaths. It was one of the earliest societies to take an active interest in the reduction of deaths from pulmonary tuberculosis and through its efforts a system of state hospitals for the care of the tuberculous was instituted in Massachusetts. Through the efforts of one of its former Presidents Massachusetts was the first of all the States to adopt humane methods in the care of the insane. Sanitation and pure water supply for human consumption have been advocated by the Massachusetts Medical Society.

The Massachusetts Medical Society was instru-

mental in the establishment of the Massachusetts State Board of Health in 1869. This was the first Board of Health in the United States of America.

Time will not permit me to elaborate upon all the Acts which the Massachusetts Medical Society has sponsored for the health of the people but allow me to say that the same care and vigilance for public welfare is alive in the Society today. The Economic Security Act which recently passed the House of Congress is one of the most important pieces of legislation of recent times for most of the text of this Act concerns the health of the people and promises economic security to the aged.

The proper administration of this Act calls for the coöperation of the medical profession especially in the fields of maternity welfare, child welfare, crippled children and sickness. Tonight we will discuss with you that portion of the program which has not been announced but is being considered. We will try to give you a fair statement concerning Compulsory Sickness Insurance.

First Compulsory Sickness Insurance means that a certain low income group of the citizens of Massachusetts must be insured against the hazards of sickness. This low income group is sometimes defined as those who earn \$3,000 a year or less or the aggregate earnings of the family are \$3,000 or less. Domestic help, farm help, casual workers and certain municipal, State and Federal employees are exempt from the provisions of the proposed law.

In the set up of such insurance the employer contributes a certain amount, the employee an equal amount and the Government an amount which when added to that obtained from the other two sources will perpetuate the system.

It would seem then that the general idea of Compulsory Sickness Insurance is to provide first class medical care for those economically unable to provide it for themselves and to do it by spreading the costs over such great numbers as to make the costs to the individual relatively small.

QUESTION PERIOD

Dr. Mongan: Are my statements correct Dr. Tighe?

Dr. Tighe: I think that they are Dr. Mongan.

Dr. Mongan: Well, Dr. Tighe this sounds like a pretty good thing.

Dr. Tighe: Yes Dr. Mongan the wisdom of this as a statement of an ideal cannot be questioned and it would be most difficult to find any doctor who was not in entire sympathy with such a proposal. However thinking men are wont to distinguish between a stated ideal and the application of that ideal to everyday life. As a distinguished Massachusetts editor recently put it: Man does not perform his functions in a vacuum.

In the field of human relations there are frictions which are just as constant as those encountered in mechanics but with this difference that whereas mechanical frictions can be reduced to a constant mathematical minimum those developed as the result of human relationship in complex society cannot.

Fifty years' experience with Compulsory Sickness Insurance in Germany and twenty-five years' experience in England have clearly demonstrated that this ideal, which is so very attractive in the abstract, has not been, and cannot be realized in practice.

Dr Mongan Dr Tighe, will you tell something more about these human relation frictions?

Dr Tighe In the first place, Dr Mongan, there has never been a demand on the part of the people for Compulsory Sickness Insurance. Secondly, political expediency represents its parentage. Fifty years ago, Bismarck used it in an attempt to destroy the growing influence of the Social Democrats. Twenty-five years ago, Lloyd George picked it up and waved it in all the glory of its idealism before the English workman, when he found himself in such a tight political position that he needed the workman's vote to maintain his control of the English Government. Thirdly, everyone knows that whenever politics touch the ideal, the ideal is usually sacrificed on the altar of expediency. Again, Labor has always been more interested in a steady job at a decent wage than in the soup kitchen. Again, the man of labor, given the opportunity to support himself and family decently, will do a pretty good job in the care of the intimacies of his home. He wants the doctor of his own choice to care for him and those he loves. He wishes that doctor to be responsible to him and not to a political bureaucrat. In other words, he is strongly in favor of the law which makes his home, his castle!

Labor knows that it pays not part, but the whole, of the Compulsory Sickness Insurance Bill inclusive of its tremendous administration costs. Labor knows that the employer's share is not a gift, but something either taken out of wages or tacked on to the cost of the article produced, which in turn labor must buy. He knows that he must likewise pay the government's share either directly or indirectly through taxation. He knows how top-heavy and shot through with bureaucracy the administration of such systems becomes. He knows that in Germany, for every doctor giving medical service, the politicians have matched that doctor with an administrator. It takes as many administrators in Germany to administer the act as it does doctors to care for the sick. He knows that there are 3,000 sections to the German Laws on Compulsory Sickness Insurance, and he fully appreciates the difficulties which confront the average workman in seeking his rights in the presence of such complicated legal machinery. He knows that during the last year, for every dollar spent on the insured English workman, fifteen cents was spent on administration. And finally, he thinks \$23,800,000 is a pretty large sum to spend on the administration of this system, which, at the best, provides him with second-class medical care.

Dr Mongan I think you make it rather clear, Dr Tighe, why American Labor has been so cool toward this type of legislation. Will you kindly proceed?

Dr Tighe It is human nature to want to get something in return for one's expenditure. In this way, those pretending to be sick are encouraged. The temptation to dishonest practices, on the part of the patient and doctor alike, is everywhere recognized as one of the great evils of Compulsory Sickness Insurance.

Dr Mongan The English system, Dr Tighe is being talked of as the model for the proposed American plan. May I ask you some questions about this English system?

Dr Tighe Yes, indeed, Dr Mongan.

Dr Mongan Is the English workman's health better since he had insurance?

Dr Tighe It is not, and if we are to accept the figures of the British Minister of Health, for a six year period, 1921 to 1927, we must arrive at one of two conclusions, either his health is very much worse or he has developed malingering to a fine art. These figures tell us that the incidence of sickness as indicated by benefit claims had jumped during the period 41 per cent for men, 60 per cent for unmarried women, and 106 per cent for married women.

Dr Mongan Have you any information, Dr Tighe, as to how mortality rates have been affected?

Dr Tighe Well, I know this, Dr Mongan, that from 1913 to 1933, the mortality rates in England dropped less than 10 per cent, while in this country, during the same period, these rates dropped 21 per cent.

Dr Mongan Dr Tighe, have you any figures by which the number of days which the English workman loses from industry due to illness, may be compared with those lost by the American workman for the same reason?

Dr Tighe Yes, I have, Dr Mongan. The English workman loses ten days each year because of sickness, and the American workman six and one-half.

Dr Mongan What about preventive medicine in England under Compulsory Sickness Insurance?

Dr Tighe Well, Dr Mongan, in England, the interest has been focused on those actually ill, and the emphasis has been largely away from preventive medicine as we know it in this country.

Dr Mongan Dr Tighe, are you able to tell us something about the amounts expended for poor relief in England under the insurance? You know it was expected that these amounts would be lessened.

Dr Tighe These amounts have not been lessened, but quite the contrary. They have continuously increased, and within the last two years, the most extensive measures ever proposed in England, have been put into operation.

Dr Mongan Dr Tighe, if Compulsory Sickness Insurance has failed to realize its ideal in a country like England, with its homogenous make-up, would you expect even greater difficulties with such a system in the United States?

Dr Tighe Yes, indeed, Dr Mongan. The make-

up of our country is extremely heterogeneous. The traditions of the origin of our people are extremely variable. These traditions in no small measure still are the dominant influences in the home, and in the problems, such as sickness, which closely touch the home. Furthermore Dr Mongan we are forty-eight small nations each with its own difficulties and its own problems and it would seem to me that it would be impossible for our Federal Government to formulate a Compulsory Sickness Insurance system that would meet the problems of all since we well know that the problems of no two are alike.

Dr Mongan Dr Tighe have you any information as to how insurance actuaries feel about Compulsory Sickness Insurance as an insurance scheme?

Dr Tighe My information and contacts make me feel that they do not think much of it as an insurance because of the absence of certain factors which are elemental to good, sound insurance. First our insurance laws are very insistent that all reserves be built up by any insurance scheme which is offered to the people. Compulsory Sickness Insurance makes no provision for such reserves. Secondly insurance men know that birth, old age and death permit of fairly accurate determinations. They feel, however, that there are so many moral elements which enter into the business of Compulsory Sickness Insurance as to preclude the possibility of sound actuarial guidance.

Dr Mongan Dr Begg you are the Dean of the Medical Department of Boston University and as such have many contacts with young men and much to do with their training in medicine. What effect would Compulsory Sickness Insurance have on the type and quality of the man presenting himself to you for training in medicine?

Dr Begg Today only the finest intellects are able to meet the entrance requirements of Medical Schools. Under Compulsory Sickness Insurance I am sure we would have to let the bars down considerably. This, of course, would lower the whole standard of American Medicine.

Dr Mongan Dr Begg how high is the American standard of Medicine today?

Dr Begg The highest in the world.

Dr Mongan Do you think, Dr Begg that the prevalence of Compulsory Sickness Insurance in Europe explains in any way the tendency to lose its medical leadership to the United States?

Dr Begg Yes, I do, because it is very difficult in any endeavor to maintain leadership when individual initiative is destroyed.

Dr Mongan Dr Begg could you tell us whence in your opinion, comes a great deal of the urge for Compulsory Sickness Insurance in this country?

Dr Begg Well, Dr Mongan I think it came from the majority report of the Committee on the Costs of Medical Care and later received a certain acceleration from the depression. This is the committee that was financed by the social foundations and which spent close to a million and one-

half dollars in its investigations. This committee found that there were ample facilities for medical care but that these facilities were not available to all the people.

Dr Mongan Can this majority report of the Committee on the Costs of Medical Care in this conclusion which you have just mentioned, have been speaking of Massachusetts?

Dr Begg No Dr Mongan this committee in its investigations did not touch Massachusetts at all and consequently cannot speak for Massachusetts.

Dr Mongan Dr Begg may I ask you as the Secretary of the Massachusetts Medical Society a question.

Dr Begg Yes indeed Dr Mongan.

Dr Mongan Is there a feeling in the Massachusetts Medical Society that there may be needed some change in the way in which medical care is made available to the residents of Massachusetts?

Dr Begg Yes and in response to that feeling the Massachusetts Medical Society has plans for a survey of medical conditions in certain key cities in Massachusetts. It is expected that this survey will demonstrate whatever difficulties there are. It is felt that when these studies are complete the Society will be in an excellent position to sponsor whatever remedies are needed and this the Massachusetts Medical Society is pledged to do.

Dr Mongan We hear Dr Begg much talk about the present high cost of sickness. Have you any ideas as to how these costs might be very materially reduced?

Dr Begg I believe I have. In the first place I think it is very pertinent, Dr Mongan to contrast these costs of illness, as they affect the physician, with the other common costs in American life. The average American family pays one hundred and fifty dollars for automobiles sixty seven dollars for tobacco thirty-seven dollars for candy thirty four dollars for soft drinks and chewing gum, twenty five dollars for radios and twenty four dollars annually to the doctor for its sickness care. The whole sickness bill of course is much larger but it is larger because the American public has many mistaken ideas as to what constitutes good medical care. Let the public cease its demands that hospitals maintain elaborate hotel-like accommodations, which add nothing to the successful diagnosis and treatment of disease. Let the public cease its demands for special nursing care in its trivial complaints. Let the public divert to its legitimate sickness costs the \$475,000,000 which it annually spends on quacks, cultists, and nostrums and it will have gone a long way toward reducing its sickness bill to a minimum.

Dr Mongan The proposed legislation of Compulsory Sickness Insurance brings into our social life a new and unusual element an element which forecasts a lowering of professional standards and professional practice. If Compulsory Sickness Insurance is ever adopted in any State in the Union, it will mean lay or political domination of the Med-

ical Profession The administrators of this law will be appointed by the Governor

In Massachusetts it would mean turning over the care of more than 1,500,000 people to a politically appointed commission The most intimate relationship of the sick person with his physician will no longer be a private matter but will inevitably become a public matter Generally speaking, the American people do not take kindly to compulsion But the idea of compulsion in Compulsory Sickness Insurance does not include all the people, but only a certain portion of the community who are labeled "A Low Income Group"

All compulsory legislation in Massachusetts, so far as I have been able to learn, is comprehensive and includes all the people Compelling a certain portion of the community to obey a certain law is quite new and dangerous

If we look about we can observe how Governmental supervision works in comparison with private enterprise Government control is not so effective

Has the Massachusetts Medical Society anything to offer in the way of adequate care for the sick? In the first place no one has questioned until now, the adequacy of medical care in Massachusetts No survey has ever been made, notwithstanding the fact that the invested capital in philanthropic institutions established for the purpose of caring for the sick is \$136,000,000 This statement does not include State Hospitals or certain City Hospitals in Massachusetts In 1933 these philanthropic institutions took care of 700,000 people, 300,000 of whom did not pay for their medical care Massachusetts is not like any other state in the United States It is feared by some students of social legislation that philanthropic hospitals could not be maintained at their present high efficiency if sickness insurance should prevail, and that inevitably these large institutions would fall under the control of the State

In Massachusetts the per capita wealth is greater than that of any other state with the possible exception of Connecticut The per capita share of money deposited in the savings institutions of all kinds (this includes savings banks, cooperative banks, savings departments of trust companies, and national banks) is greater than that of any other state in the Union Massachusetts is fast becoming a state of many and varied industries and our problems are very different from those of other states I also think that it will be admitted by most people that the private practice of medicine is more satisfactory for all citizens, than the governmental practice of medicine would be for a part of the community The position of the Massachusetts Medical Society can be stated as follows It opposes governmental or lay domination of the care of the sick It is at the present time making a survey of the adequacy of medical care available to Massachusetts citizens If it is found that medical service can be more adequately given, the Society pledges itself to do so, and the services will be those that will be best fitted to the social, financial, and economic condition of the citizens

Dr Mongan closed with thanks to WNAC for its graciousness in permitting the use of its broadcasting facilities

RECOGNITION OF DR HENRY A CHRISTIAN'S BIRTHDAY

At the regular Clinical Pathological conference held at the Peter Bent Brigham Hospital at noon on February 17, there was presented to Henry A. Christian, a volume of medical papers dedicated to him by his former students, colleagues and house officers, as a token of affection on his sixtieth birthday

There was a large attendance and the presentation was made by Professor Francis G Blake of New Haven Dr Blake in his address treated the volume as a pathological specimen, exhibiting all the various phases of disease usually seen on a medical service

Dr Christian in his reply emphasized his own happiness in his pupils and associates and amusingly noted that "in keeping with Brigham tradition' the volume was issued *on time*

The volume contains 1,000 pages of papers covering almost all phases of internal medicine and about equally divided between general articles, case reports and clinical and experimental research The contributions are geographically distributed as well About one half the articles represent original research which will probably not appear elsewhere

The edition is a limited one and the few copies available may be obtained from Dr Robert T Monroe at the Peter Bent Brigham Hospital

FIRE DESTROYS THE EXECUTIVE BUILDING OF MIDDLESEX COLLEGE, WALTHAM

The daily papers report that the executive building of Middlesex College was destroyed by fire the night of February 18

THE ELECTION OF DR EDWARD A KNOWLTON

At the annual meeting of the Federation of State Medical Boards, held at the Palmer House in Chicago on February 17, 1936, Dr Edward A Knowlton, of Holyoke, Massachusetts, and member of the Massachusetts Board of Registration in Medicine, was elected Vice President of the Federation for the ensuing year

THE MEDICAL HISTORY OF THE BLIZZARD OF 1888

Dr S M Strong of 42-33 Kissena Blvd of Flushing, New York, is interested in compiling data relating to the experiences of medical men in connection with the blizzard of 1888

He, with a number of friends, has organized a "business-like historic society" which has been known as "The Blizzard Men of 1888" The object of this organization is to collect individual accounts of experiences in connection with this storm which,

when compiled will give a history of this catas-
trophe.

It is hoped that physicians will contribute an ac-
count of unusual experiences at that time. Such
recitals may be sent to Dr Strong

CORRESPONDENCE

A CRITICISM OF SENATE BILL 323

February 10 1936

Dr Louisa Paine Tingley*
9 Massachusetts Avenue
Boston Massachusetts

Dear Dr Tingley

I wish to call to your attention Senate Bill 323
concerning opticians and optometrists which might
be of interest to you personally. There will be a
hearing on the bill before the Commission on Public
Health and Safety before it is submitted to the
House or the Senate.

The objectionable feature of this bill is that de-
spite the fact that physicians are exempt from ex-
amination they are, however subject to such rules
and regulations as the Board of Optometry may dic-
tate. This board, composed of four optometrists and
one optician will thereby rule and regulate oculists
in your state.

An article in a recent issue of *The Columbia
Optometrist* advocated that every refractonist and
every oculist be obliged to pass the optometry exam-
ination and an effort was being made to introduce
such legislation in every state.

I feel sure you will agree that continued en-
croachments in our field as in other divisions of
medicine have resulted in granting powers to dif-
ferent cults—a result not to the best interest of
medical science or to that of the public.

This letter is submitted for your information and
I trust you will endeavor to defeat this phase of
Bill 323 as it will assist us here in Connecticut if
unsuccessful in your state. May I ask you to ac-
quaint your fellow oculists with the situation?

Sincerely yours

(Signed) WM F REARDON President

Eye Ear Nose and Throat Society
of Hartford.

750 Main Street,
Hartford Connecticut.

Submitted by Dr Tingley

NOTICES

BOSTON DISPENSARY

25 Bennet Street Boston
Medical Conference Program
9-10 A M., March, 1936

Tuesday March 3—Bursitis Dr John D Adams
Wednesday March 4 — Multiple Myeloma Dr
H. E. MacMahon.

Thursday March 5—Nephritic Clinic. Dr R. W
Buck.

Friday March 6 — The Importance of Exact Diag-
nosis in Joint Disease. Dr Walter Bauer

Saturday March 7—The Neuroses Case Presen-
tation Dr Joseph H Pratt.

Tuesday March 10—Mistakes Made in the Diagno-
sis and Treatment of Syphilis. (Continued) Dr
F M Thurmon

Wednesday March 11—Indications for Radiation
Therapy Dr C E Dumas

Thursday March 12—Gastrointestinal Clinic. Dr
K S Andrews

Friday March 13—Lung Abscess. Dr Frederick
T Lord.

Saturday March 14—Hospital Case Presentation
Dr S J Thannhauser

Tuesday March 17—Analysis of Case of Poliomye-
litis Seen on the District Service during the 1935
Epidemic. Dr Edith Robinson

Wednesday March 18 — Quantitative Studies in
Nasal Obstruction. Dr H. J Sternsteln

Thursday March 19—Social Service Case Presen-
tation Miss Edith R. Canterbury

Friday March 20—Studies in the Interrelation of
the Thyroid and Adrenal Glands Dr Elliott C
Cutler

Saturday March 21—Hospital Case Presentation
Dr S J Thannhauser

Tuesday March 24 — X-Ray Demonstration Dr
Alice Ettlinger

Wednesday March 25—Electrosurgery of the Ab-
domen. Dr Lester Whitaker

Thursday March 26—Blood Clinic. Dr I. Olef

Friday March 27 — Thyroid and Psyche Dr
James H. Means

Saturday March 28—Hospital Case Presentation
Dr S J Thannhauser

Tuesday March 31—Pediatric Case Presentation
Dr Francis McDonald.

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M on Thursday March 5 in the Amphi-
theatre of the Peter Bent Brigham Hospital Dr
C Sidney Burwell, Dean of the Harvard Medical
School, and Physician Peter Bent Brigham Hospital,
will give a medical clinic. To it are cordially in-
vited practitioners and medical students.

On Saturdays in the wards of the Peter Bent Brigh-
am Hospital from 10 to 12 staff rounds will be
conducted

THE INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE

The International Congress of Physical Medicine
will hold its next regular session in London Eng-
land May 1-16 1936

This Congress has a large membership represent-
ing forty different countries. The coming session
will be held under the patronage of the British Gov-

enment The program, which will be based on advances in physical therapy technique particularly the scientific research developments, includes the following subjects for discussion

1 The physical and biological study of physical agents especially those which are of recent discovery and invention

2 The clinical and therapeutic indications of the different methods of physical treatment

3 An inquiry into the teaching of physical medicine in this country

The Congress will be in session for five days and a definite program of papers of general interest, which will be published in the near future, will be organized for discussion

The Congress has been subdivided into six sections

- a Kinesitherapy
- b Physical Education
- c Hydrotherapy and Climatotherapy
- d Electrotherapy
- e Actinotherapy
- f Radiotherapy and Radium Therapy

At the morning sessions, addresses will be given on a subject of general interest to all members of the Congress

There will be an exhibition of electro-medical apparatus

Special discussions on physical culture for recreation, remedial exercises in the treatment of the sick and on physical training have been organized

Other discussions will include (1) short wave high frequency electrical currents, (2) the production of pyrexia by physical methods and (3) sun bathing for the healthy and in the treatment of disease

Physicians interested in visiting this Congress are requested to communicate with Dr William D McFee of Boston, who has been delegated to organize the American contingent

WILLIAM D MCFEE, M.D., *Vice President,*
International Congress
of Physical Medicine

41 Bay State Road,
Boston, Massachusetts

UNITED STATES CIVIL SERVICE EXAMINATIONS

Associate Public Health Engineer, \$3,200 a Year
Assistant Public Health Engineer, \$2,600 a Year
United States Public Health Service,
Treasury Department

Applications must be on file with the United States Civil Service Commission at Washington, D C, not later than March 16, 1936

The United States Civil Service Commission announces open competitive examinations for the positions named above Vacancies in these positions in the field and in positions requiring similar qualifications will be filled from these examinations, un-

less it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion The salaries named above are subject to a deduction of 3½ per cent toward a retirement annuity

Duties—To supervise or perform research in public health engineering, to give advisory assistance to, and to aid in the organization of, State and local health departments, and to conduct general public health engineering activities In the performance of these duties the maintenance of diplomatic supervisory and administrative relationships with health officials and with cooperative agencies is required

REPORTS AND NOTICES OF MEETINGS

GREATER BOSTON MEDICAL SOCIETY

The Greater Boston Medical Society met February 4, 1936, at the Beth Israel Hospital Dr Harry Linenthal, president of the society, presided, and introduced Dr Richard Lewisohn of the Mount Sinai Hospital, New York City, who spoke on the topic Recent Advances in the Surgical Treatment of Chronic Duodenal Ulcer The subject of the proper surgical treatment of chronic duodenal ulcer has been extremely controversial since the introduction of gastroenterostomy some fifty years ago In 1920 the operation of partial gastrectomy in the treatment of duodenal ulcer was introduced, and there has been increasing use of this method since that time

Some surgeons have maintained that every case of peptic ulcer should be treated with gastric resection This view is not generally endorsed, since the mortality from resections of very high gastric ulcers is nearly twenty per cent, a rate too high to justify the procedure The vast majority of ulcers, however, are in the distal portion of the stomach, or in the duodenum and can be removed without undue danger In the hands of an experienced surgeon the mortality from partial resection of the stomach in these latter cases is no higher than that from gastroenterostomy

Gastroenterostomy as a treatment for nonobstructing duodenal ulcer is unsatisfactory for two reasons First, it frequently fails to relieve ulcer symptoms, since the gastric contents are not sufficiently lowered in acidity and continue to pass by way of the pylorus instead of by the gastroenterostomy stoma, thus continuing the irritation of the ulcer bed Secondly, 34 to 50 per cent of ulcer patients with gastroenterostomy subsequently develop gastrojejunal ulcers, a very serious complication Many gastrojejunal ulcers require surgical treatment, a formidable procedure which is associated with an excessively high mortality

If partial gastric resection is to supplant gastroenterostomy, it must fulfil two requirements The mortality of the operation must not be higher than that of gastroenterostomy, and the incidence of re-

current ulcers must be lower than that observed in gastroenterostomy. In two series of cases reported from the Mount Sinai Hospital the mortality from partial gastrectomy was but 1.5 per cent, as compared with the 2 to 3 per cent mortality from gastroenterostomy. Thirty-four per cent of the gastroenterostomy cases at the same hospital developed gastrojejunal ulcers within five years after the operation. In contrast, but seven per cent of a series of eighty-two cases of gastric resection suffered recurrent ulcers. Since these two series of results were obtained by the same surgeons and in the same hospital they may be considered reliable for comparison and show a distinct advantage of partial gastrectomy over gastroenterostomy.

Gastric resection should be extensive enough to produce a marked lowering in the gastric acidity and in 66 per cent of Dr Lewisohn's cases complete anacidity was produced. Pylorectomy does not produce a significant lowering of the gastric acidity of a degree sufficient to give any better results than those obtained from gastroenterostomy. Ulcers should not be excised locally since the scarring and contraction following such a procedure interfere with peristalsis and lead to difficulties.

The results from partial gastric resection for chronic duodenal ulcer are extremely gratifying and the great majority of patients are restored to complete health following recovery from the operation.

Dr Arthur W. Allen in discussing the paper agreed with Dr Lewisohn in believing partial gastrectomy to be the operation of choice in the surgical treatment of nonobstructing duodenal ulcer. Gastroenterostomy has not been successful in relieving the symptoms of duodenal ulcer. Particularly is this true in the cases which bleed profusely years after the performance of gastroenterostomy. A recent analysis of the cases at the Massachusetts General Hospital showed but a five per cent incidence of jejunal ulcer following gastroenterostomy.

Gastroenterostomy still has a place in the treatment of elderly individuals with marked scar tissue contraction at the pylorus (which not infrequently follows prolonged medical treatment). Obstruction is relieved and there is rarely an occurrence of gastrojejunal ulcer in these cases.

Dr Charles G. Mixer stated that surgical treatment was but an incident in the course of the disease of duodenal ulcer although the resection of a sufficient amount of stomach to cause gastric anacidity may effect a cure in many instances.

STAFF MEETING OF THE ST. ELIZABETH'S HOSPITAL

On January 3 at the staff meeting of the St. Elizabeth's Hospital Dr John A. Kolmer, Professor of Medicine at Temple University School of Medicine, and director of research at the Institute of Cutaneous Medicine, spoke on "Infection Immunity and Vaccination in Infantile Paralysis." Dr Joseph Stanton, chief of staff of the hospital, presided.

Dr Kolmer pointed out that the term "acute anterior poliomyelitis" is preferable to "infantile paralysis" since the disease is not confined to children or infants and only a small percentage of cases develop paralysis.

The majority of investigators think that a filtrable virus is the etiological agent of the disease, although Dr E. C. Rosenow of the Mayo Clinic believes that certain strains of streptococci are the responsible pathogens. Although streptococci can be recovered from a large percentage of the cords of fatal cases of the disease, Dr Kolmer believes that they are secondary and terminal invaders. The virus has never been cultured on lifeless media, although it has recently been propagated through six generations on tissue cultures thus suggesting the possibility of an improvement of the vaccine. The fact that poliomyelitis is a virus disease suggests that it may be successfully vaccinated against, since most virus diseases produce lasting immunity by one infection.

The virus usually enters the body by way of the nose and upper respiratory tract, although certain milk-borne epidemics have suggested that entry may occur through ingestion and invasion of the gastrointestinal tract. Experimentally it has been impossible to infect the macacus rhesus monkey by feeding the virus, although there is some evidence that other species of monkeys may be infected in this manner.

The mode of transmission of the disease still remains a mystery although Dr Kolmer believes it to be carried by normal immune adults and not by children. If this is true the prevention of the congregation of children during epidemics is not so important as prevention of the assembling of adults. The seasonal incidence of poliomyelitis is at its peak between the months of May and August, suggesting that an insect vector may be of importance in its conveyance. There is no positive proof of this supposition however.

The incidence of the paralytic type of poliomyelitis is very low and it is now believed that the disease is widespread and that most cases recover without paralysis. Prevention of the disease becomes of prime importance, when the marked rise in the incidence of paralytic and fatal cases occurring during epidemics is considered.

Immunity is usually conferred by one attack of the disease although some fifteen cases which have developed a second attack are reported. The only antibody discovered is known as a "neutralizing antibody." When active poliomyelitis virus is mixed with blood serum containing this antibody incubated and subsequently injected into the brain of a monkey it fails to produce the disease, since its activity is apparently neutralized by the said antibody. This method is the only means at present known which enables the determination of the presence or absence of the neutralizing antibody in the blood stream. Due to the fact that the macacus

rhesus monkey is the only animal known to be susceptible to poliomyelitis, it must be used for this test, which makes the determination of immunity and susceptibility an extremely costly matter. Other methods such as complement fixation, precipitin reactions, colloidal gold reactions, and skin tests have all failed, however.

Tests for this neutralizing antibody have shown that about eighty per cent of newborn children have passively acquired it by transplacental passage from the mother, and that this passive protection has completely disappeared by the end of the first year of life. Of children one to four years of age, fifty-eight to one hundred per cent (depending upon whether determinations are made upon city or rural populations) have been found to be without the antibody, and therefore susceptible to the disease. Between the ages of five and fourteen years, forty-six per cent of individuals are without the antibody, but after the age of fifteen years only twenty-five per cent of the population fail to show protection. These results indicate that the majority of persons contract the disease during childhood, and recover without residual paralyses.

Of 126 cases recovering from paralyzing attacks of poliomyelitis, 34.9 per cent failed to possess the neutralizing antibody in their blood serum. It is, therefore, assumed to be possible to have immunity to the disease without the presence of the antibody in the blood stream, suggesting that the true immunity is a tissue immunity and that the presence of antibody in the blood stream is merely a reflection of this more fundamental mechanism. Dr. E. W. Schultz of Stanford University Medical School has reported instances of monkeys which developed the acute infection in spite of the presence of the antibody in the blood stream. This report threatens many of the beliefs and hypotheses held relative to the disease, and requires investigation.

Vaccination against poliomyelitis has been the subject of a vast amount of investigative work. In 1910 Flexner found that subcutaneous injections of poliomyelitis virus into monkeys produced immunity to subsequent intracerebral virus injections. Some of these animals developed paralyses before immunity was acquired, however, and the method was deemed too dangerous to be applied to human beings.

It is impossible to produce immunity to a virus disease with a vaccine of dead or attenuated virus (Rabies vaccination may be a possible exception). Dr. Kolmer has developed a vaccine by treating the poliomyelitis virus with sodium ricinoleate. Such vaccine contains active virus, as determined by intracerebral inoculations in monkeys. The vaccine is administered subcutaneously in three divided doses at weekly intervals.

Of forty-two monkeys so vaccinated, ninety per cent developed immunity, as determined by sub-

sequent intracerebral injections of active virus. Only one of these animals developed a paralysis, which, however, was very mild. Of a control group of forty-two animals injected subcutaneously with untreated virus, two developed paralyses.

It is possible that the virus used in experimentation, and in the production of the vaccine, has been attenuated for human beings by its long series of passages through monkeys.

Dr. Kolmer first utilized his method of vaccination on himself and members of his family. No ill results were experienced and he injected a series of twenty-seven cases, determining production of immunity by means of the virus neutralizing test. Eighty-four per cent of the cases showed presence of the antibody in the blood stream following vaccination. Repetition of the tests one year later demonstrated persistence of the antibody in eighty per cent of the cases. Except for mild local reactions, none of the twenty-seven cases developed ill results from the vaccination.

Between April and October of 1935, 10,725 children were vaccinated with ricinoleated vaccine. Nine per cent of these showed mild local reactions, one to two per cent developed mild constitutional reactions with fever and vomiting. Twenty-six cases developed abscesses at the site of injection. These abscesses were due to the use of contaminated lots of vaccine, an eventuality guarded against in the future by the addition of one part in eighty thousand of mercuric nitrite to the vaccine at the time of preparation. There have been no allergic manifestations, no cases of myeloencephalopathy, or of lymphocytic chorio-meningitis in any of the patients vaccinated.

Nine of the children vaccinated developed paralyzing attacks of poliomyelitis during the course of injections. These misfortunes have caused doubt on the part of some workers as to the safety of the vaccine. All these cases developed between the eighth and fourteenth days after the first injection, some had received two injections, but none had been given the third. Dr. Kolmer believes that these cases were due to infection contracted before the vaccination, and that they were in the incubation period of the disease when vaccination was begun. It is possible that the administration of the vaccine to children in the incubation stage of the disease may increase the severity of the attack, due to the production of a transient so-called "negative phase" of immunity. He does not believe infection was caused by the vaccine.

Investigations are at present directed toward transmission of the disease to animals other than the monkey, in developing a more acceptable test of susceptibility than that in use at present, and in determining the efficiency and safety of vaccination with ricinoleated vaccine.

Dr. W. Lloyd Aycock, in discussing the paper, stated that neutralization of poliomyelitis virus by blood serum is an indication of previous ex-

posure to the disease and shows some degree of immunity. Neutralizing substances can be induced in the blood stream by a series of subcutaneous injections of active virus but this does not necessarily produce complete immunity to intracerebral or intranasal injection of the virus. Only sixteen per cent of monkeys receiving large subcutaneous injections of active virus develop the disease.

Dr Aycock questioned the value and safety of human vaccination against poliomyelitis. Determinations of virus neutralizing substances in the blood serum before and after vaccination have failed to show any great value in vaccination. Of a series of twenty-eight cases forty-three per cent possessed neutralizing antibodies in the blood before and seventy-three per cent following vaccination. In the control group of thirty-six cases, forty-one per cent possessed the antibody before, and sixty-seven per cent after the lapse of a period of time identical to that between tests in the first group. It is thus seen that there is only a two per cent advantage to vaccination, a very small one especially when the danger of the process is considered.

In discussing the cases of poliomyelitis developing after vaccination, Dr Aycock pointed out that the incubation period of the disease in the monkey is usually seven to fourteen days. The human cases appeared between the sixth and fourteenth days following the vaccine injections. It is more probable that the injections caused the infections than that they were contracted prior to the vaccinations. Modification of the virus results only in prolonging the incubation period and does not alter the severity of the disease.

The incidence of poliomyelitis in the United States is one case per thousand population. Approximately twenty thousand children have been vaccinated with ricinoleated virus to date and at least fifty per cent of these have previously acquired immunity as indicated by the virus neutralization test. Thus ten thousand susceptible children have been vaccinated. Of this group twelve have developed the disease after vaccination. The incidence of postvaccinal infection is thus seen to be higher than the usually observed rate in unvaccinated children.

The prevention of poliomyelitis depends upon the development of a safer and better method of vaccination and upon perfection of some method of determining susceptibility to the infection.

Dr Hans Zinsser emphasized the fact that there is no evidence that immunity can be produced by the inoculations of small amounts of dead virus. It is possible that attenuated virus may produce immunity but attenuation is difficult to achieve and more particularly to control. In his own work in herpes immunity which is closely analogous to poliomyelitis, it was shown that the development of immunity followed only when some sort of reaction to living virus was evident. In poliomyelitis evidence available from animal inoculation seems to

show that even with living virus it requires a large number of injections into or under the skin to produce a protection against subsequent intranasal instillations. The mere fact that a large majority of individuals subcutaneously injected with a poliomyelitis preparation do not develop the disease means relatively little since we know that in the analogous problem of rabies immunization only a small percentage of susceptible animals will come down, even when large amounts of living virus are subcutaneously administered.

The incidence of poliomyelitis following the injection of Dr Kolmer's vaccine is low but this may not be because the virus is modified by ricinoleate, but because it is difficult to produce poliomyelitis by the subcutaneous route. Dr Zinsser does not believe that living poliomyelitis virus should be injected subcutaneously into children even though it is known that this but rarely causes the disease and may cause immunity. He believes that lines of investigation thoroughly worked out in a preliminary way on animals should follow those of serovaccination and increased efforts at tissue culture, so that higher concentrations of virus may eventually be obtained thus making immunization with dead virus a possible prospect.

Dr John F. Casey told of vaccinating himself and his children with Dr Kolmer's vaccine and of his belief in its safety. The cases developing the disease following vaccination occurred in communities in which the incidence of poliomyelitis was much higher than the usual one per thousand which causes doubt as to the responsibility of the inoculations for the development of the disease.

REPORT OF COMMITTEE ON VACCINATIONS IMMUNIZATIONS AND EXAMINATIONS OF WELL BABIES AND PRESCHOOL CHILDREN

A meeting of the committees from the Middlesex South, Suffolk and Norfolk District Medical Societies in regard to the organization of the medical profession in Boston to furnish immunization against diphtheria, and vaccination to the public at a fee commensurate with the individual's ability to pay was held at the rooms of the Massachusetts Medical Society on Wednesday December 4 1935 at 4 00 P.M.

The following committee members were present
Middlesex South District—Dr John F. Casey Dr Leo G. Rondeau, and Dr Wilfred G. Grandison.

Suffolk District—Dr Channing Frothingham and Dr John J. Todd

Norfolk District—Dr Henry Landesman Dr David L. Lionberger and Dr John B. Hall.

In addition to the committee members Dr Sumner H. Remick, President of Middlesex South Dr Robert L. DeNormandie President of Suffolk Dr Leighton F. Johnson President and Dr Frank S. Cruikshank, Secretary of the Norfolk District Medical Society were present.

It was the unanimous opinion that doctors should

Sunday, March 8—

4 P.M. Free Public Lecture, Harvard Medical School,
Building D Longwood Avenue Vitamins Dr
W B CastleFebruary 27—Massachusetts General Hospital Clinical
Meeting of Staff at 8 15 P MFebruary 27—Clover Hill Hospital, Medical Meeting,
161 Berkeley Street, Lawrence, at 9 P MFebruary 27, 28, 29—New England Hospital Association,
Hotel Statler, BostonMarch 2—Postponed meeting of the Boston Medical
History Club See page 449March 2 6—The American College of Physicians See
page 91, issue of January 9March 3 31—Boston Dispensary, Medical Conference Pro-
gram See page 443

March 4—Greater Boston Medical Society See page 449

March 5—Medical Clinic, Peter Bent Brigham Hospital
See page 443March 5—Faulkner Hospital Clinical Meeting See
page 449March 6—American Society for the Control of Cancer
See page 398, issue of February 20

March 10—Harvard Medical Society See page 449

March 13—William Harvey Society, Beth Israel Hospital,
Boston, at 8 P MMarch 30—Springfield Medical Association, 8 30 P M
at the rooms of the Springfield Academy of Medicine,
20 Maple Street The Development of Surgical Practice
in Springfield Dr John M BirnieApril 20 24—A Postgraduate Institute in Philadelphia
See page 224, issue of January 30May 12 16—The International Congress of Physical Med-
icine See page 443June 15 19—The Executive Board of the Catholic Hos-
pital Association will meet at the Fifth Regiment Armory,
Baltimore, MdJune 16 July 28—Summer Course in Bacteriology See
page 385 issue of February 20September, 1936—First International Conference on
Fever Therapy See page 1325, issue of December 26,
1935October 19 23—Clinical Congress of the American Col-
lege of Surgeons See page 180 issue of January 23**DISTRICT MEDICAL SOCIETIES****ESSEX SOUTH DISTRICT MEDICAL SOCIETY**March 4—Wednesday Lynn Hospital Clinic 5 P M
Dinner 7 P M Speaker Dr Timothy Leary Subject
ArteriosclerosisApril 1—Wednesday Essex Sanatorium, Middleton
Clinic 5 P M Dinner 7 P M Speaker Dr Richard H
Overholt of the Lahey Clinic Subject Chest Surgery

May 7—Thursday Censors Meeting

May 13—Wednesday Annual Meeting Salem Country
Club Dinner at 7 P M Speaker Dr Paul White Sub-
ject to be announced later

R. E. STONE, M.D., Secretary

88 Lothrop Boulevard, Beverly

FRANKLIN DISTRICT MEDICAL SOCIETYMeetings are held on the second Tuesdays of March
and May at the Weldon Hotel, Greenfield, at 11 A.M.

CHARLES MOLINE, M.D., Secretary

Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETYMeetings to be held at the Bear Hill Golf Club, Stone-
ham, at 12 15 P M

March 11, May 6

K L MACLACHLAN, M.D., Secretary

1 Bellevue Avenue, Melrose

NORFOLK DISTRICT MEDICAL SOCIETYMarch 31—Hotel Kenmore, at 8 P M Dr Benedict F
Boland—Cauterization of the Cervix Uteri Using Various
Electrical Methods Illustrated with lantern slidesMay—Annual Meeting (Place, date and subject to be
announced)The censors meet for the examination of candidates
May 7, 1936 November 5, 1936

FRANK S CRUICKSHANK, M.D., Secretary

1236 Beacon Street Brookline

PLYMOUTH DISTRICT MEDICAL SOCIETYMarch 19—Plymouth County Sanatorium South Han-
son

April 16—Brockton Hospital

May 21—Lakeville State Sanatorium

G A MOORE M.D. Secretary

167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETYMarch 18—Meeting at the Boston Medical Library
The Laboratory and Clinical Story of Fatigue, Dr
Arrie V Bock and Dr David B Dill Discussion Dr
Donald J MacPherson and Dr Augustus Thorndike, JrApril 29—Annual Meeting at the Boston Medical Library
The Treatment of Septicaemia, Dr Champ Lyons. The
Pleurality of Scarlatinal Streptococcus Toxin, Dr San-
ford B Hooker Discussion Dr Hans ZinsserThe medical profession is cordially invited to attend
these meetingsROBERT L DeNORMANDIE M.D., President,
CHARLES C LUND, M.D., Secretary**WORCESTER DISTRICT MEDICAL SOCIETY**March 11—Wednesday evening Memorial Hospital,
Worcester, Mass Dinner and scientific programApril 8—Wednesday evening Hahnemann Hospital,
Worcester, Mass Dinner and scientific program Sub-
jects of program to be announced laterMay 13—Wednesday afternoon and evening Annual
Meeting of Society Time, place and details of program
to be announced in an April issue of the Journal

ERWIN C MILLER, M.D., Secretary

27 Elm Street, Worcester

BOOK REVIEWS**The Pathology of Internal Diseases** Second Edi-
tion William Boyd 904 pp Philadelphia Lea &
Febiger \$10 00

The second edition of this presentation of path-
ology from the clinical angle, particularly the med-
ical, will continue the well deserved popularity of
the first edition Written in Boyd's lucid and pleas-
ant style, well illustrated and adequately supplied
with references, it serves as a thoroughly satisfac-
tory reference book for the practitioner The dis-
eases are considered in relation to the organ in-
volved and an excellent correlation of pathology
and symptomatology is given The section on
rheumatic fever is excellent although the reviewer
feels that the discussion of etiology should be more
adequate, and Rinehart's work on the supposed re-
lationship of scurvy to rheumatic fever perhaps is
given more prominence than it deserves The dis-
cussion of pulmonary tuberculosis is very clear and
satisfactory The discussion of liver pathology is
particularly well presented Under the thyroid, the
presentation of Riedel's struma is not balanced by
its more important counterpart, the struma lympho-
matosa The section on the etiology of Hodgkin's
disease is clear and fairly presents the different
viewpoints

These scattered notes hardly indicate the high
standard of excellence maintained in the whole
volume

The Medical Record Visiting List for 1936 Pub-
lished by William Wood & Company in three sizes,
\$1 75 to \$2 50 each

This little volume, published annually, has been
revised to supply information relating to emergen-
cies, and contains sections for recording special
treatments It is especially adapted to keeping the
physicians financial daily records

The New England Journal of Medicine

VOLUME 214

MARCH 7, 1936

NUMBER 10

NEW ENGLAND SURGICAL SOCIETY

ONE HUNDRED UNTREATED CANCERS OF THE RECTUM*

LY ERNEST M. DALAND, M.D.,† CLAUDE L. WELCH, M.D.† AND IRA NATHANSON, M.D.†

THE success of the treatment of any disease is measured by a study of the cases treated in comparison with a group which is untreated. It is essential to study the natural history of cancer to determine the benefits of treatment. Although the importance of such a study seems obvious, it is surprising that very little such information has been presented in the literature.

The only adequate series of untreated cases of cancer of the common types in other countries are presented by the British Ministry of Health. Large series of cancers of the breast, uterus, rectum, tongue and mouth, and esophagus have been studied by this committee.^{1,2} Untreated cancer of the breast has been studied in Switzerland by Lukac.³ In this country a start has been made by a survey of one hundred untreated cancers of the breast by Daland,⁴ but other groups of cancer have not been analyzed.

Cancer of the rectum is one of the most common types of malignant disease. We have chosen it for this discussion because of the comparatively large number of untreated cases that we have been able to observe, and because we have also been able to see the results of treatment by other methods in the same hospitals.

TABLE 1
DISTRIBUTION OF UNTREATED CASES

Hospital	No. Cases	Years
Collis P. Huntington Memorial	44	1912-35
Pondville Hospital	41	1927-35
House of the Good Samaritan	10	1912-32
Massachusetts General Hospital	5	1910-32
Total	100	

These one hundred cases have been taken from the Collis P. Huntington Memorial Hospital, The Pondville Hospital, The House of the Good

From the Collis P. Huntington Hospital, Boston, the Pondville Hospital (Massachusetts Department of Public Health), Wrentham, The House of the Good Samaritan, Boston and the Massachusetts General Hospital, Boston.
Read at the Annual Meeting of the New England Surgical Society at Manchester, N. H., September 27, 1935.

†Daland, Ernest M.—Chief of Staff, Pondville Hospital, Wrentham, Welch, Claude L.—Assistant Surgical Resident, Massachusetts General Hospital, Nathanson, Ira T.—Lilla C. Research Fellow in Surgery, Harvard University Medical School. For record and addresses of authors see "This Week's Issue," page 491.

Samaritan and the Massachusetts General Hospital. The three hospitals first mentioned are cancer hospitals and all cases in their record files have been considered. The Massachusetts General Hospital is a hospital for acute illnesses but we were able to find five who died without treatment. All records have been checked very carefully, letters have been written to hospital physicians and relatives, we have reviewed the death certificates and feel certain that none of the patients mentioned in this series ever received any treatment. A microscopic diagnosis of carcinoma was made in thirty-five cases, either from biopsy or postmortem material.

The length of life, the comfort of the patient and the comfort of his family are the only measures of comparison between treatment and non-treatment. The length of life can be accurately determined and furnishes a valuable index of the benefits of various types of treatment. The comfort of the patient, on the other hand, cannot be reduced to figures, but there is hardly a more miserable man alive than one with an advanced cancer of the rectum. This is so well realized that many surgeons feel that desperate chances should be taken to attempt a cure by radical surgery rather than let the patient go on to the advanced stages. Not only is the untreated patient ever in distress, but he is a source of trouble to his whole family. A well functioning colostomy opening is much easier to care for than an incontinent rectum.

All of our data have been computed from the onset of the symptoms which we interpret as due to the disease. A change in bowel habits is the criterion we have used in determining the date of onset of symptoms. The actual beginning of the cancer must have antedated the first symptom.

Why were these patients untreated? We can not give an exact answer. Some patients were too old or in too poor condition. Some were deterred by the thoughts of a colostomy or by the magnitude of the radical operation. The disease in some patients when first examined was too advanced for treatment. In still others, the medical advice before admission to the hospital was poor because of inadequate rectal examina-

tion, prejudice against colostomy or lack of faith in suigery

There were fifty-six males and forty-four females in our series. The youngest was thirty-two and the oldest ninety-two. The average age at onset of symptoms was 59.6 years. The median age was fifty-nine years,—that is, there were as many under fifty-nine years as there were over it. Table 2 shows the age distribution by five-year periods. The cases are fairly

in one patient who lived forty-nine months. The females lived slightly longer than the males, the median length of life was sixteen and fourteen months, respectively. The accumulated death curve of all untreated cases is shown in figure 1.

COLOSTOMY

In order to determine whether performing colostomy prolongs life, we have analyzed the

TABLE 2
AGES AND DURATION OF LIFE FROM ONSET OF SYMPTOMS

Age	Untreated Cancer of Rectum		Colostomy Only		Colostomy and X-Ray Treatment	
	No Cases	Av Duration Life	No Cases	Av Duration Life	No Cases	Av Duration Life
30-34	1	25 (months)	3	19 (months)	—	4 (months)
35-39	3	12.3	0	—	1	22.7
40-44	6	23.8	9	11	4	17.5
45-49	11	18.5	8	19	7	33
50-54	14	18.6	14	19	3	32
55-59	17	14.9	12	19	2	16.5
60-64	12	25	14	12	4	11.5
65-69	11	18.2	10	20	6	12.5
70-74	15	15.2	6	16	4	24
75-79	7	11.4	3	23	1	
80-84	1	15	0	—		
85-89	1	19	1	14		
90-94	1	23				
100 All died of Cancer			80 All died of Cancer		32 All died of Cancer	
Median length of life from onset—14 months			Median length of life from onset—14 months		Median length of life from onset—15 months	
Average length of life from onset—17.2 months			Average length of life from onset—16.9 months		Average length of life from onset—18.8 months	

evenly distributed between the ages of forty-five and seventy-five. Twenty per cent of the cases were found outside of these limits. Table 2 also shows the duration of life from onset of

records of eighty patients in whom colostomy was done without any other treatment. Sixty-five of these were from the Pondville Hospital and fifteen from the Collis P. Huntington Memorial Hospital. Fifty-nine were males and

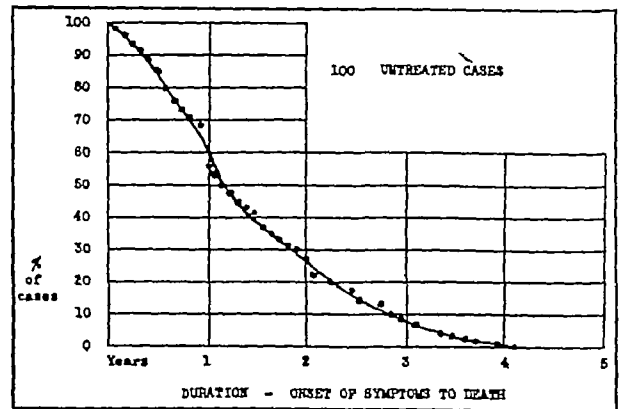


FIGURE 1 Duration of life in 100 untreated cancers of the rectum

symptoms to death in each age group. There is no significant variation in the length of life in the various groups. The average length of life was 17.2 months. The median length of life was fourteen months. One patient died one month after onset. The longest duration was

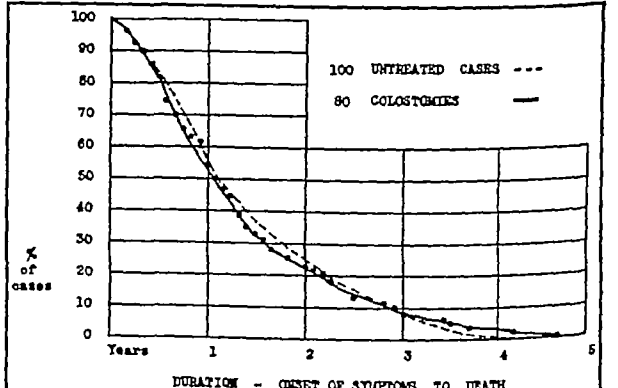


FIGURE 2 Duration of life in 80 colostomies compared with 100 untreated cancers of the rectum.

twenty-one were females. The average age at onset was 58.1 years, the median age was fifty-eight. All of these patients died of cancer, the length of life varying from two to fifty-six months after the onset of symptoms. One quarter of these patients were dead in seven months,

one half in fourteen months, three quarters in twenty four months after onset of symptoms. The median length of life from onset to treatment was seven months, from treatment to death, five months and from onset to death four teen months. The average length of life following colostomy was six months, the average from onset to death was 16.9 months.

Table 2 shows the average duration of life in the different age periods. The youngest patient was thirty two and the oldest eighty eight. It will be observed from the table that the age of the patient bears no relation to the duration of the disease. Figure 2 shows that patients who have had colostomy done live no longer than the untreated cases, in fact the two curves of duration of life are practically identical. The comfort of the patients then is the only consideration in performing a colostomy.

We have included in this series twenty four patients who have come to us after having had a colostomy done elsewhere. Of the fifty six others in whom we advised colostomy there were seven strictly operative deaths, a mortality of 12.5 per cent. Some of these operations were done in local hospitals, but the majority were done at the Pondville Hospital or the Huntington Hospital.

COLOSTOMY AND X RAY

The effect of x ray treatment to the local lesion in connection with colostomy has been studied in another group of thirty two cases. All but three of these patients were treated at Pondville. The amount of x ray therapy in these cases varied from 300 r to 2800 r units. In the majority of cases the intention was to relieve pain in the pelvis. In very few was the dosage sufficient to expect any change in the tumor. It is not fair to conclude from this small series of partially treated cases that x ray therapy is of no value. However, in these clinics we have not been impressed with its value in any case except for the relief of pain. It is of some benefit for this purpose in instances.

This series is closely comparable with the colostomy group. These were twenty three males and nine females. The average at onset was fifty seven years, the median age the same. All of these patients died of cancer, half of them being dead at fifteen months after onset of symptoms. The length of life from onset varied from four months to forty five months. The median length of life from onset to treatment was seven months, from treatment to death eight months and from onset to death, fifteen months. It is possible that the increased median length of life from treatment to death, compared with patients in whom colostomy only was done was due to the fact that x ray therapy was used in the patients in whom the expectation of life seemed longer. Also this group represents only those who survived the colostomy

operation, for the operation was always done before x ray treatment was given. The average length of life following colostomy and x ray treatment was 9.5 months, the average from onset to death 18.8 months.

Table 2 shows the distribution by age groups and the respective length of life. The numbers in each group are too small to be significant statistically. The youngest patient was thirty eight and the oldest seventy six. Figure 3

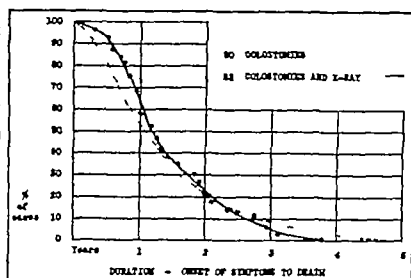


FIGURE 2. Duration of life in 32 patients having colostomy and x ray treatment, compared with those having colostomy alone.

shows a close similarity in the curves of the patients treated by colostomy and x ray and those in whom only a colostomy was done.

RADICAL OPERATION

The group of forty two radical operations here studied represents all the patients who came to the Huntington Hospital between 1912 and 1930 who were referred elsewhere for resection. None of the operations were done at the Huntington Hospital as the hospital is not equipped to do major abdominal surgery. The operations were done in nineteen different hospitals, ten of which are in Boston. End results were obtained in all cases.

There were twenty five males and seventeen females. The youngest patient was thirty six and the oldest was seventy four. The average age at onset of symptoms was 54.5 years, the median age was fifty-six years. The median length of life from onset to treatment was eight months. The median length of life from treatment to death was twenty seven months. Table 3 summarizes this series by age groups. Of the forty two patients in whom the radical operation was done eleven died as the result of the operation. This gives an operative mortality in the nineteen hospitals of 26.2 per cent. Thirty three per cent were alive five years after onset of symptoms. Two patients died of intercurrent disease without recurrence within the five year period. This gives us forty cases on which to base our percentage of cures. Twelve patients (30 per cent) were alive and free from disease for five years after operation. Seventeen patients died with cancer.

Figure 4 shows the death curve of the radical resections in comparison with that in the untreated cases. Figure 5 shows the length of life after operation in patients who had colos-

TABLE 3

AGES OF RADICAL OPERATION CASES AND RESULTS

Age	No Cases	Opera- tive Fatalities	5 Year Cures	Died of Inter- current Disease Within 5 Years	Died of Can- cer
35-39	1	0	0	0	1
40-44	5	2	1	0	2
45-49	7	1	4	0	2
50-54	7	3	0	0	4
55-59	7	3	1	0	3
60-64	8	1	2	1	4
65-69	5	0	4	0	1
70-74	2	1	0	1	0
	42	11 (26.2%)	12 (30%)*†	2	17

*Based on 40 cases omitting deaths from intercurrent disease
†Excluding operative deaths 5 year cures are 41 per cent

tomies performed and those who had radical resections done

SEX

In the four groups studied above there were 254 cases. Three of the hospitals from which this material was obtained admit both men and women. The House of the Good Samaritan admits women only. Hence, in studying sex incidence, we must eliminate the ten cases from

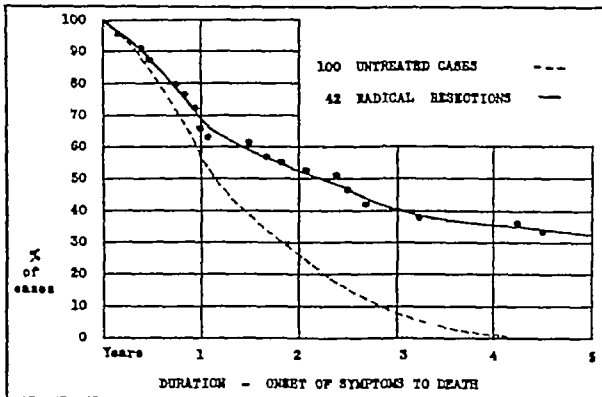


FIGURE 4 Duration of life in 42 radical resection cases compared with the untreated group

that hospital. Of 244 cases, 163 were males and 81 were females,—exactly a 2:1 ratio.

It is generally accepted that cancer of the rectum is more common in males than in females. David⁶ says that rectal cancer involves the two sexes almost equally but there is a slight preponderance in the male. In Gant's⁷ series fifty-two per cent were males and forty-eight per cent females. Pack and LeFevre⁸ found 69.7 per cent were females. Miles⁹ quotes a 6:5 ratio between males and females. In the

group where colostomy alone was possible, Gabriel¹⁰ found a 3:1 ratio for males, Rankin, Barger and Buie¹¹ found about the same ratio.

The British Ministry of Health³ states that the operability in four published series was much higher for women than for men, and Rankin, Barger and Buie agree that this is so.

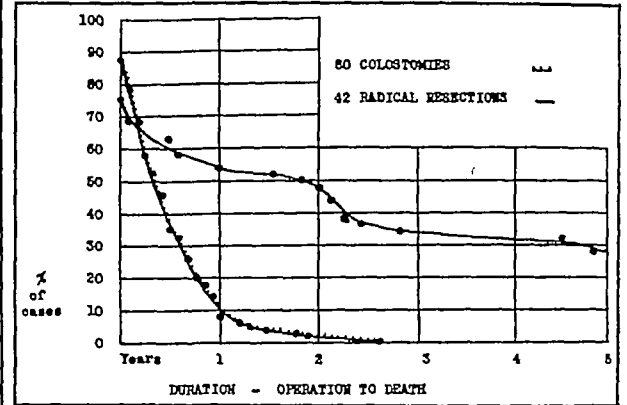


FIGURE 5 Duration of life after operation in colostomy and radical resection cases

This may explain the reason why the female ratio is so low in the cases submitted to colostomy in the series mentioned above.

In our own study we have found that in all groups, within the limits of error, the males hold almost exactly the same 2:1 ratio, whether the patients are treated or not. This is shown in table 4.

TABLE 4

SEX INCIDENCE

	Male	%	Fe- male	%	Total
Untreated rectal cancer	56	62.2	34	37.7	90
Colostomy	59	73.7	21	26.2	80
Colostomy and x-ray	23	71.8	9	28.1	32
Radical resection	25	59.5	17	40.4	42
Total	163		81		244

DISCUSSION

Reports of the British Ministry of Health show some variation in the different studies that have been made of untreated cancer of the rectum. In Report No. 33¹, 887 cases are analyzed with a median duration of life of twenty-one months from onset of symptoms. In a later report (Report No. 66)³, comprising ninety-five cases, the median duration was 8.5 months. We are unable to explain the wide difference in their two series. Our median length of life was fourteen months, about midway between the two British series.

We agree with the following statement made by the British Ministry of Health:

"It will be seen that, either there is no significant relation between age at onset and duration of life, at the least, these data are not numerous

enough to establish it. It should be remarked that the mean duration is so small in comparison with the average duration of life from any age within the range (the average after lifetime at the age of seventy exceeds $8\frac{1}{2}$ years in both sexes) that the decrease of normal expectation of life with age is unimportant in comparison with the difference between the expectation of the untreated patient and that of a normal person at any age within the range."

Hayden and Shedden¹ have analyzed all the cases treated by radium at the Collis P. Huntington Hospital. They concluded that patients treated by radium alone lived no longer than if untreated, that the patients in whom colostomy has been performed lived four months longer, on the average than if untreated and that the patients treated by colostomy plus radium lived four months longer than if colostomy

they were untreated, treated by colostomy, or by radical resection.

4 The median age of the patients subjected to radical operation was three years less than in the untreated group.

5 The median delay from onset to treatment was eight months in the radical cases and seven months in the colostomy cases.

6 In this series the operative mortality rate for colostomy was 12.5 per cent and for radical resection 26.2 per cent. The five-year curability was 30 per cent. We consider these results a fair cross-section of the results being obtained by surgeons in this community during this period, but they are by no means the optimum results that may be obtained.

CONCLUSIONS

Patients suffering from cancer of the rectum will live as long if no treatment is given as they

TABLE 5

	Untreated	Colostomy	Colostomy and X Ray	Radical
Number	100	80	32	42
Sex	M 56 F 44	M 59 F 21	M 23 F 9	M 25 F 17
Average Age at Onset	59.6 yrs	58.1 yrs	57 yrs	54.6 yrs
Median Age at Onset	59 yrs	58 yrs	57 yrs	56 yrs
Average Length Life Onset to Death	17.2 mos.	16.8 mos	18.8 mos.	—
Median Length Life Onset to Death	14 mos	14+ mos.	15+ mos	27 mos
Average Length Life Onset to Treatment	—	10.8 mos	9.3 mos	8.7 mos.
Median Length Life Onset to Treatment	—	7 mos.	7 mos	8 mos
Average Length Life Treatment to Death	—	6 mos	9.5 mos	—
Median Length Life Treatment to Death	—	5 mos	8 mos	22 mos.
Operative Mortality	—	12.5% (7 of 56 cases)	—	26.2%
5 Year Cures	—	—	—	30%

alone had been done. Their group of cases in which colostomy alone was used was small; hence, we believe, the difference between their figures and ours.

The operation for cancer of the rectum done in this series was, for the most part, either the two-stage operation advocated by Jones or the one-stage operation recommended by Jones and Miles. We cannot compare our results with those published by Jones¹² in regard to operative mortality or curability because we do not know the percentage of operability in our group.

SUMMARY

1 The median duration of life in 100 untreated cases of cancer of the rectum was four teen months. Untreated patients lived from one to forty nine months after onset of symptoms.

2. Colostomy (80 cases) or colostomy combined with x ray treatment (32 cases) did not prolong life appreciably in comparison with the life duration of untreated cases.

3 There was a two to one predominance of males over females in the cases studied, whether

will if a colostomy is performed and nothing further done. However, they are much more comfortable during the fourteen months they have to live if they do submit to colostomy. X ray treatment combined with the colostomy operation may aid in relieving pain.

The operative mortality for the radical resection of the rectum in one or two stages is low enough to warrant radical surgery when there is probability that the growth can be removed. The duration of life is much longer than in the other groups and the patients are free from symptoms during this increased span of life. There is a thirty per cent possibility of cure for at least five years.

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DISCUSSION

DR CLAUDE WELCH Since Dr Jarvis has already spoken of propagandizing the medical profession, you may excuse a younger man if he uses the same terms in speaking of cancer of the rectum. The value of Dr Daland's paper, it seems to me, lies in the fact that it points out very concretely the value of radical operation in any case of cancer of the rectum.

In speaking of that fact, it would have been of great advantage if we had been able to present a curve of radical operations in which there were no operative mortalities and one hundred per cent cures. We feel that our figures do not represent the optimum, by any manner of means. For example, Dr Jones' figures of eleven per cent mortality in his private patients and Dr Lahey's results which were reported here last year of slightly over eight per cent in his private patients, make one realize that we have not presented these data as best we could to tell the medical profession that operation is desirable.

In order to see whether there has been any improvement in operating on these patients, I have reviewed the cases in the Massachusetts General Hospital from the year 1930 to 1934 inclusive. During this five-year period there was an operability rate of sixty-three per cent. That is a figure we could not include in our paper because we could not obtain it from the Huntington Hospital records.

This means that sixty-three per cent of all patients admitted to the wards of the Massachusetts General Hospital or Tumor Clinic were subjected to radical operation before they left. There were, during this five-year period, one hundred and seven radical operations done by twenty-two different operators, all the way from Dr Daniel Jones down to the surgical resident.

The operative mortality in this large group was 14.1 per cent over this period. During the last year, 1934, there were twenty-nine operations done, with one death. The operability rate this year was seventy per cent. These results contrast very favorably with the slightly over twenty-six per cent mortality that Dr Daland has reported in his cases. I think as soon as the medical profession realizes that the mortality from operation is not so high as it has been led to think previously, and that the number of five-year cures have increased remarkably, we shall gain in the treatment and control of cancer of the rectum.

PRESIDENT JOHNSON Discussion of this paper will be opened by Dr Lyman Allen.

DR LYMAN ALLEN, Burlington, Vt. I have not very much to add to this discussion. I looked up the number of cases of cancer of the rectum we had had in our two hospitals in Burlington in the last five years, but I did not receive notice that I was to

discuss this in time to follow them up fully. The follow-up part of it which I tried to do was very unsatisfactory, which leads me to think that most of them have already passed beyond where we can succeed in following them up.

I found, however, that in five years in these two hospitals, of about two hundred and fifty beds, we have had only thirty-four cases of cancer of the rectum. Ten of these had no operation, whatever, and of the ten, five died while they were in the hospital, which means they were admitted in the last stages probably, too late to do anything. Twelve of the thirty-four had colostomies and we had no hospital deaths in that number.

With thirty-two out of thirty-four with either no operation or colostomy only, it means either that the cases were seen too late to make radical operation worth while, or that the patient refused radical operation. It is probably partly one and partly the other.

Five had treatment by radium and one of these cases later had a colostomy. There was no death in that list of five cases, again, evidently late cases. Only seven had radical operation and of these seven, three died, forty-two per cent. One was a cautery operation, one was a perineal operation, and five were two-stage operations. The deaths all came in the two-stage operations.

One of those radium cases, the only one I could follow, lived three years and a half, at least. The colostomies lived for varying times fifteen months, to two years. As I have said, many of them I could not follow. Our youngest patient was thirty-two and our oldest was seventy-nine.

So cancer of the rectum is not necessarily a disease of even middle age. There were twenty-two males and twelve females, which is practically the proportion given here in this paper.

It has been suggested that a complete rectal examination should be made on all the population of the country. Obviously, it is impossible to do that, but the suggestion was made in a recent paper. I do think we might say that a rectal examination should be made and could be made upon every patient that comes to us for a full check-up, as they call it. I do not think that is asking too much.

If that were done, we should get a larger percentage of early cases. As it is, since there are no early symptoms, the patient has had cancer of the rectum for some time before he presents himself to us.

In my opinion, radical operation is indicated whenever the patient will allow it. The mortality is high in the ordinary operator's hands, but I think if I had cancer of the rectum, I should welcome a high mortality.

PRESIDENT JOHNSON Dr Walter Seelye

DR WALTER C SEELYE, Worcester, Mass. I am very much interested in the mere fact that Dr Daland has been able to assemble one hundred cases of untreated cancer of the rectum. I think it is a remarkable thing to have followed up so many cases and have statistics as a criterion upon which to base operative treatment.

As has been said here and emphasized so much, the mortality of cancer of the rectum by radical operation is high, but the tables which have been shown are very interesting in that they bring out the fact that even with the high mortality, high operative mortality, you have a five-year cure of thirty per cent in Dr Daland's series, and thirty-four per cent, I believe, in Dr Jones' series of five-year cures.

All that goes to show that in the first place technique can be improved to reduce the operative mortality, and in the second place, the cases of five-year

time can be markedly increased if the length of time between beginning of symptoms and operation is reduced.

There is one thing that has impressed me very much in going over this subject, as Dr Daland has presented it, and as had been presented in other papers of Dr Jones. They emphasize an average of eight months' duration, and it is interesting to see that all statistics agree so closely in just about the eight months period from onset of symptoms to the time the patient is brought in for treatment.

The only way I can see to shorten this interval of eight months is by a propaganda of education first, to physicians in general to recognize early symptoms of cancer of the rectum and secondly the same education carried across to the general public to become mindful of the possibility of cancer of the rectum when they have symptoms of bleeding or mucous discharge from the rectum or change of bowel habits for which they seek advice.

That, I feel also could well be taken up by the medical societies by sending out leaflets or reprints to all the men of each district society to give them warning in their general examination of patients to be mindful of the possibility of cancer of the rectum in dealing with intestinal symptoms of the patients who consult them.

DR. EDWARD L. YOUNG JR., Boston Mass. There are two curves Dr Daland did not give us. One I think he never can give us and one I wish he would. I wish some day he would give us a curve of the difference between the cures in those cases of radical operation where there was no evidence of spread of the disease and in those cases where there was a spread of the disease and nevertheless the local growth was removable.

I think all of you who have seen the end stages of cancer in the pelvis whether it comes from rectum cervix or bladder will feel as I do that it is a terrible way to die. I believe that cancer of the rectum should always be removed regardless of whether there is a liver metastasis, provided the local growth is removable because the second curve which he can never give is the difference even though length of life was not prolonged between the comfort in dying without the growth and with it.

DR. FRANK H. LAHEY Boston Mass. I dislike to repeat previous statements relating to cancer but we have definite convictions on this subject. I think that everyone who has had experience with cancer of the rectum because of the depressing reaction to it on the part of patients, is duty bound to speak on the hopefulness of the subject. I wish to add my words to what Dr Welch has said that it is a hopeful lesion from the point of view of curability also that the operability can be much increased.

Lyman Allen sitting beside me asked me what our mortality was. When our operability was around fifty four per cent, our mortality was eight and a quarter per cent, but we have increased operability to seventy per cent, with the result the mortality has gone to about 12½ per cent. We must not, as Dr Young said be too proud of our mortality rate because, we must widen this operability rather to make these people comfortable than narrow it to make our result appear well. If a radical removal is done and they die of liver metastasis, they are infinitely more comfortable than with local growths.

Carcinoma of the rectum is a relatively benign growth. Forty-six per cent of all our cases that have had the radical operation are alive and well over five years. When you have a lesion that can

give such high percentage of relief over five years then I believe it is your duty to get this fact before the public and dispel this depressed attitude which is in the mind of the public regarding the hopelessness of cancer of the rectum.

DR. EDWARD H. RISLEY Waterville Me. I would like to say something about the treatment of colostomies. I think we all know that it is very difficult to get some patients to consent to colostomy. They dread the thing. They have heard about the difficulties in its care and it is often very hard to persuade them to consent to it. Therefore any detail we can add in the aftercare of our colostomy patients is very much worth while.

For the last two or three years we have been doing all our colostomies in the midline regardless of whether they are inoperable cases for two reasons. One because we thought it shortened our period of operation somewhat, and because it is so much more convenient for the patient to handle a colostomy in the midline.

The detail that we have worked out which is being much appreciated is very simple. The ordinary textbook illustration is of a patient handling an extensive colostomy an irrigating can with an irrigating tube, the patient sitting on a stool with a large sheet of heavy rubber wrapped around him draped into a pail.

That is very abhorrent to most people. We have found lately that if we provide our patient, before he goes out of the hospital with a small stiff rubber apron, which ties around the waist with a rubber strap and is more or less pear shaped it drops down into the toilet. The patient sits on the toilet in the normal position.

The colostomy belt is simply strapped around the waist below the colostomy or if the colostomy is very protruding a little hole is made in the rubber and it fits tight to the body over the colostomy. A little button can be put on so that it forms a cone. The patient can have his normal stool without soiling his person and if he has to irrigate also without soiling his person or the toilet.

This is a simple thing but I have had a number of patients who expressed their appreciation of this little gift that I always present to them before they leave the hospital.

DR. LELAND S. MCKITTRICK Boston Mass. I do not like to prolong this discussion and I will only speak for a minute. I have been very much interested in this paper of Dr Daland. I cannot add anything to it, but I want to stress one or two things which he said.

The first is in relation to colostomy. Whether his figures would be the same in a larger series of cases makes no difference. Apparently the patient who has a colostomy for inoperable cancer of the rectum does not live any longer than the patient who does not. Those of us who have been rather intimately connected with terminal care hospitals, where patients come to die of cancer are interested in giving the minimum of discomfort rather than in increasing the length of life. I was much interested a few years ago to hear one of the better known English surgeons in the field of cancer of the rectum say that in their inoperable cases (their operability being between thirty and thirty five per cent) they did colostomies and the local physician was able to keep the patients very comfortable from then on. I hate to admit that our men here cannot do the same thing.

A colostomy is no joke and I do not think we have any justification for doing a colostomy on a patient with incurable or inoperable cancer of the rectum unless we are going to relieve some specific symptoms which that patient has. A colostomy will

only partly relieve a patient's tenesmus. It will completely relieve the symptoms due to obstruction. Therefore, you must carefully evaluate the symptoms of which the individual patient is complaining before you advise for or against colostomy. I do not believe in a colostomy in anticipation of future obstruction, nor will the patient appreciate that. If on the other hand he has enough obstruction to be pretty uncomfortable, and if you relieve those symptoms, he will like you and like his colostomy.

I would like to say one more thing about a colostomy, too many times the general practitioner gets an improper impression from the patient with incurable cancer. The difference between a colostomy for curable cancer where the growth is removed, and a colostomy without the removal of the growth, is the difference between day and night. They must not be confused.

I was terribly distressed to hear Dr. Allen say he would like to accept a high mortality. I know that Dr. Allen might feel that way, but I know he has lots of friends, and I know he has lots of patients who would not feel that way.

I try very hard to follow all of my patients in definitely. I have been particularly interested in their reactions to a colostomy. I have felt that it was not quite fair for those of us who are well and

normal to pass judgment upon a colostomy but rather to leave this to those who are living with this handicap. When I see these patients bringing up their families, contributing toward their community life, and find them and their families happy, it is very hard for me to go all the way with Doctor Allen when he says that he personally would accept a high mortality in preference to a colostomy.

If I interpret Doctor Daland correctly he says that the young patient with cancer of the rectum lives as long as the older patient with the same condition. This is very important because most of us have had a difficult time in doing very much for young patients with cancer of the rectum. I believe that the reason for this is quite clear. As long as you and I think and talk in terms of a cancer age the average practitioner who sees one case of cancer of the rectum in four or five years will never think of the possibility of cancer in the young patient. In this group a diagnosis of cancer of the rectum is usually made only after the patient has lived long enough to prove every other diagnosis wrong. These patients, then, upon whom a diagnosis should be made at the time of the first visit lose most of their opportunity for cure in the delay which results from our talking in terms of cancer age rather than cancer symptoms.

DISTRIBUTION OF ACUTE HEAT EFFECTS IN VARIOUS PARTS OF THE WORLD*

BY GEORGE CHEEVER SHATTUCK, M.D.,† AND MARGARET M. HILFERTY, ED.M.‡

FOREWORD

INITIAL studies having been made of the distribution and probable causes of acute heat effects in the United States† (Shattuck and Hilferty 1932 and 1933), it seemed desirable to pursue the subject further and to see what could be learned of mortality and acute morbidity from heat in the world as a whole. Such information will make it possible to define more clearly than has yet been done the extent and relative importance of the acute effects of heat in various parts of the world and will serve as a basis for further studies of the causes and means of prevention of such effects in the localities where heat cases are sufficiently numerous to constitute a problem of importance.

There are several circumstances which render such an undertaking difficult. First, no reports are available for some of the places for which one would most desire them. Secondly, deaths from effects of heat being relatively few, some countries report them only as part of the total from external causes, as in the Abridged International List of the Causes of Death. Thirdly, as there are occasional years in which the number of deaths is many times greater than the

usual number, an adequate picture can be obtained only from records for rather a long series of years.

It is even more difficult to obtain statistics for morbidity from heat effects. Not being infectious, these cases are not reported to civil health authorities. Morbidity statistics are in hand, however, from two sources, namely, (1) reports of the health of armies and navies, and (2) hospital statistics from parts of Africa. Fortunately, there are "insolation" figures in almost all the army reports which we have seen, even those which list only about thirty causes of sickness. The Annual Report of the Health of the Army of Great Britain is an exception, but the Report of the Public Health Commissioner with the Government of India gives figures for the British Army there which are doubly welcome because of the scarcity of other information from India. We have been able to consult a smaller number of navy records. These army and navy records have the advantage of being practically complete as to cases and deaths, and figures are available as to the mean strength of the forces. However, in general, the deaths are too few to permit of analysis.

The reports of hospitals in certain parts of Africa and in the Far East are the only sources of information obtained from some of these localities.

SECTION I

MORTALITY RATES PER 100,000 BY COUNTRIES

A summary of the mortality statistics collected from various countries is given in table 1.

*From the Departments of Tropical Medicine and of Vital Statistics of the Harvard School of Public Health.

†Sunstroke and allied conditions in the United States. *Am J Trop Med* 12: 223 1932.

‡Causes of deaths from heat in Massachusetts. *New Eng J Med* 208: 319 1933.

§Shattuck, George Cheever—Assistant Professor of Tropical Medicine, Harvard University Medical School. Hilferty, Margaret M.—Formerly Statistical Technician in the Department of Vital Statistics, Harvard School of Public Health. For records and addresses of authors see This Week's Issue page 491.

TABLE 1
HEAT DEATHS DEATH RATES PER 100 000 AND SEX RATIOS BY COUNTRIES

Country	Years	Total Deaths	Rate per 100 000	M/F Ratio	
Europe					
Finland	1911-1925	15	03±	01	6.5
Sweden	1911-1930	76	06±	01	3.0
Norway	1928-1931	6	—	—	—
England and Wales	1902-1930	3 696	34±	05	2.0
Irish Free State	1923-1931	32	11±	02	2.6
France Paris	1910-1929	78	13±	05	3.3
The Netherlands	1916-1930	443	43±	31	—
	1901-1930	—	35	—	2.0
Germany	1928-1930	303	16	—	2.3
Prussia	1925-1929	362	19±	04	2.6
Berlin	1900-1917	92	26±	06	4.1
Russia Kiof	1918-1927	4	—	—	—
Hungary	1903-1912	650	31±	08	1.8
Switzerland	1901-1930	246	31±	03	3.6
Czechoslovakia	1919-1923	48	09±	02	1.5
Greece	1921 22 25 26	57	23±	05	1.7
Italy	1911-1923	1 653	25±	04	3.1
Spain	1901-1915	—	—	—	—
	1917-1918	1 114	21±	01	2.0
	1921-1929	—	—	—	—
Africa					
*Union of South Africa (whites only)	1913-1918	—	—	—	—
	1922-1923	96	50±	06	3.6
Mauritius (Indian Ocean)	1921-1931	0	—	—	—
Asia					
Ceylon	1909-1932	66	06±	01	8.0
					(1931-32)
Straits Settlements	1922-1931	4	—	—	—
Shanghai (Resident Foreign Community)	1915-1932	29	5.8±	1.6	—
Bombay	1920-1929	46	4±	1	—
Madras	1918-1927	18	3±	1	—
Pacific Islands					
Japan	1909-1916	—	—	—	—
	1918 20 21	—	—	—	—
	1924 25	3 490	48±	04	1.4
Australia	1908-1931	1 951	149±	18	1.9
New Zealand	1921-1933	17	10±	03	1.1
North America					
Canada Registration Area	1921-1931	597	65±	17	2.0
United States America Registration Area	1900-1933	29,282	178±	39	2.5
Mexico City	1916-1920	13	—	—	—
Bermuda and West Indies					
Bermuda	1922-1932	1	—	—	—
Cuba	1910-1935	70	2	—	7.3
	(excluding 1915)	—	—	—	—
Haiti	1925-1929	0	—	—	—
St. Lucia	1923-1932	0	—	—	—
St. Vincent	1923-1932	0	—	—	—
Barbados	1925-1928	1	—	—	—
Grenada	1912-1931	3	—	—	—
Trinidad and Tobago	1914-1932	3	—	—	—
Jamaica	—	94	3±	04	—
Central America					
British Honduras	1900-1904	5	—	—	—
Republic of Panama	1920-1923 1930	204	14±	03	—
South America					
Colombia	1915-1920	—	—	—	—
	1923-1924	604	36±	48	1.0
	1927-1928	—	—	—	—
	1916-1933	13	—	—	—
British Guiana	—	—	—	—	—
Brazil	—	—	—	—	—
Rio de Janeiro F. D.	1913-1916 1920-26	1.9	10±	1	3.0
Sao Paulo	1913-1920	0	—	—	—
Paraguay	1928-1933	2	—	—	—
Argentina	1911-1915	244	62	—	5.3
Uruguay	1905-19 0	23	10±	—	3.6
Chile	1904-1908	—	—	—	—
	1911-1930	90	10±	02	—
Peru Lima	1913-19 0	1	—	—	—

The tabulations are of the years for which we have information from the various countries or parts thereof. The headings indicate (1) the total number of deaths from this cause, (2) the mean death rates from effects of heat, and (3) the ratio of males to females among the decedents. The mean death rates are given with the standard deviation of the mean based on the computed and not the Bernoulli standard deviation.

The number of deaths in the United States of America in thirty-three years, 1900-1932, is greater than the total of all the others here recorded. The average rate for the United States of America for this period is exceeded, however, by those for the Resident Foreign Community of Shanghai and for the Republic of Panama, and it is approached by the rate for Australia. (See italicized figures in table 1.) The Australian rate is based on mortality in the years 1908-1931. The average rate in the Registration Area of the United States is $1.78 \pm .39$ per 100,000 which does not differ significantly from the Australian rate of $1.49 \pm .18$. The next highest rates are found in Colombia and in Rio de Janeiro (Federal District), but neither of them is very well determined. Argentina, Canada, the Union of South Africa and Japan have rates of from 48 to 65. The European countries from which we have data except The Netherlands which has a rate of $.43 \pm .31$, show very moderate rates of less than .35 per 100,000. Only a quarter of the States in the United States of America Registration Area had rates as low as this.

A word of explanation is required about the figures for The Netherlands. The numbers of deaths occurring in each of the years 1916-1930 have been published*. The total is 443 of which 303 occurred in 1923. On this account, the mean rate for the period is not at all representative. Excluding 1923, the average rate for these years is 15, which gives a picture of the usual mortality from effects of heat. But this figure is falsely low and, on the other hand, when 1923 is included, the rate of $.43 \pm .31$ is misleadingly high. The rates being given by quinquennial averages from 1901-1916, one can obtain an average rate for the thirty years 1901-1930, and thus give less weight to the 1923 figure. Even so, the average rate, 25, is at least twice as high as it would have been without the 1923 experience. This is an extreme example of the difficulty in discussing death rates from heat.

DEATH RATES IN UNUSUAL YEARS

Certain years stand out as periods in which high rates were rather general. Chief among these is 1911, when England and Wales, Hun-

gary, Italy, Paris, Switzerland and the United States all had large numbers of deaths from heat. The rates differed greatly, being 36 in Italy, 149 in England, and 53 in the United States, but each was well above the normal. In England, the rate was the highest in the twenty-nine years 1902-1930. The 1911 rate in Italy, however, was exceeded in 1921 and in 1928. The year 1921 brought also a high rate for England and for the British soldiers in India (table 2). In 1928, the civilian mortality in Italy was most severe, and so also was the military morbidity in Germany and that of the French soldiers in Algeria. Elsewhere, the year was not unusual. In 1923, when the death rate in Holland was abnormally high, England experienced its second highest rate.

Inasmuch as our previous studies of heat effects in the United States showed that unusual mortality there was closely correlated with unusually high atmospheric temperatures continuing for several days at least, and because there is no reason to suppose that the normal habits of the people of Europe or of India were disturbed in the years above mentioned, it is highly probable that these unusually high death rates were caused by particularly unfavorable atmospheric conditions and that the chief cause was excessive atmospheric temperatures, perhaps, intensified by high humidity or low wind velocity.

COMMENTS ON SECTION I

The data in table 1 give but a fragmentary picture of the world-distribution and prevalence of deaths from heat. One may, however, draw the following inferences from the data.

(1) The proportion of deaths from heat in Europe and in the British Isles is much smaller than that in the United States.

(2) Canada has a decidedly smaller proportion of deaths from heat than has the United States.

(3) Apparently, there are few deaths from heat in Mexico City, the West Indies or Bermuda.

(4) The figures for Central America, for South America, for Africa and for Asia, permit of no generalizations. Some of the rates are notably low and others outstandingly high. The striking divergencies indicate the need for further data from these regions.

(5) The sex ratios shown in table 1, with few exceptions, indicate that deaths from heat are far more common in men than in women.

SECTION II

HEAT EFFECTS IN VARIOUS ARMIES AND NAVIES

Comparability. The morbidity rates for illness attributed to heat in various armies are shown in table 2. The figures are comparable only in a general way because neither the basis of reporting nor the years for which data are

*Statistiek van Nederland. Statistiek van de Sterfte naar den leeftijd en de Oorzaken Dood.

available are the same for all the armies. The Netherlands records the number of soldiers treated, France, Germany and Italy the number of admissions to infirmaries and to hospitals, Belgium and Spain admissions to hospitals and the other countries, except Czechoslovakia, simply admissions. Czechoslovakia reports for 1921 to 1924 admissions to hospitals and other

soldiers in India. The three higher average rates are 99 for the United States Army (all stations), 149 for the Japanese Army, and 46 for soldiers from the British Isles in India.

The Japanese average rate is based upon only five years, and two of these years (1914 and 1915) were during the World War. The rates in these years were about five times as

TABLE 2
HEAT MORBIDITY RATES PER 1000 FOR VARIOUS ARMIES

Period	Austria	France	French Army in Algeria	Germany	Italy	Belgium	Russia	Japan	Spain	The Netherlands	Czechoslovakia	Soldiers from Brit ish Isles in India	Native Soldiers in India	French Army in Morocco	American Soldiers in the United States
1900	0.2			.30	4		04								
01	0.1	.38	.30	.12	4		03								
02	0.1	.40	.19	.20	5		02								
03	0.3	.24	.23		4	.6	03								
04	0.1	.33	.38	.12	3	.42	04								
05	0.4	.38	.30	.20	7		03								
06	0.2	.49	.28	.20	3	2.33	02								
07	0.2	.20	.13	.12		.25	04								
08							04								
09	0.1	.13	.50	.21	.3	.05	03								
1910	0.2	.16	.60	.16	.2	.09	03					1.1	18		
11	0.1	.45	.23	.35	4	.60	04	.95	07			3.5	25		
12		.13	.13	.14	2	.04	05	.61	02			2.3	49		
13		.19	.19		.1			.50	01			0.7	09		
14								2.73	01			1.3	16		
15								2.65	04			4.6	40		
16												5.8	.31		
17												1.5	16		
18										01		10.3	2.24		
19									03			7.4	.20		
1920		.07	.20							0.1		6.1	.79	.38	.30
21					.07							19.0	50		1.14
22		.11	.16	.36	.06				02		.05	3.4	.58	.36	1.23
23		.20	.13		.20				02	1.2	.77	6.3	.33	.94	.73
24		.23	.19		.23				01		.14	4.5	.18	.29	1.1
25		.16	.26	.36	.10	.21			04	1.0	1.2	1.6	.21	1.15	
26		.13	.12	.60	.2	.11			01	.5	.32	3.7	.20	.35	
27		.13	.21	.79	.3	.15				.3	.19	4.0	.50	.31	.85
28		.30	1.13	.87	.4	.47			09	.1	.36	4.3	.36	.27	.82
29		.32	.32	.71	.01	.53			04	2	.46	1.7	0		1.10
1930		.38	.32	.73		.59			01	4		2.3	.30		1.43
31						.26						5.2	.57		1.17
32						.44									.43
Adm rates															
Average	.18	.27	.30	.36	.27	.43	.033	1.49	.024	.37	.22	.46	.42	.42	.99

cases lasting twenty or more days and ensuing death or discharge but, after 1925, all cases lasting three days or more or causing death or discharge. Even without quantitative allowances (which seem impossible) for these differences, the figures give useful information.

Comparisons. The average rates for most of the armies listed range from .024 for Spain to .43 for Belgium. (The figure for Belgium includes an unusually high rate in 1906.) It is noteworthy that within these limits are included also the averages for French soldiers in Morocco and in Algeria as well as that for native

high as in the other years and, therefore the average rate given for Japan is probably higher than the normal.

The average rate of .99 for the American Army in the United States is for the years 1920-1924 and 1927-1931. It includes cases not only among White but also in Colored soldiers. For the period 1927-1931 we have figures for each camp or station in the United States and for stations elsewhere as well. Rates based upon these figures vary in the United States from 1.9 to 3. Rates of 1.3 were shown both for the northern and for the southern central States lying

east of the Mississippi River but the highest rate was for the southern States on the Atlantic Coast The lowest rate was for the Pacific Coast and that for the Rocky Mountain States was nearly as low The rate for White soldiers in Panama Canal Zone was 13 and the rates for the Philippine Islands and for Hawan were very low The average rate for stations in the United States for the period (1927-1931) was .94 while that for the tropical stations mentioned above was 57 The rate for white soldiers in the Philippine Islands was 6 Thus, the comparative frequency of heat effects in the United States is again brought out

As a rule, the annual fluctuations of rates for most of the armies are not great but there are noteworthy exceptions which are italicized in table 2 Extreme fluctuations are shown for soldiers from the British Isles stationed in India in 1918 and in 1921

Deaths The procedure in reporting deaths from heat in the various armies differs considerably The number of deaths recorded is insufficient for useful statistical comparison

HEAT EFFECTS IN CERTAIN NAVIES IN RELATION TO STATION

Data The average morbidity rates for the British Navy and for the French Navy, when compared with those for specific "stations", show very striking differences (table 3) In

TABLE 3		
BRITISH NAVY		
Average Morbidity Rates, 1921-1930, by Stations		
Stations	Rates per 1,000	
Home	0 14±	0 05
Atlantic Fleet	0 18±	0 6
Mediterranean Station	90±	11
America and West Indies	1 2 ±	42
China	4.38±	51
East Indies	13 5 ±	21
Africa	1 33±	56
Irregular List	5 50±	9
Total Force Average	1 09±	0 6
FRENCH NAVY		
Average Morbidity Rates, by Stations 1902, 1904, 1906 to 1911		
Stations	Rates per 1,000	
Méditerranée	0 4	
Atlantique	0 2	
Extrême-Orient	1 0	
Océan Indien	4.2	
Pacifique	1 8	
Indo-Chine	0 7	
Station Locale du Sénégal	1 8	
Forces Navales, Maroc	0 7	
Total Force Average	1 8	

the British Navy the rate for the "East Indies Stations" is extremely high and that for "China

Stations" is notably high The rate for the French Navy in the Indian Ocean is also notably high, but that for Indo-China is not high

COMMENTS ON SECTION II

The data provided in this section amplify to some extent the information as to the distribution and prevalence of heat effects provided in Section I

The following important facts are shown in table 2

1 The rates for the American Army in the United States are markedly high

2 The rates for soldiers from the British Isles in India are extraordinarily high whereas those for native soldiers are comparatively low

3 The rates for French soldiers in Morocco and in Algeria and those for native British soldiers in India are nearly equal

4 The data for the British and the French Navies in the Far East seem somewhat discordant

SECTION III

DATA FROM VARIOUS PARTS OF AFRICA

General Observations Some hospital statistics of heat cases in various parts of Africa have been summarized in table 4 The figures are for cases treated in hospitals or dispensaries, that is to say, for "in-patients" and "out-patients" The deaths are given for in-patients only In some instances the cases are recorded for Europeans and for natives separately but in other instances these groups are not separated

The validity of admission rates depends upon the degree of accuracy of the figures for population as well as on the completeness of the reporting of cases The figures for the European population and its cases are, doubtless, much nearer the truth than those for the native populations The European population is more accurately known and Europeans are more likely to apply for treatment On the other hand, native populations can seldom be determined accurately and, in general, the natives are so widely distributed that comparatively few of them are within reach of a hospital when acutely ill Rates for native population should, therefore, be based upon the number of those to whom treatment is available in fact

Official data from the Belgian Congo take this aspect of the problem into account The Belgian tabulations are headed "Mouvement Général de la Morbidité et de la Mortalité dans les Rayons d'Actions des Médecins" The report for the Belgian Congo in 1925 records 3,399 deaths from all causes among the Blacks and a death rate of 14.2 per M The population within the sphere of action of the physicians must, therefore, have been considered to be 240,000 But, inasmuch

as the total population of the Belgian Congo is about 8,000,000 it appears that morbidity and mortality were recorded for only about one thirtieth of the population.

Rates for Europeans have not been determined when less than ten cases were recorded.

Regional data are presented in tables 5, 6, 7 and 8 for the Belgian Congo, Nigeria, the Anglo-Egyptian Sudan and the Union of South

in Katanga than in the other Provinces of the Belgian Congo.

In Nigeria (table 6), the great preponderance of cases among Europeans is again shown. There was a marked variation from year to year in the number of Europeans treated.

The outstanding fact for the Anglo-Egyptian Sudan (table 7) is that 104 natives in the year 1932 were admitted to hospitals for heat effects.

TABLE 4

CASES OF HEAT EFFECTS IN VARIOUS PARTS OF AFRICA AS SHOWN BY HOSPITAL STATISTICS

Region	Period	Admissions		Deaths		Population in Thousands		Annual Adms. Rates per 1,000 Europ
		Europ	Native	Europ	Native	Europ	Native	
Southwest Africa	1907/8 } 1911/12 }	0	—	—	—			
Nyasaland Protect.	1926-31	32	4	—	—	1	1 600	5
German East Africa	1903/4 } 1911/12 }	1	4	1	2			
Tanganyika Territ.	1926-29	60		2		8	5 000	
Zanzibar	1927-32	6		1			235	
Uganda Protectorate	1926-31	30		1		2	3 500	
Anglo-Egypt Sudan	1922-32	41	149	10	13	5,800		
Belgian Congo	1925-27	27	19	0	2	25	8,500	0.5
Cameroon	1903/4 } 1911/12 }	5	0	2	0			
Nigeria	1926-31	169	0	2	2	3	19 000	9
Togo	1904/5 } 1911/12 }	7	1	0	0			
Gold Coast	1926/27 } 1931/32 }	87		2		2.4	3 161	

Africa respectively. Inasmuch as few Europeans are treated for heat effects in any year, the fluctuations in their numbers may not be significant.

When the relative proportion of Europeans to Natives (see table 4) is taken into account, table 5 emphasizes the much smaller proportion

whereas, in other years, the numbers admitted were small. Moreover the number of European cases treated in 1932 was not unusual. It seems probable that the large number of heat cases among natives in 1932 was not due to unusual heat but rather to some unusual employment involving unnatural conditions of life.

TABLE 5

BELGIAN CONGO HEAT CASES
Hospital Data

Region	1925				1927				Total Cases
	Europeans		Natives		Europeans		Natives		
	Treated	Died	Treated	Died	Treated	Died	Treated	Died	
Province									
Congo-Kasai	3	0	15	0	3	0	1	0	21
Equatoriale	6	0	3	0	6	0	2	0	17
Orientale	4	0	2	0	1	0	15	2	22
Katanga	—	—	—	—	3	0	1	—	4 (1 year)
Other Cases	—	—	—	—	2	0	—	—	2
	—	—	—	—	—	—	—	—	—
Totals	13	0	20	0	15	0	19	2	66

of cases among natives in the Belgian Congo than among Europeans. As might be expected from its geographical position and considerable altitude, there appear to have been fewer cases

COMMENTS ON SECTION III

1 With the exception of the death rates for Whites in the Union of South Africa (tables 1 and 8), the data presented on heat effects in

TABLE 6
NIGERIA HEAT CASES
*Hospital Data**

Period	Europeans					Non Europeans					Total Cases
	In-Pts		Out-Pts			In-Pts		Out Pts			
	Adm	Died	Adm	Died	Adm	Died	Adm	Died			
									M	F	
1931	2	—	13	4	—	3	2	3	—	—	25
1930	3	1	28	5	1	4	2	2	1	—	43
1929	8	—	26	2	—	1	—	7	1	—	45
1928	6	—	28	2	—	1	—	3	1	—	41
1927	4	—	14	1	—	—	—	—	2	—	21
1926	7	—	16	—	—	1	—	—	—	—	24
Totals	30	(1)	139	(1)	—	10	(4)	20	(—)	—	199

*There are about 2 900 European officials and fifty-four others. The African population of Nigeria is estimated at 19 000 000.

TABLE 7
ANGLO-EGYPTIAN SUDAN HEAT CASES
Hospital Data

Period	Europeans				Natives				Total Cases
	Males		Females		Males		Females		
	Adm	Died	Adm	Died	Adm	Died	Adm	Died	
1932	5	1	—	—	95	2	9	—	109
1931	1	—	—	—	5	3	—	—	6
1930	1	—	1	—	3	2	3	—	8
1929	1	—	—	—	—	—	—	—	1
1928	1	—	—	—	5	1	—	—	6
1927	9	2	—	—	6	1	—	—	15
1926	5	—	1	1	9	1	—	—	15
1925	4	2	1	—	3	—	—	—	8
1924	8	2	1	—	1	—	—	—	10
1923	—	—	1	1	2	—	—	—	3
1922	1	1	—	—	8	3	—	—	9
Totals	36	(8)	5	(2)	137	(13)	12	(—)	190

Red Sea Province A note in the 1921 Report says that no less than ten cases of heat-stroke with eight deaths occurred in the Red Sea Province in July and August during an exceptionally hot spell of weather. Six of these cases occurred among the European passengers or crew of ships in port.

TABLE 8
UNION OF SOUTH AFRICA
DEATHS FROM HEAT AMONG WHITES

Period	Deaths	Death Rate per 100,000	Population in Thousands
1913-1918	30	4	1,418 (1918)
1922-1928	66	6	1,677 (1926)

Deaths by Years and Sex

	1913	1914	1915	1916	1917	1918	1922	1923	1924	1925	1926	1927	1928	Total
Males	5	3	4	2	4	5	6	10	6	9	4	9	8	75
Females	2	—	—	2	2	1	2	2	4	4	1	—	1	21

Census 1918—males 727M, females 691M
1926— " 857M, " 820M

Death rates 0.7 per 100,000 males, 0.2 per 100,000 females

Death ratio of males to females = 3.6

Africa are not directly comparable with those from other parts of the world

2 The death rates in the Union of South Africa, from heat, based upon the white population (table 8) are considerably lower than those for the United States of America (table 1). The ratio of males to females is 3.6. Thus the preponderance of deaths of males to females there is even greater than in the United States of America where the ratio over a period of thirty-one years was 2.5

3 Admission rates for heat effects among Whites, as shown by hospital statistics, is very high in Nigeria, notably high in Nyasaland, and strikingly lower in the Belgian Congo (table 4). No comparable rate can be figured for the Anglo-Egyptian Sudan because the number of Whites living there is not known to us

4 Deaths from heat are not numerous even among Europeans in the parts of Africa referred to, but it is evident that the Europeans are far more susceptible to heat than are the Native races

SECTION IV

HEALTH REPORTS FROM FRENCH DEPENDENCIES IN AFRICA AND IN ASIA

Through the good offices of Dr F Sorel Medecin Général Inspecteur des Troupes Coloniales, Ministère des Colonies, one of us (G C S) was permitted to examine a large number of typewritten reports in the files of the Ministry of the Colonies. These reports were from officials of the Civil Government having administrative duties, from officials of the Medical and Sanitary Service or from Government Hospitals and Dispensaries. Included among them was a single Military Report from French Somali land

AFRICA 1933

Circonscription de Dakar The number of inhabitants was stated to be approximately 70,000 of whom 45,000 lived in the city of Dakar and 25,000 in 14 villages

Racial classification

Europeans	5,312
Syrians or Moroccans	1,877
French half-breeds and foreigners	2,367
Native races	58,546

There were forty-one deaths during the year among the Europeans. These deaths were classified under thirty-two heads but no death from heat effects was mentioned. Among assimilated races there were twenty-one deaths listed under nineteen heads but heat effects were not mentioned. Neither was heat mentioned as a cause of death among the natives

Senegal The *Hopital Colonial de Saint Louis* treated during the year 445 cases in Europeans or in persons belonging to assimilated races. Of these six died. The number of natives treated in the hospital was 1,306 and many more were treated in dispensaries. Heat is not mentioned

Colony of Mauritania. A report on aid to the native population puts their at about 240,000. The report says that where so much as in Mauritania has cement created such distinct morphologies which react diversely to morbid conditions report discusses infectious and parasitic diseases, and says that attendance at the sanatoria is large and is increasing. Not said of heat effects.

French Soudan The *Hopital du F* (five kilometers from Bamaku) treated Europeans and 110 natives in 1932. A European and ninety-five natives in 15 single case of insolation occurred in a year.

Niger Colony A report states that generally, the climate is excellent for Europeans that the natives are not much disturbed. Mention is made however of a tendency of mental equilibrium by Europeans as the seasons change. Among fifty-two patients hospitalized at Niamey, no cases were attributed to heat, and heat is not mentioned as having either morbidity or mortality among Europeans or natives

Ivory Coast During the year forty-six of Europeans and 1,507 deaths of natives reported by physicians. Heat is not mentioned as a cause of any of the deaths.

Dahomey Heat is not mentioned as a cause of morbidity or mortality among cases seen in the medical services

French Guinea. Heat effects are not mentioned among the important diseases of the year

Gabon and other Colonies If any ill effects of heat were observed by members of the Medical Service these cases were so few as to have been included under the head of "maladies diverses"

Reports of health conditions from the *Colony of the Middle Congo*, from the region of *Chad* and from the *Oubanghi-Chari Territory* do not mention heat effects.

French Somaliland Cases of illness treated at the *Hopital Colonial de Djibouti* during the year came not only from the Colony but from ships. No case of illness due to heat was mentioned in the report of this hospital

A report of the *Service Médical du Fer* (Militaire), however, says that although the season is very uncomfortable the climate is healthful and well borne by Europeans that "coup de chaleur" seldom attacks a prudent or plethoric individual most often alcoholics. During the year one European died from heat

ASIA 1933

Annam The numbers of cases treated in hospitals or dispensaries during the year were as follows:

	European	Native
Males	470	21,122
Females	250	18,832
Children	122	5,635

Three cases of "coup de chaleur" were recorded. All three patients were men. Two were Europeans and the third a native. All three recovered.

Cochin China The number of patients treated in hospitals and clinics during the year was as follows:

	European	Native
Males	600	29,409
Females	576	41,623
Children	267	7,229

"Coup de chaleur" occurred in four male natives but was not observed in any of the Europeans.

Tongking Many thousands of patients were treated in government hospitals or dispensaries. The morbidity was relatively high from April to October and especially in May. More than 70,000 natives were treated (males 27,501, females 34,633, children 9,049).

Seven heat cases were observed as follows: four men, two women, one child (whites or natives or both?).

Protectorate of Cambodia hospital cases:

	European	Native
Males	183	6,459
Females	129	3,335
Children	57	562

Cases of "coup de chaleur": two males, one a European and one a native. Both patients recovered.

Laos No heat cases were reported. Hospital cases were as follows:

	European	Native
Males	50	3,742
Females	15	2,253
Children	4	835

COMMENTS ON SECTION IV

It is evident that ill-effects of heat in the French Dependencies in Africa in the year 1933 were so few as not to constitute a serious problem. Only two such cases with one death were mentioned in the reports examined. Both cases were in Europeans. One case occurred in the French Soudan and the fatal case in French Somaliland.

An official in Paris said that heat cases were common twenty years ago in the French Colonies and that the sun is still feared there but that all persons wear the "casque" today and that, by virtue of the precautions dictated by experience, heat cases have become scarce.

Small numbers of heat cases were reported in 1933 from the French Colonies in Asia. Their numbers were insignificant, however, as com-

pared with the large numbers of patients treated, and still more so with regard to population.

SUMMARY

All available data having been collected, we have attempted to ascertain the distribution of heat effects and their comparative frequency in different parts of the world. The data obtained are very inadequate for the purpose. It is believed, however, that they justify the following conclusions:

1 The death rates attributed to heat among European residents of Shanghai and among the population of the Republic of Panama are outstandingly high.

2 Heat effects are notably common in the United States and in Australia.

3 Soldiers from the British Isles stationed in India frequently suffer from heat effects.

4 The frequency of heat effects appears to differ markedly in various parts of tropical Africa. Cases appear to be decidedly more numerous in some of the British Colonies (Nigeria, Anglo-Egyptian Sudan, Nyasaland) than they are today in French or in Belgian territory.

5 In the Tropics in general, persons of European race are attacked far more often than are persons of the native races, but the latter are by no means immune (Anglo-Egyptian Sudan).

6 Males are far more liable to heat effects than are females.

7 Heat effects are comparatively uncommon in the West Indies, in the British Isles, in Europe, in the Union of South Africa and in Japan.

8 Notably low rates are exhibited for Finland, Sweden, Ceylon, New Zealand and Lima (Peru). Deaths from heat are recorded as nil in Mauritius in the Indian Ocean.

9 There are outstanding fluctuations in heat effects in several countries in certain years. To explain these, it may be necessary to localize the cases sharply, to determine the climatic conditions from day to day in the places where the heat effects were most numerous, and to learn whether there had been marked coincident changes in occupation or mode of life among the victims.

10 It has been said that heat cases were common in the French Dependencies twenty years ago but that they have been few in recent years. Reports for the year 1933 from French Dependencies in Africa and in the Far East indicate a striking scarcity of heat cases.

11 The irregular world distribution of acute effects of heat which the data indicate may be, to some extent, fallacious. Incomplete reporting, different methods of recording or of classification, or incorrect figures for population

might cause misleading irregularities in the figures

12. Some real irregularities of distribution can, probably, be explained as due to climatic factors which are peculiar to restricted localities

13. It is interesting to note that acute effects of heat are common in some parts of the tropics and not in others, and that the same is true of the temperate zones. These facts indicate the need of further study to explain the distribution of heat cases with reference to probable causes, climatic or other. Work on this problem will be undertaken in the near future

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ANESTHETIC EMERGENCIES*

BY URBAN H. EVERSOLE, M.D.†

THERE is no rule by which situations arising during the course of anesthesia can be divided into emergencies and nonemergencies. Many situations may arise that do not within themselves appear to constitute emergencies but if the anesthetist is not prepared to cope with them they may easily develop into real emergencies.

PREVENTION OF EMERGENCIES

Undoubtedly the most satisfactory method of dealing with an emergency is its anticipation with the consequent taking of steps for its prevention. An emergency may often be anticipated from a consideration of the condition of the patient or the type of operation.

THE PATIENT

1 Obviously patients who are poor risks either from debility, age, or long-standing infections such as tuberculosis, as well as those suffering from severe cardiac lesions, are more likely to give difficulty during the course of an anesthesia.

2 Serious obstruction is to be anticipated in patients who have lesions of the neck or throat causing tracheal compression or deviation. When this condition is suspected x-rays should be taken previous to the anesthesia to determine the degree of tracheal abnormality. Adenomatous goiters of the intrathoracic type constitute a large portion of the above group.

3 Patients with intrathoracic exudative lesions such as lung abscess, active tuberculosis, and bronchiectasis often have a great deal of difficulty due to the exudate, which may be aspirated into the good lung and thus result in spreading of the infection or the actual drowning of the patient. If this type of patient is operated upon, intratracheal anesthesia should be used and adequate facilities for aspiration of the air passages should be available at all times.

4 Chronic alcoholics constitute a group which may give the anesthetist a great deal of difficulty because of their great resistance to

anesthetic agents, particularly ether. They require heavy preoperative medication and are poor subjects for inhalation anesthesia. When the condition of the patient and the type of operation warrant its use, spinal anesthesia is preferable in these cases.

THE OPERATION

1 Operations on the neck where there are manipulations around the trachea often cause serious obstruction from a reflex spasm of the vocal cords. This is caused by stimulation of the surface of the trachea or of the laryngeal nerves. Treatment of this condition is discussed later under Mechanical Obstructions of Respiration.

2 Severe drop in blood pressure is to be anticipated when, during the course of an operation, a marked shifting of the position of the patient is necessary, as in the change to the Sims' (or even worse, the prone position) from the dorsal recumbent position in an abdominal perineal resection of the rectum. The administration of 2 to 4 cc of a 1 to 1000 solution of adrenalin intramuscularly five minutes before the change in position often is of value in preventing such a radical drop.

3 In a thoracic operation respiration is greatly hampered due to the position of the patient on the table. The good lung is on the dependent side and the chest wall often splinted by braces, thus greatly limiting chest expansion and making it very difficult to maintain surgical anesthesia and adequate oxygenation with such weak anesthetic agents as nitrous oxide or ethylene. This difficulty is overcome by the use of cyclopropane¹.

Respiration becomes a greater problem in these operations if the pleural cavity is open. However, when one pleural cavity only is open spontaneous respiration usually continues uninterrupted, particularly if the opening is large. A small opening may cause more air to be drawn in than is expelled with a consequent compression and mediastinal shift. Of course the accidental opening of both pleural cavities necessitates immediate artificial respiration, which can very easily be carried out by means of rhythmic manual pressure on a rubber breathing bag if a closed type of inhalation anesthesia

*From the Department of Anesthesia, the Lahey Clinic, Boston, Mass.

†Eversole, Urban H.—Anesthetist, Lahey Clinic and New England Deaconess Hospital. For record and address of author see This Week's Issue, page 491.

is being used. Pressure equivalent to seven to eight millimeters of mercury is usually sufficient to prevent collapse of the lung while 22 mm should not be exceeded. With a mobile mediastinum sudden opening of a pleural cavity may cause a patient to go into collapse due to flapping of the mediastinum. We feel that all intrapleural operations should have intratracheal anesthesia.

MANAGEMENT OF EMERGENCIES

General Classification of Anesthetic Emergencies

- 1 Respiratory
- 2 Circulatory
- 3 Miscellaneous

I. Respiratory Difficulties

- (a) Mechanical obstruction of respiration
- (b) Disturbances of the respiratory center
- (c) Miscellaneous respiratory difficulties

(A) MECHANICAL OBSTRUCTIONS

Any type of respiratory obstruction however slight, may become a serious complication during the course of anesthesia and an immediate attempt should be made to rectify it.

(1) One of the most common causes of respiratory obstruction is laryngeal spasm, a condition in which the vocal cords are in adduction, either partially or completely obliterating the air passage. This can be caused by irritation due to the anesthetic agent, reflexly by stimulation of the trachea or laryngeal nerves, or during an abdominal operation under light anesthesia by stimulation of the splanchnics or traction on the mesentery.²

In most instances the administration under slight pressure (about 10 mm of mercury) of high concentration of oxygen with a small amount of carbon dioxide is sufficient to relieve the spasm. If the spasm is due to tracheal or laryngeal nerve stimulation it may be necessary to stop the operation for a short time so that the obstruction can be cleared. Occasionally it may be necessary to force an intratracheal catheter between the cords to relieve the obstruction and in rare cases a tracheotomy may be necessary.

(2) Obstruction to respiration may be due to outside pressure on the trachea from a neck tumor such as an intrathoracic goitre causing deviation and compression of the trachea. Any case in which there is actual compression of the trachea (and this can be determined previously by x-ray) should have an intratracheal catheter in place before the operation begins. We have found the flexible metal catheter designed by Flagg and later modified by Woodbridge³ of this Clinic, to be very satisfactory because of its extreme flexibility and resistance to compression.

(3) Common types of obstruction, usually of

minor consequence (though they may become serious), are those due to the dropping back of the tongue under anesthesia, tight compression of the lips, or flutter of the relaxed soft palate or alae nasi. These can usually be relieved by the use of either nasal or oral breathing tubes or by forcibly extending the chin.

(B) DISTURBANCE OF THE RESPIRATORY CENTER

(1) Pathological from increased intracranial pressure

(2) Drug depression divided as follows

(a) Too heavy preoperative medication with a depressant drug such as the opiates and the barbiturates causes respiratory depression. The depression may be sufficiently great to result in cessation of respiration before anesthesia of sufficient depth is reached. This is particularly true when a respiratory depressant anesthetic such as cyclopropane is being used. This difficulty can usually be overcome by the administration of small amounts (200 to 300 cc per minute) of CO₂ for a short time. For cases in which cyclopropane is to be used we reduce the preoperative medication, our average dose being morphine sulphate grains 1/8 and scopolamine hydrobromide grains 1/150 given subcutaneously one hour before operation whereas with ethylene or nitrous oxide we usually give 1/6 grain of morphine and 1/150 grain of scopolamine and in addition three grains of nebulant by mouth one and one half hours before operation. These doses vary according to age, weight and general condition of the patient.

(b) Paralysis of the respiratory center with cessation of respiration of course occurs when an inhalation anesthesia is carried to too great a depth (4th stage of anesthesia). If this inadvertently occurs, administration of the anesthetic agent should immediately be stopped and oxygen with CO₂ administered by means of artificial respiration.

(c) Avertin anesthesia is frequently accompanied by a marked degree of respiratory depression which may persist for several hours following the operation. The period of post-anesthetic depression may be materially shortened by the administration of 1 to 5 cc of coramine intravenously. We have found this drug to be of greater value than the more commonly used respiratory stimulant, caffeine sodium benzoate.

the alcohol is injected slightly below the level of emergence of the involved roots. In view of the pathological findings in case 13, it seems

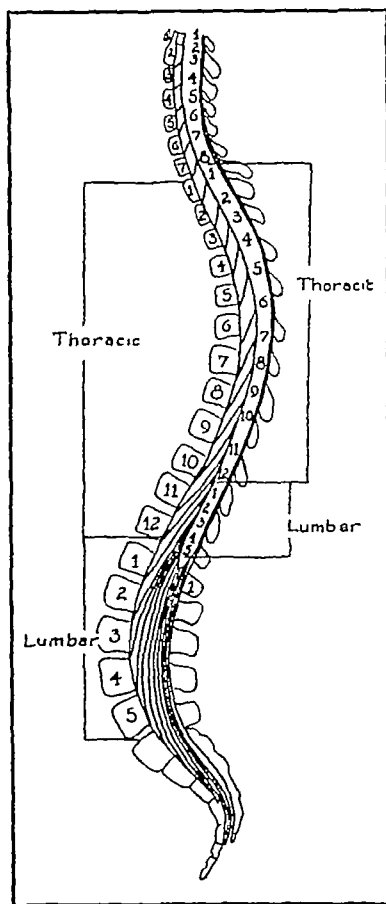


FIG 3 Note the difference between the level of emergence of the nerve roots from the cord and the level of the corresponding vertebral interspace (after Ranson)

likely that paralysis of the sensory fibers in the cauda equina may account for successful results when the injection is made below the supposedly optimum site. A number nineteen

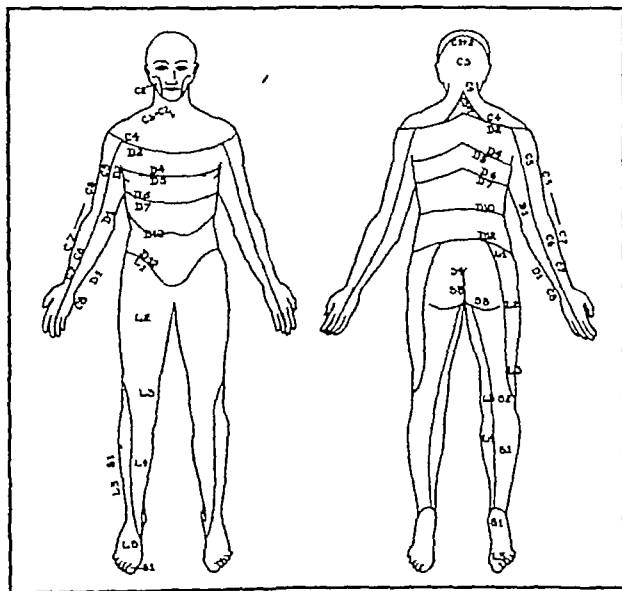


FIG 4 The segmental innervation of the body

gauge needle was used and in our later experience an amount of spinal fluid equivalent to the amount of alcohol to be injected was withdrawn. The head of the patient was kept at a lower level than the site of injection and the spine was flexed to as acute an angle as possible at this point (see fig 1). Eight-tenths to two cubic centimeters of the alcohol mixture was slowly injected, taking at least one full minute for each cubic centimeter. In cases in which sacral nerve segments have been involved we have kept the entire lower lumbar and sacral segments elevated above the site of injection. This procedure is carried out on an operating table, which greatly facilitates adjusting the position of the patient. Occasionally it may be more convenient to make the injection with the patient in bed. Following the injection the patient is kept as nearly as possible in the same position for four hours. Afterwards he should be kept flat in bed for twelve hours and confined to bed for several days. Attempts to get patients up sooner have caused distressing headaches. We have found the preoperative administration of phenobarbital, 200 milligrams, and morphine, 10 to 15 milligrams, advantageous in keeping patients comfortable during the period following the injection at which time there usually occurs an uncomfortable burning sensation which is always transient.

The dosage must be determined by the conditions existing in each individual case. The larger amounts of one and one-half to two cubic centimeters allow the alcohol to affect a wider area at one injection. In our experience no serious complications have followed the use of the mixture of ethyl and methyl alcohol in doses up to two cubic centimeters. On the other hand, in one case in which two cubic centimeters of absolute ethyl alcohol was used, acute retention of urine developed and persisted until death. It is far better to err on the side of conservatism as reinjection can be performed easily, and serious complications may follow large doses. The maximum dose, therefore, should not exceed two cubic centimeters of the mixture of ethyl and methyl, or one cubic centimeter of ethyl alcohol.

RESULTS

Yeomans⁶, Saltzstein⁷, and Stein² have reported satisfactory results from the subarachnoid injection of alcohol. During the last two years it has been employed in a selected group of cases on the urological and surgical services of the Peter Bent Brigham Hospital. Although the number of cases is small it seems worth while to report the results, as the collective experience of different investigators leads to the more rapid acceptance or rejection of such a technically simple but potentially dangerous procedure.

Table 1 is a summary of our results to date

In six cases the result was very satisfactory, in five cases there was either definite improvement without complete relief, or marked improvement, but with rapid recurrence of the pain. Two cases were accounted as failures. The satisfactory results were obtained in cases of carcinoma of the cervix, bladder, testicle and prostate. Improvement without complete relief occurred in the same type of cases*. In general, the more extensive the lesion the less satisfactory was the result. This can be seen from table 1 and figure 5, which show that the more nearly the anesthetized area coincided with the painful area as mapped out on the skin the more successful was the result. Bilateral cases were particularly disappointing. In the cases (1, 4, 12) in which the pain was referred to a peripheral somatic nerve (sciatic) dramatic relief was obtained. When the pain was more deep-seated and less sharply localized often being heavy and boring in character the results were much less satisfactory. It is our impression that so-called visceral pain is less amenable to this form of therapy than is somatic pain, probably due to the fact that as Davis* has emphasized, the abolition of visceral pain requires the section or blocking of a large number of posterior roots.

However, even in the cases in which we have not obtained an entirely satisfactory result the measure of relief obtained has been so appreciated by patients and relatives that we felt the injection was worth while. Of the two cases that are accounted as failures, one was a patient with cancer of the bladder who had a large sacral cyst which may have communicated with the subarachnoid space. At any rate three injections by two different surgeons produced no anesthesia. The other case was that of a neurotic woman who complained of pain in the distribution of the ilioinguinal nerve following nephrectomy. Although definite anesthesia was obtained over the course of the nerve the patient continued to complain of pain. In retrospect we feel that the selection of this case was ill advised not only because of the neurotic nature of the patient, but because of the benign character of the lesion.

In successful cases the relief of pain is extraordinary. In our cases the pain disappeared dramatically within a few minutes or an hour after the injection, although in one case it was delayed for almost a week. Dogliotti and Stern have noticed this occasional delayed effect also but in our case (case 11) it may have been due to roentgen ray therapy rather than to the delayed effect of the alcohol. Our observations confirm those of Dogliotti in regard to the character of the anesthesia. It is as if nerve filaments rather than an entire nerve were blocked. Thus in

our most successful case in which dramatic relief of pain was obtained for nine months, the patient was able to appreciate a stout pinprick in certain portions of the anesthetic area, light touch was not entirely abolished, and temperature sensation was hardly affected. Yet the threshold of pain was raised sufficiently to provide complete relief. In other cases, particularly those in which large dosages were used, pain, temperature, and tactile sensation have been completely abolished and reflex activity greatly diminished.

COMPLICATIONS

Although the subarachnoid injection of alcohol is still in point of fact a clinical experiment without complete laboratory investigation to guide it, serious complications have not been common. Theoretically a respiratory paralysis may occur from a rapid diffusion of the drug upwards in the cord. It has not been reported and we have had no difficulty in this respect. If care is exercised in keeping the patient's head lower than the site of injection this complication should be impossible. Motor paralysis and loss of sphincter control of the bladder and rectum may occur. Permanent motor paralysis has not occurred although transitory weakness is common. It was seen in seven of our thirteen cases. Sphincter paralysis occurred in one case in which two cubic centimeters of absolute ethyl alcohol were used. It was characterized by acute retention of urine persisting until death ten days later. Stern* feels that paralysis of the sphincters can be avoided if doses of not more than eight-tenths of a cubic centimeter are used for injections low in the cord. This applies to absolute ethyl alcohol, but we feel it is safe to use the mixture of ethyl and methyl alcohol in doses up to one and one half cubic centimeters at low levels. Meningismus occurred in two cases persisting for several days after the injection. Examination of the spinal fluid five days after the injection in one of these cases showed a slight increase in total protein and lymphocyte count.

FAILURES AND REINJECTIONS

Injections have been repeated in four of our cases excluding the two in which bilateral injection was done. As has already been emphasized, in practically all cases in which relief of pain was not obtained the anesthetic area did not coincide with the painful area (fig 5). We attribute this partly to our inability to control accurately the localization of the injected alcohol but also, to an inevitable defect in the method, for, in order to block an extensive group of nerves it is necessary to use amounts of alcohol in excess of the margin of safety. For this reason we prefer the mixture of ethyl and

*We have had no experience with lesion in dividing area above the level of the twelfth dorsal nerve. b. c. injection may be made high as the 6th thoracic nerve.

methyl alcohol, because in our experience it permits the use of amounts up to two cubic centimeters without complications. No matter how careful the technic, there will be cases in which reinjection is imperative even in unilateral involvement.

less the condition of the patient the more radical one can be in regard to dosage. The obscurity of the localization of the action of the injected alcohol, and the potential danger involved, preclude its use in benign conditions. For patients having incurable carcinoma the

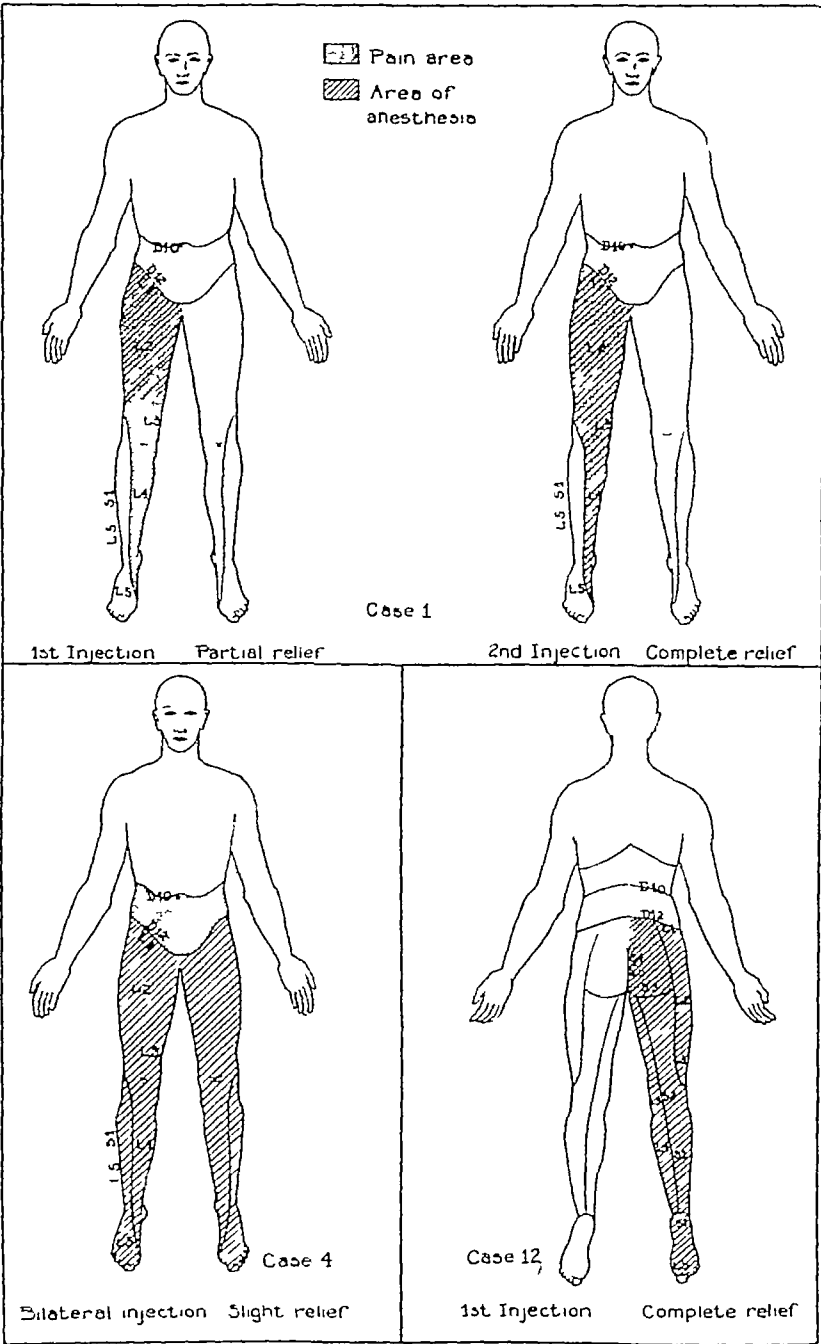


FIG 5 In successful cases the anesthetic areas and painful areas as mapped out on the skin have coincided

It is evident that while the subarachnoid injection of alcohol for the relief of intractable pain is very useful, it has not always been satisfactory. Moreover, the margin of safety between sensory relief and motor damage is small. Consequently, we feel that for the present at least, this procedure should be reserved for patients with incurable disease. The more hope-

procedure can be recommended without reservation.

SUMMARY

- 1 Results are reported of observations on thirteen subarachnoid injections of alcohol for the relief of pain.
- 2 Excellent results were obtained in six

cases, incomplete relief in five cases, failure in two cases.

3 In those cases in which complete relief was not obtained the nerves to the painful area were not adequately blocked, as the anesthetic areas and painful areas did not coincide. Visceral pain is less amenable to this form of therapy than is somatic pain.

4 The method is recommended for the relief of intractable pain in patients with advanced cancer.

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PRIMARY CARCINOMA OF THE JEJUNUM WITH REPORT OF TWO CASES

BY E. M. HODGKINS, M.D.*

PPRIMARY adenocarcinoma of the small intestine, whatever the location, is so rare in the individual experience that most authors on the subject consider it a pathological curiosity. Recent reports emphasize the fact that this is especially true of the proximal jejunum. A review of the literature on the general subject of small intestinal malignancy immediately impresses one with the absence of a satisfactory working hypothesis for dealing with the lesion. This fact is not surprising when one considers the small number of cases thus far reported. Evidently no single surgeon or group of surgeons has encountered all of the varied difficulties in diagnosis and treatment that may arise from the many forms of this disease and therefore definite conclusions are not justified. Collective grouping of the cases has been most unpromising. In spite of this, the effort toward a better understanding of the subject goes on within a group of large clinics which will eventually dispel present confusion.

From a diagnostic viewpoint sex and age incidence, early and late symptom syndrome, roentgenologic characteristics, predilection for location, cell morphology, period of metastatic activity in different types, all of which are so important in other cancer locations, fail to find agreement here. The following brief statistical abstracts from the literature are interesting, and will serve to emphasize the rarity of the disease and certain striking disagreements.

The necropsy tables afford the best statistical account of small intestinal cancer and the reports of Nothnagel and Geiser are impressive. The former found only ten cancers of the small intestine in a total of 3585 cancers in 41,838 necropsies, Geiser but two in a total of 909 cancers in 11,314 necropsies.

Muller in 5621 necropsies, found cancer of

the jejunum and ileum in only three cases. Proportional number in each not stated.

Forgue and Chavin in a series of 88,031 necropsies found carcinoma of the small intestine in only 04 per cent of the total examinations.

Bunting reported one case of carcinoma of the small intestine in 2,200 necropsies.

McKenty reported two cases occurring in the small intestine in 2,500 necropsies.

Johnson, at the Vienna General Hospital, in 41,838 necropsies, found 343 intestinal cancers, ten of which were in the ileum and none in the jejunum.

Clinical reports show great variance in incidence. For example, in 1919 Judd reported twenty-four personal cases of primary cancer of the small intestine, eleven of which were located in the jejunum.

Craig, in 1924, studying the regional lymph glands in thirty-six cases of small intestinal cancer found only four cases of primary carcinoma of the jejunum.

Vickers in 1924 stated that for any given unit of length of small gut, the jejunum shows the greatest relative immunity to cancer. Allbutt and Rolleston have noted that in their experience primary carcinoma of the jejunum is very rare.

Morrison in 1927 writing on primary carcinoma of the proximal jejunum stated that the lesion is very uncommon and is usually discovered at autopsy or when the abdomen is opened for other causes.

Bungoia and Bazterrica in 1930 writing on cancer of the small intestine stated that the most frequent location of primary cancer is the terminal ileum and except for the duodenojejunal junction primary carcinoma of the jejunum does not exist. This is a most contradictory opinion.

Newton and Buckley in 1930 emphasized the rarity of this lesion by summing up the re-

Hodgkins, E. M.—Assistant Professor of Surgery Tufts College Medical School. For record and address of author see "This Week's Issue," page 491.

ported statistics of European clinics and adding personal reports from eight of the largest hospitals in this country. The result was thirty-five histologically verified cases among 135,000 necropsies.

Bland-Sutton, in 1914, was of the opinion that carcinoma in the duodenum occurred more commonly than in either the jejunum or ileum.

Rankin and Mayo in 1930, writing on carcinoma of the small bowel, stated that in the Mayo Clinic up to that time, there had been only fifty-five cases of carcinoma of the small intestine as against 4,597 of the large bowel including the rectum. In twenty-one cases (38 per cent) the carcinomata were found in the jejunum. They also found that a surprising number of these were at, or a short distance from, the ligament of Treitz. These authors excluded cases of small intestinal carcinoma found in combination with carcinoma elsewhere.

CLINICAL PATHOLOGY

Briefly, there are two general types of carcinoma of the small intestine, i.e., the adenocarcinomas and the carcinoids. The former, although in themselves rare, are well understood pathologically and comprise the larger group of epithelial tumors occurring in this location. The clinical gross appearance is that of an annular constricting tumor partially or completely obstructing the lumen of the bowel, not greatly dissimilar from that of the large bowel tumor. Metastasis takes place early to the adjacent lymph nodes of the mesentery. While infrequent, adenocarcinoma does occur anywhere throughout the entire length of the small intestine. Nevertheless it seems to have a predilection for the first portion of the jejunum near the ligament of Treitz (eighteen to twenty inches distal). From this segment downward, the rest of the jejunum and of the ileum are curiously spared. The terminal ileum is rarely involved at or near its union with the cecum (ileo-cecal valve) but involvement several inches above is relatively frequent. Judd states that in his cases of carcinoma of the ileum, nearly all the growths were several inches above the valve. Most surgeons and pathologists who have had the opportunity of examining malignancy at or directly involving the valve find evidence to indicate that the source of origin is on the large bowel side, and extension by continuity involves the terminal ileum.

In a study of fifty-seven cases Soper found that adenocarcinoma showed a predilection for that part of the small intestine nearest the stomach and colon respectively and an analysis of cases reported by others seems to lend support to Soper's findings.

In accord with this viewpoint, Johnson suggests that the fluid nature of the contents, the

alkalinity of the intestinal fluid and the absence of abrupt bends in the small intestine may be the important factors in explaining this infrequency of growths. There are, however, those that believe that the lesions in the jejunum exclusively are either all metastatic from parent tumors elsewhere or possibly islands of aberrant tissue which have undergone malignant change. Secondary malignant degeneration of aberrant tissue is a proved pathological entity for other locations in the body and therefore is logical here at least in theory if not in fact.

Seideln and Hernandez have both reported cases of aberrant pancreas in the jejunum which had undergone malignant degeneration and believe that this should always be considered among the causes of carcinoma at this location. Ransom, Oberndorfer, Verse, and Schopper have described what they prefer to call carcinoid tumors of the small intestine as distinguished from adenocarcinoma.

The pathology of carcinoid tumors at present is not well understood so that their ultimate development must still remain in doubt. A large number probably atrophy and disappear entirely. Some may remain stationary and never produce symptoms while a small group will undergo malignant degeneration.

They are variously described as originating from embryonic rests, from the cells of Lieberkuhn's crypts, from aberrant pancreatic tissue, or from basal cell elements in the submucosa. It is, however, now realized that an indeterminate percentage *will* show pancreatic tissue.

In contradistinction to adenocarcinoma, carcinoids that go on to proliferation are said to extend by local invasion, growing to large size very slowly, often obstructing without metastasizing at all or starting metastasis very late. The consensus is that they are practically confined to the jejunum.

SUGGESTED TREATMENT

From analyzing a large number of reports on the subject of carcinoma of the small intestine a practical working hypothesis is suggested. Disregarding the duodenum it may be assumed that the preponderance of malignant epithelial tumors occur at the *near* proximal jejunum and the *near* terminal ileum. Thus, the exploring surgeon, in searching for suspected malignancy in the small intestine is able immediately to eliminate these areas and by so doing save valuable time and handling of the bowel. In general, the treatment of large malignant bowel tumors is complete removal of the area involved with its adjacent mesentery. In the instance of small carcinoid tumors discovered early, wide removal locally without resection of the adjacent mesentery should be sufficient to effect a cure. Large carcinoids either partially or com-

pletely obstructing the bowel should be treated as potential adenocarcinomas. End-to-end or end-to-side anastomosis reestablishes the continuity of the bowel after resection.

In the presence of metastasis or because of the attendant obstruction when one does not feel justified in resecting the bowel, a palliative entero-anastomosis may be used to sidetrack the pathological lesion thereby relieving the obstruction and prolonging life.

In support of the theory that aberrant pancreatic tissue produces carcoid tumors in the jejunum and does undergo malignant degeneration, the following illustrative case is submitted. In addition, a case of primary adenocarcinoma of the jejunum in which early operation resulted in cure is reported.

CASE REPORTS

CASE 1 Mr L. J. white aged sixty four years was seen in consultation with Dr A. N. Allen June 2 1927. The patient gave a history of periodic attacks of indigestion over a period of twenty years. All food eaten produced distress in the region of the epigastrium. "Heartburn" came on immediately after eating followed by a feeling of nausea. He vomited only occasionally and there was no blood in the vomitus at any time. The vomitus contained sour tasting undigested food. The patient never noticed any tarry appearance of the stools.

In 1926 he had a severe attack of pain in the abdomen with continuous vomiting of everything ingested. Under his physician's care he was given medicine and placed on a liquid diet. Recovery was prompt. Roentgenological examination was suggested to him but this was deferred inasmuch as he felt so much better. He continued on a restricted diet with reduction of symptoms. More recently symptoms have been getting worse with inability to take even liquids without pain and fullness in the epigastrium and frequent vomiting. Nausea is now present when the stomach is empty which has never been experienced previously. There is still no blood in the vomitus. He feels weak and tired constantly.

Physical Examination The patient was fairly well developed, although poorly nourished. His skin was dry and showed no jaundice. The findings of the heart and lungs were within the normal. Reflexes were normal.

The abdomen was scaphoid in appearance the skin over the abdomen was thin and loose and almost devoid of subcutaneous fat. Weight 107 pounds. Abdominal palpation revealed general mild tenderness throughout with a specific sensitive point with spasm high in the epigastrium just slightly to the right of the midline. There was thought to be a possible mass on deep pressure but this was not certain.

Laboratory Examinations The laboratory examinations showed the white blood count to be 9700. Red blood count 4000000. Urine concentrated although otherwise normal. Stools showed faint blood by guaiac test. A test meal for analysis of the stomach contents was not done.

Roentgenological Examination Barium meal was given. The greater and lesser curvatures of the stomach were well defined. The duodenum filled in completely. Six hour examination shows a two-thirds stasis of one-half the meal.

Roentgenological Diagnosis Obstruction of the

pylorus possible ulcer. Malignancy is a strong possibility in this case.

Diagnosis Pyloric obstruction malignant

Operation Under nitrous oxide gas oxygen and ether the abdomen was opened through a high right rectus incision. Exploration showed the gallbladder pancreas kidneys and spleen to be normal. Examination of the stomach revealed an almost complete obstruction at the pylorus due to multiple ulcers and wide induration. The duodenum was normal. Resection of the pylorus and ampulla of the stomach was decided upon. The ampulla of the stomach was adherent to the pancreas but separation was done without causing injury to this structure or excessive hemorrhage. The cut ends of the stomach and duodenum were closed tightly in the usual manner as a Billroth No 2 type of anastomosis seemed advisable. On drawing up the proximal loop of jejunum in preparation for posterior gastrojejunostomy a small tumor was discovered on the anterior wall about eleven inches from the ligament of Treitz. This tumor was approximately the size of a five-cent piece, ovoid in shape, hard discrete with excrescences on the surface and yellowish gray in appearance. The appearance was that of an early carcinomatous tissue. This presented a problem as the tumor was located at just the point where anastomosis should be done. Local excision was possible as the jejunum was of good size and the loss of tissue would not interfere with a good anastomosis. Clamps were applied around this area and the tumor removed by means of an elliptical incision. The resulting aperture was anastomosed to the posterior wall of the stomach and made a satisfactory stoma. The patient stood the operation well leaving the operating room with pulse of 114 good volume. Treatment was administered in bed for mild shock.

Pathological Report Specimen of ulcer of jejunum received June 3 1927.

Microscopic examination shows adenocarcinoma. A considerable amount of pancreatic tissue was present in the muscularia.

Specimen from pylorus received June 3 1927.

Microscopic examination shows no malignancy. Specimen from gland shows no malignancy.

Outcome This patient has been seen frequently in the past eight years by Dr Allen and the author. He remains in excellent health and his present weight is 140 pounds.

The following roentgenological examination by Dr Albert M. Moloney February 27 1932 is interesting in that it shows a satisfactorily functioning stomach and jejunum.

Roentgenological Examination by Dr Albert M. Moloney Check up films show a smooth bordered, operative defect in the distal part of the stomach resulting from resection of its pyloric end. The stomach appears otherwise negative except for a gastro-enterostomy stoma that allowed media to flow out of it.

By fluoroscopy peristaltic waves were seen to pass symmetrically along the course of the stomach. There was no tenderness or apparent defect or intraluminal abnormality noted at the site of defect. On the dependent part of the greater curvature of the stomach, the gastro-enterostomy stoma was found to be functioning normally and there was no tenderness over it.

Films taken one hour after ingestion of the barium meal showed the media flowing freely through normally appearing loops of jejunum in the upper abdomen.

CASE 2 Mr J. C., aged fifty-one years April 4 1930 this patient came to the clinic complaining of what he termed "pressure" in the abdomen. Sharp pains and cramp-like sensations came on some-

times about two or three hours after eating accompanied by transient nausea and a feeling of weakness. At the onset, which was about a year previous, he did not consider it serious enough to consult a physician because certain patent medicines seemed to give relief. He was only mildly constipated at the beginning, but now goes two or three days without moving the bowels. He has not noticed blood in the stools. One attack of pain was very severe, accompanied by vomiting. There has been no blood in the vomitus, however. Pain, at this time, had radiated around the umbilicus and there was a feeling of increased pressure in the epigastrium. Other than the above complaints, the patient felt well and continued his carpentry. His appetite was fair, and he did not think that he had lost any weight although he couldn't be sure.

Physical Examination The patient was well developed and nourished for a man of fifty-one years. The head, neck and chest were normal with the exception of some gingivitis of the upper and lower incisors. Heart and lungs were normal. Reflexes were carefully tested and proved to be normal.

The abdomen was moderately fat, undistended, soft and nonspastic. At a point in the mid line just above the umbilicus there was some tenderness on deep pressure, although not remarkable or accompanied by muscle spasm. No mass was felt.

Laboratory Examinations Wassermann was negative. White blood count 9000. Red blood count 3,400,000. Stools negative for blood. Urine negative. Gastric test meal showed total acidity normal, free hydrochloric acid content normal, no blood, Oppler-Boas bacilli or sarcinae.

Roentgenological Examination Gastrointestinal. No organic abnormality was found in the stomach. It is of normal size and shape and in six hours is entirely empty showing good motility. The duodenum fills fairly well, uniformly and reveals no characteristic signs of ulcer.

In twenty-four hours the large bowel was empty. At this time we gave a barium enema which revealed the large bowel to be uniformly filled from the rectum to the cecum. There is no evidence of stenosis or in fact any abnormal changes. There is nothing to suggest an organic lesion.

Films of the gallbladder with the Graham test show it to be normal.

Tentative Diagnosis Intestinal malignancy. Location undetermined.

Operation April 8, 1930. The abdomen was opened through a mid-epigastric incision and exploration was done. Stomach, pylorus, duodenum, gallbladder, pancreas and both kidneys were examined and found to be normal. The incision was enlarged and the appendix drawn up into it. The appendix was normal. In exploring further a tumor mass was palpable in the omentum just to the left of the incision. With wide retraction and closer investigation, the tumor was found to be behind the omentum, rather than in the omentum, and located in the proximal jejunum about fourteen inches from the ligament of Treitz. The tumor was enveloping and constricting the bowel so as to cause partial obstruction. There was a good deal of edema both on the proximal and distal sides of the obstruction with dilatation of peritoneal surface vessels. Mesenteric lymph nodes were not enlarged and it was assumed that metastasis had not begun. Complete resection of the tumor and adjacent mesentery was decided upon as advisable and the operation proceeded without difficulty or untoward event. The bowel was anastomosed end to end. An enterostomy tube was considered unnecessary and therefore the abdomen was closed tightly.

This patient's first five days of convalescence were rather stormy, mild distention being the chief diffi-

culty. After this period, the convalescence was smooth and he was discharged from the hospital on the sixteenth day.

Pathological Report April 9, 1930. Received a specimen of jejunum with mesentery attached, and containing constricting tumor.

The section shows a hard mass completely enveloping the intestinal circumference, partially obstructing the lumen.

Microscopic section shows adenocarcinoma.

Pathological Diagnosis Carcinoma of the jejunum.

Outcome This patient has remained in good health for the past five years. He states that he has been entirely free of former distressing symptoms.

COMMENT

To draw conclusions from the two cases here-in reported is manifestly not the purpose of this paper. In Case 1, carcinoma of the proximal jejunum was discovered accidentally while resecting a portion of the stomach for obstructing ulcer. Case 2 was undiagnosed preoperatively on account of insignificant symptoms, negative roentgenologic examination and laboratory findings. Exploratory operation was resorted to on account of the patient's age and chronicity of symptoms, such as continued crampy abdominal pains, constipation, distention, transient nausea and moderate anemia, all of which are suggestive of cancer somewhere in the intestinal tract.

To reiterate despite the rarity of carcinoma of the proximal jejunum and terminal ileum, the exploring surgeon will do well to include both these areas in his points of investigation when operating upon a patient, within the cancer age, for gastrointestinal disease.

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CASE RECORDS

of the

MASSACHUSETTS GENERAL
HOSPITALANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22101

PRESENTATION OF CASE

A twenty nine year old white native college student was admitted complaining of abdominal pain.

For several years the patient suffered from weekly attacks of nausea occasionally accompanied by vomiting. He felt generally well however, and presented no further symptoms until one and a half years before entry, at which time he passed a stool which was said to have been black. On two occasions thereafter he passed similar stools. One year before admission he began to suffer from dull gnawing pain in the mid abdomen. The pain usually occurred after his mummy meal but frequently had no relationship to meals. It did not radiate nor were there any other associated symptoms except for occasional watery diarrhea, which recurred approximately once a month. There was gradual increase in the frequency of the pain until it appeared daily and ultimately two to three times daily. For about three months there was increasing fatigue, lethargy, and some malaise. Five weeks before entry he developed a severe sore throat which over a period of two weeks developed into a "head cold." At this time he consulted a physician who after examining his blood and stools, advised hospitalization.

Physical examination showed a well-developed and nourished man in no distress. No positive physical findings were elicited. The heart and lungs were negative. The blood pressure was 120/65.

The temperature was 99° the pulse 88. The respirations were 22.

Examination of the urine was negative. The blood showed a red cell count of 4,350,000 with a hemoglobin of 70 per cent. The white cell count was 8,300. 67 per cent polymorphonuclears. A proctoscopy was negative but feces removed at this time gave a positive reaction to the guaiac test as did two subsequent specimens.

A barium enema showed normal filling and emptying of the colon. There were no evidences of polyp. The shadow of the spleen appeared to be rather prominent. Several days later an

examination of the esophagus, stomach and duodenum was negative. At six hours the motor meal had reached the hepatic flexure. There was a localized dilatation of the terminal ileum about one foot from the ileocecal valve. The dilated loop lay low in the true pelvis and gradually reduced in size proximally so that within a short distance it appeared to be of normal caliber. Peristaltic contractions of the dilated loop were vigorous but there was no persistent spasm.

On the fourth hospital day a laparotomy was performed.

DIFFERENTIAL DIAGNOSIS

DR. BETH VINCENT. We have here a comparatively young man, twenty nine, whose chief symptom is abdominal pain. He was sent to the hospital where examination of his stools showed occult blood. The history states that one and a half years before entry he may have passed tarry stools. So we have to deal with the diagnosis of a case of abdominal pain with bleeding from the intestinal tract. In all cases of bleeding I think it is well at first to look very quickly at the blood picture and rule out the possibility that you are dealing with a pathological hemorrhage such as we get in thrombopenic purpura. The blood examination given here enables us to exclude that and in passing we note we are not dealing with one of the primary blood diseases.

We also note in the physical examination that the examination made by proctoscopy enables us to exclude one of the most common causes of bleeding, hemorrhoids, and at the same time confirms the fact that the blood was in the stools and thus came from somewhere along the gastrointestinal tract. Such bleeding may indicate either a break in the continuity of the mucous membrane of the gastrointestinal tract as in ulcer, or the ruptures of blood vessels some place in the gastrointestinal tract that have become unduly numerous or dilated. The last we might find in a case of angioma of the intestines, a rare lesion and so difficult of diagnosis I think we may dismiss it in this case. Another condition which predisposes to bleeding from ruptured vessels is more common and deserves further consideration that is where the veins of the stomach or esophagus are numerous and dilated on account of obstruction of return of the portal blood. This takes place in two diseases, first in atrophic cirrhosis where the obstruction of the venous return is within the bed of the liver and secondly in obliterative thrombophlebitis of the portal vein or its radicles where the venous return is obstructed in the portal or splenic veins. In both these instances especially in an individual as old as this patient, there is usually congestive enlargement of the spleen. You will notice in this case that the

physical examination was negative and therefore the spleen cannot have been much enlarged, as usually it is easily felt. X-ray suggests some enlargement of the spleen, however. Also, the bleeding in these cases is usually massive. Here the history at one time suggests bloody stools, but there was no vomiting of large amounts of blood.

As to cirrhosis there is no ascites. The individual is rather young for cirrhosis and apparently the diagnosis was not very seriously considered because we have no determination of the functional capacity of the liver. So I think we are safe in saying that this diagnosis is rather improbable.

Continuing then with the ulcers of the gastrointestinal tract, if we begin with the stomach and duodenum we would have to consider malignancy of the stomach and peptic ulcer of the stomach or duodenum. The pain, the gastric symptoms, and the black stools might suggest a peptic ulcer, but you will note that the x-ray is negative. We know that failure to develop the lesion by x-ray in these two diseases, peptic ulcer of the duodenum or stomach, or malignant ulcer of the stomach, is rather rare, so I think perhaps we are justified in saying that this diagnosis is improbable. In speaking of peptic ulcer and bleeding we ought to consider a peptic ulcer in another situation, that is, in relation with a Meckel's diverticulum. As you know, we have those cases. They usually occur in infancy or childhood, may give pain, may give blood in the stools, with a negative x-ray. But most of these cases manifest themselves in infancy or childhood, so I should think this diagnosis was also unlikely.

Passing down into the intestinal tract, if we begin at the other end you will note that the rectum by proctoscopy was negative. I take it also that the digital examination was negative, which certainly would rule out most of the cases of malignancy of the lower bowel. I mean by that, from the rectosigmoid junction downward, and since the x-ray examination of the colon was negative and they did not feel any tumor, it seems to render it unlikely that there was malignancy of the colon. At the same time the x-ray examination of the colon is against ulcer due to colitis and the picture of the individual does not conform to that of ulcerative colitis. It is only fair to say, if this is a surgical lesion, and perhaps because I was asked to discuss it it may be, that most of the low surgical lesions that cause bleeding are located in the colon or terminal ileum. That brings us around to the terminal ileum or cecum. This man has a moderate secondary anemia although x-ray is negative and they felt no tumor. I suppose he could have a malignancy of the cecum, although we can scarcely account for the symptoms of a year and a half with that diagnosis.

He has some temperature, and he might have an inflammatory lesion of the cecum such as we see in tuberculosis, or a lesion of the terminal ileum that is sometimes found, but often hard to diagnose, that is, regional ileitis.

Before making an attempt to settle on any exact diagnosis I think we need an expert's interpretation of the x-ray findings.

DR. AUBREY O. HAMPTON. I have so many films I am lost trying to pick the best ones. We knew this man was bleeding and we looked for a source. We did practically everything, we could including a double contrast enema and a particular search for a posterior wall duodenal ulcer. The double contrast enema was a total washout because the barium did not stick to the mucosa. Here is the gas-filled colon and there is little barium in it. We were able to examine the colon though without any difficulty. There were no redundant loops and you could palpate the whole thing. I think we were quite convinced that there were no polyps. The only positive finding that we had was dilatation of the terminal ileum and this was quite definite. Here is the ileocecal valve, the terminal ileum coming over here, down and around and across and up like that. This loop is quite a way from the ileocecal valve, about two feet, and we were unable to displace it upward although the patient tolerated heavy deep pressure very well. I think it was fixed in that position, deep in the pelvis. One of the films we had showed a small pouch-like thing that was superimposed upon the abnormal bowel here which turned out later to be the tip of the appendix. Of course, that brought up the suggestion that was made, that it might be a Meckel's diverticulum. Certainly at the six-hour examination it was in the location of a Meckel's diverticulum. Later we found that the appendix was unusually low and long, superimposing on the ileum in the midline. But I do not think there was any doubt in any of our minds that the ileum was dilated at that point.

DR. VINCENT. I should think then we might hope to find the lesion in the right lower quadrant and I think perhaps we should exclude an inflammatory or malignant lesion of the cecum and should hope that we would find one of these cases of regional ileitis. If I were going to explore this man I certainly would make a right paramedian incision.

DR. HAMPTON. The x-ray findings were not those of regional ileitis.

DR. VINCENT. In spite of that, I would go over the terminal ileum and cecum and, although they report no polyps, would feel called upon to palpate the colon for polyps very carefully, although as a rule this examination is unsatisfactory. There may be polyps there which cannot be found. At the same time one should feel the liver because if there was a pronounced cir-

rhosis of the liver we could make that diagnosis. It may be said that in these cases of bleeding from the intestinal tract where the preoperative diagnosis is so uncertain the exploration is often negative. I do not believe it is so in this instance because otherwise Dr. Mallory would not have presented the case for our consideration.

DR. TRACY B. MALLORY: Have you any comment, Dr. Jones?

DR. CHESTER M. JONES: I know what he had but there are certain points that I should like to make. I think it is interesting in the first place because this student reported to one of the men over at Harvard a year ago and said he was fatigued and on examination nothing was found. Fatigue was the outstanding symptom. He came back this time with the same symptom. At that time a blood was done and the hemoglobin was said to be seventy but it was seventy Sahli and whoever did it paid some attention to it. Seventy per cent Sahli in a young man of twenty nine represents a definite but rather slight anemia and on the basis of that a careful study was made of this man in the office over at Cambridge as to the cause of his anemia. It was thought not to be a primary blood disease but secondary to loss of blood and stools were taken and a positive guaiac found. I think that represents an intelligent attempt to answer this patient's symptoms in the first place. One of the things not brought out in this history is the fact that this boy's pain was usually merely discomfort but on one or two occasions was sharp, localized below the umbilicus in the midline, very strongly suggestive of small bowel pain as contrasted with that due to disease of the stomach, duodenum or large bowel. He persisted in localizing that pain always in the same place. I proctoscoped him and the examination was negative except that we did get fecal material coming down from above showing a positive guaiac test. That was important because it showed that there was bleeding from above. The x rays were taken and Dr. Hampton discussed them with me. We felt because of the local ileal dilatation, the symptoms, and because of the bleeding that this might represent the very unusual picture of Meckel's diverticulum bleeding in an adult. It was on this basis that we explored, with a diagnosis of Meckel's diverticulum, and we expected to relieve it.

A PHYSICIAN: How often do they show by x ray?

DR. HAMPTON: I thought I was going to be the first one in the hospital to make the diagnosis by x ray and I thought right up to the second note that this was due to a Meckel's diverticulum but since I could not demonstrate the diverticulum I did not think I had enough to make a diagnosis. It was with the aid of the clinical findings, that Dr. Jones mentioned, that

together we were convinced it was a Meckel's diverticulum. At the second examination I hunted for the diverticulum particularly, and I could not find it. The diagnosis by x ray has been reported once in the literature.

PREOPERATIVE DIAGNOSIS

Meckel's diverticulum

DR. BETH VINCENT'S DIAGNOSES

Regional ileitis?

PATHOLOGIC DIAGNOSES

Meckel's diverticulum

Chronic ulcer

PATHOLOGIC DISCUSSION

DR. MALLORY: This is a photograph of the specimen which was removed. You can see this wide diverticulum projecting to the left of the resected section of ileum. At the base of the diverticulum just at the junction with the small intestine, there is an area which is discolored and shallowly ulcerated. The specimen had aroused so much interest that it received the treatment which sometimes occurs to particularly valuable specimens. It was taken out of the routine to be photographed and shown at various clinics, and by the time we got it back it was no longer of any use for histologic purposes. We did manage to get a single block for microscopic examination which shows the area of ulceration but does not show any gastric mucosa. The section was taken from the immediate neighborhood of the ulcer and it is the rule in these cases that the ulcer is not found in the area where the gastrointestinal mucosa is present but in the immediately adjacent intestinal type of mucosa. So there may perfectly well have been gastric mucosa here even though we did not demonstrate it. On the other hand I rather doubt if that was the case, however, because the ulcer does not look like a peptic ulcer. A peptic ulcer has microscopically a very characteristic appearance. The surface is usually quite clean, almost free from leukocytes, and then there is invariably in the active ulcer a superficial zone of so-called fibrinoid necrosis which appears in ordinary sections as a broad red hyalin layer. I have never seen an active peptic ulcer in which this was not present and there is no suggestion of it here. So I am inclined to think that this ulcer was infectious and not peptic in nature. If that is the case it might explain why he has gone well into his late twenties before developing symptoms instead of having hemorrhage from his diverticulum in the first and second decades as is the common story.

DR. McKITTRICK: How high above the cecum may a Meckel's diverticulum be found? How much of the terminal ileum ought one to explore?

DR. MALLORY: I am not able to answer that

definitely. They say that a yard is the common spot but I am quite sure it can go higher, how much higher, I do not know.

A PHYSICIAN How much of a lumen did it have? Could you stick your finger in it or not?

DR MALLORY Yes, very easily. It is characteristic that they almost invariably have a wide lumen as compared with an appendix, very nearly as great as that of the small bowel.

DR HAMPTON Is the mucosa in the diverticulum the same as in the terminal ileum, does it show the same gross pattern?

DR MALLORY It varies a great deal from one diverticulum to another. It should be approximately the same as the ileum. In some cases, however, a very large proportion is made up of gastric epithelium.

A PHYSICIAN What percentage of cases of Meckel's diverticulum contain gastric epithelium in your experience, Dr Mallory?

DR MALLORY I cannot answer that. It was supposed to be a very rare phenomenon until about five years ago, when the attention of surgeons working particularly in children's hospitals was called to the fact and on checking back they found that a very large proportion of these cases showed it. I do not know of any systematic study of the symptomless Meckel's diverticula that are so commonly found at autopsy. One and a half per cent of individuals have a Meckel's diverticulum. I do not know if any one has checked them to see if they contain gastric mucosa.

CASE 22102

PRESENTATION OF CASE

A sixty year old white Canadian woman was admitted in a semicomatose state.

Eight weeks before entry she went to care for a sister who was dying of pulmonary tuberculosis. A week later she became ill with pain, primarily in the left chest, but later upon the right side also. She had at the same time chilly sensations and some fever, and a physician told her she had pneumonia. Early in the course of her illness there was slight jaundice, but this disappeared in a short time. Her appetite was poor, and there was marked nausea but no emesis. Her mind "wandered" a great deal during her illness. She continued to run a febrile course for two weeks, at which time her tongue was so dry that three hypodermoclyses were given. Subsequently edema appeared, first upon the arms and feet but gradually involving the entire body except the face. The swelling remained unchanged upon the trunk and lower extremities but varied in severity in the arms, first affecting one and then the other. She required daily catheterization from the onset of her illness.

She had had rheumatic fever at the age of twelve years.

Physical examination showed a well-developed woman lying upon her back, tossing her head from side to side and moaning. Her respirations were Cheyne-Stokes in character. The skin was loose, dry, and flabby. The tongue was dry, swollen, and brown. The upper sternum was quite prominent. The heart was slightly enlarged and the sounds though regular were of a rather poor quality. A third heart sound was audible at the left border of the sternum and a systolic murmur was heard at the apex. Moist râles were present in the left lower back but no dullness was elicited. The abdomen was slightly distended and tympanitic. There was slight tenderness in the epigastrium with a vague sensation of an underlying mass. Marked edema of the right arm, both lower extremities, and the trunk was observed. Small decubitus ulcers were noted over the sacrum and right heel. The knee jerks were sluggish and the ankle jerks were not elicited.

The temperature was 99°, the pulse 100. The respirations were 32.

Examination of the urine showed a specific gravity of 1.006 with a trace of albumin. The sediment contained many white blood cells and an occasional red blood cell. The blood showed a red cell count of 3,340,000, with a hemoglobin of 75 per cent. The white cell count was 26,600, 91 per cent polymorphonuclears. The serum protein was 4.3 milligrams per cent. The non-protein nitrogen of the blood was 53 milligrams per cent and the sugar 91 milligrams per cent. A lumbar puncture showed an initial pressure of 230 with the head slightly elevated. The fluid was clear, colorless, and contained 73 red blood cells but no white blood cells. The total protein was 57 milligrams per cent and the ammonium sulphate test was positive. A Hinton test was negative.

X-ray examination showed partial obliteration of the costophrenic angles. There were bands of dullness along each axillary line from the apex to the diaphragm. These bands were thicker in the region of the right interlobar septum and upper portion of the left lung. The lung fields showed diminished radiance as the result of a rather coarse, hazy mottling. The mottling was most dense in the region of the right upper lobe and interlobar septum between the upper and middle lobes. The right lung seemed smaller than the left and the intercostal spaces were narrowed on this side. The heart and mediastinum were slightly displaced to the right.

On the day following admission her temperature rose to 101°, but there was no change in her general condition. Despite the administration of transfusions she went rapidly downhill and expired on the third hospital day.

DIFFERENTIAL DIAGNOSIS

DR. MILES P. BAKER The gist of the problem here lies in the question of etiology of what on admission must have seemed a case with the so called "slow nervous fever" of the old clinicians. The history in such a situation must of necessity be scanty in detail and only partly reliable and so sick was she that there was no time for confirmation of certain laboratory examinations the results of which would warrant repetition.

We are dealing with a woman of sixty who has had a fever for at least two weeks, and probably seven who is brought to the hospital in a restless delirium with signs of dehydration and edema of the trunk and extremities, but not of the face, the latter so typical of renal edema. As for the details of her illness we do know that the infection began with pain first in the left chest and later on the right side, presumably pleural pain. Of the importance of the such jaundice mentioned we cannot judge and it is probably hazardous to emphasize this.

It is interesting that from the very beginning she was confused mentally and required daily catheterization for incontinence in all likelihood.

The appearance of edema varying in severity in the arms according to which side she lay on bespeaks a plasma protein deficiency.

It seems fair to wonder whether this fatal infection did not follow on a period of relative ill health with impaired appetite and protein intake, but such must be only conjecture.

The physical examination is noteworthy in that there is no localization of the infection other than such evidence as there is of possible pulmonary infection in the left lower lobe. The absence of ankle jerks is not to be wondered at in such a depleted individual. We have no other evidence of a peripheral neuritis.

The increased respiratory rate is worthy of comment and directs attention toward the possibility of a more widespread pulmonary involvement than one would conclude from the physical examination.

Laboratory tests reveal the picture of a cystitis. This may well be the result of repeated catheterization. She was anemic. One would hesitate to draw any conclusion from one hemoglobin determination of seventy five per cent with such a low red blood cell count. The leucocytosis is important. The serum protein level is what we would expect with the degree of edema noted and seven weeks of fever and neglect. The nonprotein nitrogen we may interpret as evidence of dehydration rather than renal insufficiency necessarily. It is not the urinary sediment of a progressive glomerulonephritis nor have we had the retinopathy of such. The spinal fluid shows findings that are

difficult to interpret. The slightly elevated pressure and rise in protein are compatible with the presence of an area of degeneration adjacent to the subarachnoid space in an elderly person with tiny cerebral thromboses. It is strange that she should have as many red blood cells as this without any white blood cells. An increased spinal fluid protein is occasionally found in elderly people with cerebral arteriosclerosis and the main information to be drawn from this wisely done lumbar puncture is that the woman did not have a subarachnoid hemorrhage which is sometimes the cause of a "typhoid" state, and protracted fever.

Prior to the evidence brought to hand by the chest x ray, several possibilities might come to mind, among them miliary tuberculosis, a protracted case with recrudescences, of typhoid fever which had begun with an initial bronchitis, or gone on to some complication such as a pyelonephritis with colon bacillus infection. Were this a neglected undiagnosed case of typhoid fever there might have been a crural thrombosis that had suppurated or suppurating mesenteric glands that had given rise to a leucocytosis. It is well to remember that miliary tuberculosis and typhoid fever may occur together or that pulmonary tuberculosis may manifest itself in the course of convalescence from typhoid fever and the fact that typhoid fever begins with pleuritic symptoms simulating the effect of rupture of a caseous subpleural lymph node into the pleural cavity is of course an old story.

The fact that she had had rheumatic fever early in life makes one consider the possibility of a chronic ulcerative endocarditis only to abandon the possibility, for there have been no embolic phenomena for one thing.

Some cases there have been of obscure deep seated osteomyelitis undiagnosed until postmortem, but without localizing signs this must have seemed unlikely.

I recall seeing one case of delirium with similar fever and dehydrated state, a woman who showed on physical examination only the signs of an acute bronchitis. This was the first of the cases of tularemia with pneumonia recently reported by Bernstein in the Hopkins Bulletin.

Her chest x ray as I recall it, revealed nothing of a localizing nature. This brings us to a discussion of the x ray of this patient's lungs which seems to me to limit the diagnostic possibilities. The x ray picture showing haziness most dense in the region of the right upper lobe but involving both lungs, is consistent with the presence of a miliary tuberculous infection. I gather that the shadows are not so sharply demarcated and dense as in the accidentally found healed stage of miliary tuberculosis, nor are the shadows those of the larger nodules, more round, less uniform that are char-

characteristic of carcinomatosis of a miliary type. It is not the picture of lymphangitis carcinomatosa rarely seen in association with a scirrhus carcinoma of the stomach which has metastasized to perivascular lymph channels in the lungs. There is not the predilection for lower lobe involvement of silicosis. The smaller right lung field is I suppose due to partial bronchial occlusion, as with an older peribronchial fibrosis or a newer necrosis of the mucous membrane. The x-ray, in the absence of evidence of carcinoma elsewhere, seems to me to point strongly to the diagnosis of miliary tuberculosis which is a self-propagating septicemia occasionally running as long a course as this, seven to eight weeks. The onset with pleuritic pain, the typhoidal course, the rapid respiratory rate, the leucocytosis, all are consistent with such a diagnosis. It is interesting to note that in the earlier Cabot Case Histories miliary tuberculosis was often missed in the antemortem diagnosis, but the x-ray examination here is an added aid in the diagnosis and confirms my suspicion that it is of a miliary tuberculosis that this woman died.

CLINICAL DIAGNOSES

Acute and chronic nephritis with edema
Unresolved pneumonia
(? Miliary tuberculosis)
? Brain abscess
Secondary anemia
Malnutrition

DR MYLES BAKER'S DIAGNOSES

Miliary tuberculosis
Cystitis
Cerebral thrombosis

ANATOMIC DIAGNOSES

Organized thrombo-endarteritis of the pulmonary arteries
Pulmonary fibrosis
Emphysema
Pyelonephritis, bilateral
Cystitis
Chronic pancreatitis with fat necrosis
Hydrothorax, right
Pleuritis, chronic fibrous, bilateral
Ascites, slight
Endocarditis, terminal, mitral
Arteriosclerosis Aortic, moderate
Decubitus ulcers, sacrum and heel.
Perisplenitis

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY This is a type of case which it is hardly fair to put up to the clinician for differential diagnosis inasmuch as when the autopsy has been done and all the

microscopic slides carefully studied the pathologist is still unable to make a diagnosis. It belongs in a group of pulmonary cases which for the moment we are calling, simply because a name is necessary for filing, pulmonary fibrosis. It is obvious that this is not a disease but a condition of the lungs which can be produced by many diseases. The healed stage of a diffuse tuberculosis would, for instance, produce such a result. Organizing pneumonias not infrequently are another cause. Fibrosis developing in and about the lymphatics, such as we see in silicosis, represents another type.

This particular case belongs to a still different category. There are numerous patches of dense fibrous tissue in which the remnants of the elastica of the alveolar walls can still be seen. The picture is closely similar to that produced by organizing pneumonia. There is, however, another lesion present which I believe is primary rather than secondary. Nearly all the medium-sized and small pulmonary arteries show extensive organized and recanalized thrombi within their lumina. These lesions are for the most part old and inactive. A few lobules of lung tissue show fresh changes more suggestive of infarction than of pneumonia, and, in some of these, early organization is evident. I believe this case probably belongs to the group of diffuse thrombo-endarteritis of the pulmonary arteries. The possibility of multiple small emboli is difficult to exclude absolutely but no source for emboli was discovered in the remainder of the autopsy. The process is evidently one of great chronicity, of much longer duration than the patient's story would indicate. The lungs show the usual results of extensive pulmonary destruction in the form of marked emphysematous dilatation of the persisting alveoli. The heart weight was within normal limits, but the right ventricle measured 6 millimeters, a slight but definite cor pulmonale.

The clinicians in the hospital did not have a much more definite idea of the diagnosis than Dr Baker. They had the advantage of personal consultation with the roentgenologist, who stated definitely that he did not believe the lesions were tuberculous although he could not rule out that possibility. The patient was discharged with a death certificate reading ? unresolved pneumonia ? miliary tuberculosis. They believed that she probably had as well an acute and chronic nephritis with edema.

We found at autopsy slight injection of the renal pelves and slight pallor and thickening of the cortex. Microscopic examination showed a moderate grade of diffuse pyelonephritis. A few minute fresh vegetations were found upon the mitral valve. We considered this, however, only a terminal incident probably of little importance in the course of her disease. We unfortunately were unable to examine the head.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.00 per year, \$8.00 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the journal office 3 February.

The Journal does not hold itself responsible for statements
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IVAN PETROVITCH PAVLOV

THOSE who attended the XVth International Physiological Congress in the Soviet Union last August will rejoice in retrospect that Pavlov was spared to preside over that memorable scientific meeting. He had been several times ill some ten months ago an attack of pneumonia caused his life to be despaired of, but it almost seemed that the Fates had decreed he should live until the Congress was over. He presided with great verve at the opening meeting in the Uritsky Palace, he attended the subsequent scientific sessions, he entertained many of the delegates at luncheons and dinners during the week of the Congress, and he presided again at the official banquet at Detskoye Selo. On this occasion the gifted chiefs of the old régime inaugurated the sumptuous feast by preparing an effigy of Pavlov in ice. This striking likeness of the fiery old gentleman headed a procession of 150 waiters bearing delicacies through the great banquet halls of the Catherine Palace. All this seemed to exemplify the final triumph of an extraordinary career which was to come to an end at Moscow February 27 1936. Unhappily

the last months of Pavlov's life were immeasurably saddened by the death on October 29, 1935, of his devoted son, Va. I Pavlov who succumbed to an inoperable carcinoma of the pancreas.



Pavlov giving the opening address August 9 1935 at the Physiological Congress in Leningrad.

Ivan Petrovitch Pavlov, the left handed son of a village priest, Peter Dumitrievitch Pavlov (also left-handed), of the district of Rjāzan in Russia, was born September 14, 1849. After a modest preliminary education in a local church school, he later attended a theological seminary where through the Russian translation of G. H. Lewes' (George Eliot's consort), *The Physiology of Common Life*, he became interested at the age of fifteen in biological science. Relinquishing theology, he was admitted in 1870 to the University of St. Petersburg where he studied under Mendeleev. On completing work for a scientific degree he entered the Military Medical Academy, receiving his qualifications in 1879 and his M.D. in 1883. As an assistant to S. P. Botkin, a clinician, he was allowed to carry on animal experimentation and five years later received an appointment corresponding to "Privatdocent" in Physiology at St. Petersburg. In 1880, though wholly impecunious, he married Serafima Karchevokaya who, fortunately for science, was a self-sacrificing and devoted woman. She bore him four children (two left-handed) and participated in his life until the end.

The years 1884-1886 were spent on a "fellow ship" in Germany where he studied under Ludwig and Heidenham, it was during this period that he made his observations on the output of the isolated heart (published in 1887). Before going to Germany he had studied the factors involved in the regulation of the normal blood pressure of a dog, recognizing at this early period that anesthetics and emotional disturbances affected many physiological functions and insisting that no isolated physiological process could be studied unless *all other func*

tions were kept constant. He therefore trained his dog to allow, without anesthesia, the insertion of a cannula into a small superficial artery on the inner side of the knee joint and to remain quiet while the blood pressure was recorded. In these circumstances he was able to study the effect of ingestion of food, injection of large quantities of water, etc., upon the level of the blood pressure. These studies, carried out in 1878-9, formed the basis of those memorable investigations which were to be the foundation of his later scientific recognition.

In 1890 the Institute of Experimental Medicine was built at St. Petersburg by Prince Oldenburg, and Basil von Anrep, pharmacologist and father of the present professor of physiology at Cairo, was made its first director, in 1891 Pavlov was asked to assume responsibility for the physiological departments of the Institute. He retained his post for many years, though in 1897 he also became Professor of Physiology at the Military Medical Academy, and when in 1907 he was made one of the four scientific members of the St. Petersburg Academy, he found himself with a third laboratory to direct. Throughout his life he continued association with all three institutions, and some years ago, through the generous support of the Soviet government, he was given a fourth and very elaborately equipped laboratory at Koltooshy, some 30 miles outside Leningrad. There in the quiet atmosphere of a small country village conditioned reflex studies were carried out under almost ideal conditions by a group of selected and highly trained collaborators. There, latterly, Pavlov lived some six months of the year in constant association with his favorite students and with his family.

The work for which Pavlov is best known, and for which he received the Nobel Prize in 1904, is that concerned with the physiology of digestion. As early as 1879 he had published three papers on pancreatic secretion, one of which described a new method, similar to that originally used by de Graaf, for making a pancreatic fistula. Not until 1888, however, did he devote his time consistently to the study of digestion. In that year he showed that the vagus nerve was secretory to the pancreas, and in 1889 a paper from his laboratory described the secretion of the gastric juice (*Centralbl. f. Physiol.*, 1889). Here we find the first description of the Pavlov method for obtaining pure gastric juice. Fistulous openings were made in the stomach and also in the esophagus. Food was introduced through the lower end of the esophagus, or into the stomach directly. The animal must have recovered fully from the operative procedure necessary to establish these fistulae before observations could be made. It was recorded by the late Professor Starling (*Nature*, 1925, p. 2) that Pavlov took the operated

animals into his home where they were cared for by his wife and four children until full recovery. In the animal with gastric fistula Pavlov observed that after it saw or smelled food, an abundant flow of gastric juice occurred, designated "psychic secretion." The response evidently depended upon reactions integrated at the cortical level, and in later studies he and his students were able to show that removal of the cerebral cortex abolished the response and that, when present, it was mediated by the vagus nerve since section of this nerve also destroyed the reaction. Peripheral stimulation of the vagus evoked gastric secretion similar to that produced by psychic stimuli. Pavlov's observations on gastric secretion were published in German in 1898 under the title, *Die Arbeit der Verdauungsdrüsen*. This was soon translated into French and into English.

Study of the response of the gastric mechanism led Pavlov logically into the field of higher nervous function. In the hands of Sherrington and Magnus the more simple somatic reflexes subserving posture and phasic movement had been analyzed in some detail. Pavlov set himself the problem of analyzing the highest levels of nervous function in similarly objective terms. The higher adjustments underlying memory and educability depend upon the cerebral cortex. Pavlov conceived the fertile thought that the gastric reactions just described might be used as an index of cortical function. If food is actually introduced into a dog's mouth, saliva and gastric juice flow, the response varying in extent with the intensity of the stimulus. Reactions of this character Pavlov designated as "unconditioned." If, however, the presentation of food were regularly heralded by the sound of a bell, or by some other sensory stimulus, the animal soon comes to associate the particular sensory experience with the subsequent acceptance of food. Such a preliminary stimulus was designated "conditioned", and the response which followed, even though the food were not actually presented, a "conditioned reflex." Pavlov believed that such conditioned reflexes were dependent upon the integrity of the cerebral cortex. Consequently, through the analysis of reactions of this character, he was able to investigate functions of the cortex as a whole, as well as reactions of discrete areas of the cerebral mantle. Pavlov gave a preliminary account of these studies in London in 1906. Later reports were published in the Russian language, but not until 1927 when Gleb von Anrep (the son of his former master), translated Pavlov's lectures, did the physiological world have an adequate conception of Pavlov's doctrines and of the experimental evidence on which they were based.

Pavlov came to this country on several occasions the last visit being in 1929 when he attended the International Psychological Congress in New Haven, and the International Physiological Congress at Boston. Pavlov's public appearances in 1929 were made memorable and vivid by Anrep's remarkable translations of his utterances. One such occasion in Boston was described at the time as follows:

'Before a small and select group in one of Cannon's side rooms we had Pavlov serving up his latest ideas of inhibition in relation to neuroses, hot from the griddle. Vivid alert gesticulating the old man poured out his Russian phrases, like a mitrailleuse never missing fire, directing his attention meanwhile chiefly to Anrep who sat calmly alongside smoking innumerable cigarettes. Pavlov would suddenly stop and point menacingly at Anrep who possibly would ask him a question or two to make sure of his ground—indeed even interrupt him. Pavlov, moving his watch and chain along about six inches farther on the table in front of him would slump down in his chair, sluffing his ischial tuberosities to one side or the other—whether because the chair was hard or because this was one of his reflexes, I am not sure. Anrep would then begin always composedly, and give a most brilliant and concise presentation in English of what had gone before. Pavlov then picking up the thread again and continuing. This went on for an hour and, except for the intrusion of a few belated guests who crowded into the room, one could have heard a pin drop.'

The conditioned reflex has become the principal experimental means for the analysis of cerebral function. The physiologist has used Pavlov's method, and applied it to many fields of study. Psychological laboratories, especially in this country, have also adopted and elaborated the method, but they have placed a more restricted interpretation upon the results obtained. Evolutionary study of cortical function indicates that some reactions are more highly encephalized than others, in consequence of this, lower animals such as cat and dog, may exhibit primitive conditioned reactions after their cerebral hemispheres have been removed. Studies of visual function in monkeys indicate that condition reflexes involving light perception may be demonstrated after the occipital cortex is destroyed, but those reflexes dependent upon *object* vision disappear when this part of the forebrain has been surgically ablated. Granting the modifications arising out of such comparative psychological study, the broad conceptions of Pavlov remain the foundation of modern analysis of cortical function. The reflex, as observed in

the spinal cord, becomes the unit from which all higher reactions are ultimately elaborated and the cerebral cortex differs in no essential respect, except that of complexity, from the orderly mechanism of the spinal animal. Such was Pavlov's thesis, and however much critics may quibble over the details of Pavlov's individual theories such as that of internal inhibition, the fact remains that he gave the world a new approach to a complex problem, and by so doing brought order out of chaos. Pavlov was indeed one of five or six individuals of the last generation who caused mankind to think in new terms like Freud he created a new horizon, but unlike Freud he remained wholly objective in his mode of collecting scientific data.

The studies of Pavlov which place the reactions of man and animals on a common plane appealed to the leaders of the Soviet Government as a creed. The Orthodox Church had been overthrown, and in its place an objective science of human behavior came to be uppermost in the minds of those who directed the destinies of the new political régime. Pavlov thus became in spite of himself the preceptor of a new social order; and though he criticized the political dicta of the Soviet he was accepted, protected and given recognition of a character never before accorded to a scientific man by any government, and whatever may happen to science in Russia, the world cannot easily forget that Ivan Petrovitch Pavlov was honored and handsomely supported by a political regime for which he had little sympathy.

REFERENCES

In February 1916 just twenty years ago, Pavlov's death was announced in a full page obituary appearing in the columns of the *Lancet* (Feb. 19, 1916) 437-424. Significantly conditioned reflexes are not mentioned in this premature notice of this phase of Pavlov's work had not attracted the attention of English readers. Other sources material concerning his life are as follows: E. H. Starling *Voice* 1928, 118:1-3; W. H. Gantt, *Biographical sketch in Lectures on Conditioned Reflexes* (1929) pp. 11-31; Staritzky G. W. *Arch. Neurol. Psychiat.* 1935 32:1692-1697. This last contains references to other sources material.

NOTE: The spelling of Pavlov's middle name Petrovitch was preferred by him.

THE MASSACHUSETTS PNEUMONIA CAMPAIGN

THE five year state-wide Pneumonia Study and Service carried out by the State Department of Public Health with the financial support of the Commonwealth Fund of New York terminated at the close of the year. This enterprise constitutes a notable achievement in public health practice, and an achievement rich in results for the practitioner of medicine.

From the scientific part of the program have come improved methods for the production of serum. Preparations of Types I and II serum of higher potency, more accurately standardized, have been made freely available. Tests for the physiological action of the product have been

devised with a constant lessening of undesirable reactions in the patient, while, through technical refinements, the cost of the serum has been appreciably lowered

In the field study, new facts have been learned as to the prevalence of the various serological types of pneumococcus responsible for lobar pneumonia, and the fatalities caused by these different types. More than ten thousand sputum specimens have been examined, affording an opportunity for a comparative study of the different methods of type-determination. Physicians throughout the State by means of lectures, addresses, conferences and the free distribution of reprints of recent publications have been made familiar with the latest and best practice in the bacteriological and clinical diagnosis, and the medical, surgical and nursing treatment of this disease. Special, intensive, one-day courses covering all the phases of pneumococcal infection were given by recognized authorities at the Harvard Medical School, and many Massachusetts physicians attended these lectures as guests of the Pneumonia Fund. Nearly one hundred technicians from many state, city, county and private hospitals, and local health departments were invited to Boston and given laboratory instruction in methods for the determination of pneumococcal types. By this plan, stations have been established in various localities where identification of the infecting pneumococci in sputum, blood and other body tissues can be made with little delay.

Altogether, sixty-five hospitals were selected as centers of special, detailed study of serum treatment, and these hospitals served as depots from which serum was given to physicians co-operating in the study. Collaborating physicians were appointed in all the districts to visit patients with practitioners desiring advice on diagnostic problems or on the details of serum treatment, the fees of these collaborators being paid either by the patient or from the special Pneumonia Fund. Thus, serum and expert counsel were furnished to physician and patient. Special case report forms were supplied to all those using the serum. In this way uniform records of nearly one thousand cases of lobar pneumonia were collected. Included in this is the largest single series of serum-treated Type I cases ever assembled. Some seven hundred cases of lobar pneumonia receiving no serum were investigated.

These records contain valuable information concerning many of the phases of the serum treatment of lobar pneumonia. Their large number permits reliable statistical analyses, and the study already made of these case histories furnishes a sound basis for the appraisal of specific serum treatment. When antipneumococcal serum was administered in sufficient amount

within the first four days of the disease, there was a reduction of fifty-six per cent in the fatality rate of the Type I cases and of thirty-four per cent in those cases due to a Type II infection. The results of this five-years' experience have been condensed into a handbook for physicians on lobar pneumonia and serum therapy, which in compact and concise form tells the physician the essential details of the diagnosis and treatment of this disease. We are promised that within the year compendious reviews of the existing literature on Pneumococcus and lobar pneumonia will appear.

The State Department of Health will continue its studies of Pneumococcus, of serum production and of pneumonia and allied infections, and Types I and II antipneumococcal serum will be distributed under certain desirable stipulations, free of charge to physicians.*

We have selected for mention only the most immediate and conspicuous results of this soundly planned and ably executed program. Its method of operation and its manner of administration, enlisting as they have, the hearty co-operation of the members of the medical profession, and with its emphasis on study and its generous service, may well be taken as a model for other public health programs. Already the Connecticut Department of Public Health is distributing Types I and II antipneumococcal serum free of charge to those who cannot afford to pay for it and at cost to those who can, and the City Department of Health of Detroit is now supplying serum to its physicians. The State Medical Society and the Public Health Department of New York State, with the financial aid of the Commonwealth Fund and the Metropolitan Life Insurance Company, on the first of the year inaugurated a somewhat similar service.

We congratulate the Massachusetts Department of Public Health upon its distinguished achievement and voice the appreciation of Massachusetts physicians of the generosity of the Commonwealth Fund in supporting the Pneumonia Study and Service.

*See p. 219 of our issue of January 30, 1936. Vol. 214, No. 5.

The Massachusetts Medical Society

THE SECTION OF TUBERCULOSIS

THE Officers of the Massachusetts Medical Society have requested that this year the programs of all the sections be made of especial interest to the physician in general practice. With this in mind the Section of Tuberculosis is planning a program quite different from those which have been given in the past. It has been decided to make the session a definitely clinical one with presentation of cases and a discussion of the

treatment of pulmonary tuberculosis as it develops at different ages. This discussion is to be of the sort which will be of value to the general practitioner rather than to those who are doing special work in tuberculosis. The papers are to be arranged as follows

(1) Presentation of a case history of pulmonary tuberculosis in both infant and child. With discussion of treatment. Dr Clement A Smith, Boston Children's Hospital

(2) Presentation of a case history of pulmonary tuberculosis in an adolescent. With discussion of treatment. Dr Roy Morgan, Superintendent of the Westfield State Sanatorium

(3) Presentation of a case history of pulmonary tuberculosis in an adult. With discussion of treatment. Dr John B Hawes, 2nd Boston

Dr Edward D Churchill, Professor of Surgery at the Harvard Medical School will be present to discuss the cases from the surgical standpoint, and Dr Hugh Hare, Roentgenologist at the Middlesex County Sanatorium, will be ready to discuss various features of the x ray films

The formal presentation of each case will be limited to twenty minutes so that there will be ample time for questions and discussion from the floor, and it is the hope of the officers that this part of the program will be of especial value. For safety's sake each discussor will be limited to three minutes

A meeting of this sort is somewhat of an innovation for the annual session of the State Society, and it will be interesting to see whether such a program can be successfully carried through

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

DALAND ERNEST M. A.B. M.D. Harvard University Medical School 1918. F.A.C.S. Instructor in Surgery, Harvard University Medical School. Chief of Staff, Pondville Hospital Wrentham. Assistant Surgeon, Massachusetts General Hospital. Address: 493 Beacon Street, Boston, Mass. Associated with him is

WELCH, CLAUDE E. A.B., M.A., M.D. Harvard University Medical School 1932. Formerly, Surgical Resident, Pondville Hospital. Now Assistant Surgical Resident, Massachusetts General Hospital. Address: Massachusetts General Hospital Boston, Mass. And

NATHANSON, IRA T. B.S., M.S. M.D. Northwestern University Medical School 1930. Littauer Research Fellow in Surgery, Harvard University Medical School. Formerly Surgical Resident, Pondville Hospital, Wrentham. Address: Huntington Memorial Hospital 695 Huntington Avenue, Boston Mass. Their sub-

ject is One Hundred Untreated Cancers of the Rectum. Page 451

SHATTUCK, GEORGE CHEEVER. A.B., A.M., M.D. Harvard University Medical School 1905. Assistant Professor of Tropical Medicine Harvard University Medical School. Assistant Visiting Physician, Boston City Hospital, in charge of Service for Tropical Diseases. Address: Harvard University Medical School, Boston Mass. Associated with him is

HILPERTY, MARGARET M. A.B. Ed.M. Formerly Statistical Technician in the Department of Vital Statistics, Harvard School of Public Health. Address: View Street Leominster Mass. Their subject is Distribution of Acute Heat Effects in Various Parts of the World. Page 458

EVERSOLE, URBAN H. A.B., M.D. University of Kansas School of Medicine 1932. Anesthetist, Lahey Clinic, New England Deaconess Hospital and New England Baptist Hospital Boston Mass. His subject is Anesthetic Emergencies. Page 468. Address: 605 Commonwealth Avenue, Boston Mass

DUNPHY, J. E. M.D. Harvard University Medical School 1933. Assistant Resident Surgeon Peter Bent Brigham Hospital. Address: Peter Bent Brigham Hospital Boston Mass. Associated with him is

ALT R. E. M.D. Harvard University Medical School 1931. Formerly, Fellow in Urology Peter Bent Brigham Hospital. Now Resident Surgeon, Beverly Hospital, Beverly, Mass. Address: Beverly Hospital, Beverly, Mass. Their subject is The Relief of Pain by the Subarachnoid Injection of Alcohol. Page 472

HODGKINS, E. M. M.D. Tufts College Medical School 1915. F.A.C.S. Assistant Professor of Surgery, Tufts College Medical School. Assistant Surgeon, East Wing St. Elizabeth's Hospital. Surgeon in Chief Roxbury Hospital. His subject is Primary Carcinoma of the Jejunum with Report of Two Cases. Page 477. Address: 45 Bay State Road Boston Mass.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

C. J. KICKHAM M.D., <i>Chairman</i>	R. S. TITUS M.D., <i>Secretary</i>
524 Commonwealth Ave., Boston Mass.	472 Commonwealth Ave., Boston Mass.

PRECLAMPISIA AND ECLAMPSIA

Terminology and Definition The term 'Toxemia of Pregnancy' should be abandoned

A series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

in favor of Preeclampsia and Eclampsia. These are the same condition except in degree.

Twenty-five per cent of all maternal mortality in the United States is accounted for by this condition.

Etiology Hofbauer (*Am J Obst & Gynec* 26 311, 1933) showed to his satisfaction that the relationships between foreign protein (i.e., foreign to the body economy except in pregnancy) and the internal secretions, especially the posterior pituitary, result in preeclampsia and eclampsia. It is generally considered that certain steps in his reasoning remain to be proved or checked. Acceptance of his theory of etiology varies greatly among prominent workers in this field. It would perhaps be fair to state that many of the data involved are impressive, but that since certain links in the chain are weak his thesis is not in general considered proved. George van S. Smith seems to show a relationship between the pituitary and the eclamptic state, and quite likely it is along the endocrine line that a cause will be found. Considering the difficulty of concentrating the endocrines, the expense, and the large dosage presumably required, direct endocrine therapy seems a distant possibility, even if an endocrine relationship shall have been proved. For the present then we must fall back on the old idea, namely that the only sure known etiology of the eclamptic state is pregnancy, present or recently past.

It is now apparent that the group of cardiovascular and nephritic conditions which may be called, for the sake of simplicity, essential hypertension and suspected chronic glomerulonephritis are best viewed in relation to the eclamptic state from the standpoint of secondary etiological factors. In 1927 Corwin and Herrick (*Am J Obst & Gynec* 13 617, 1927) (*J A M A* 88 457, 1927) suggested this and in 1935 proved it by necropsy findings checked against a long period of clinical observation (*Arch Int Med* 55 643, 1935). The exact and percentage relationship between these conditions and the eclamptic state has yet to be worked out in a great group of cases followed to autopsy, but a more or less general acceptance of this point of view is already apparent. As a basis for an up-to-date understanding of these medical conditions we have found the book "Hypertension and Nephritis" (3rd Edition) by Fishberg invaluable.

In concluding the question of etiology it seems wise to stress again two other correctable and often neglected factors in the production of the eclamptic state. These are obesity with uncontrolled weight gain in pregnancy, and focal infection. *A physician neglects his patient if he fails to note and to attempt to control her overweight at each prenatal visit quite as much as*

though he failed to observe her blood pressure and urine. The matter of focal infection needs no further emphasis.

Signs and Symptoms The well-known signs and symptoms of relative hypertension, albuminuria, edema, especially of the face, sudden weight gain, blurring of vision, nausea, and vomiting, constitute premonitory signals and sufficient cause whenever possible to hospitalize the patient. Torpor and irritability, mental or motor, constitute the final danger signals. Epigastric pain, convulsions, coma, and death within thirty-six to forty-eight hours too frequently constitute the termination of the eclamptic state. It is important to note that this condition progresses at different rates of speed, i.e., slowly in a matter of days or even weeks, rapidly in a matter of hours, or very rarely, fulminating—without warning. Since this is true, a weekly urine examination and a blood pressure and weight record every two weeks is the minimum requirement for proper prenatal care. Even then some "quick cases" will get off to a long start before detection. We have come to feel that borderline diastolic pressure, 90 to 100, is an important prognostic sign. If a patient shows any sign or symptoms and cannot be hospitalized for observation for economic reasons a daily urine specimen and a blood pressure reading every other day constitute the minimum requirement.

Treatment Eclampsia, usually defined for simplicity as preeclampsia with the addition of convulsions, carries about ten times the maternal mortality rate of preeclampsia in this region. The relative fetal mortalities—if the child is over thirty-two weeks—is probably even greater in the two conditions. In 168 consecutive cases of eclampsia investigated recently we find a maternal mortality of nearly 40 per cent in emergency cases, nearly 20 per cent in observed cases, a combined mortality of just under 25 per cent. These cases occurred over a period of twenty years and were treated in a variety of ways, largely on conservative principles. No improvement in results can be demonstrated because of changed detail of treatment in these cases. *Therefore, since the maternal mortality in preeclampsia may be set at 25 per cent it seems reasonable to assert that to date the primary principle of the treatment of the "eclamptic state" is to empty the uterus, by the gentlest means and after getting the patient in her best possible condition by the well-known accepted sedative eliminative treatment, prior to convulsions.* This is usually satisfactorily accomplished by rupture of the membranes with or without the guarded use of a pressor-principle free oxytocic. Occasionally abdominal cesarean section may be considered, but should be avoided if possible, since severe

preeclampsies are poor surgical risks. Nice judgment based on experience and a careful weighing of all factors including the preservation of the frequently premature baby are necessary to make this decision wisely, especially as it is a striking fact that a study of maternal mortality statistics in Massachusetts year after year invariably shows a notable list of combined "Toxemia—Cesarean Section—Peritonitis" deaths. It must be borne in mind that abdominal cesarean section in preeclampsia does not guarantee a living baby especially if it be premature. Clifford has shown a 45 per cent mortality in infants under five pounds in cesarean section done for this condition, a mortality of 27 per cent in the infants in this group that weighed from 4 to 5 pounds. Plass has shown recently a 6 per cent maternal mortality in sixty-seven sections for preeclampsia done throughout Iowa in 1930-1932. J. A. Smith of Boston reports a similar series of fifty-seven cases with a maternal mortality of 53 per cent. On the other hand the writer, paying especial attention to anesthesia with the omission of all preoperative medication and a technique of operation which exposes the baby to practically no anesthetic and the mother to very little has performed forty-five sections for severe preeclampsia with the death of a single mother a rate of 2.2 per cent. Of the babies in this series twelve weighed between four and five pounds and were all discharged well from the hospital. Babies under four pounds, seven in number were all less than twenty-eight weeks and all died. Babies over five pounds, twenty-five in number, all lived but one. The mother of this baby had preliminary medication including morphine forty-five minutes before operation. It may be added that four of the forty-five preeclamptics developed eclampsia. So perhaps it may be concluded that with an unfavorable cervix, abdominal cesarean section under special precautions has a place in the treatment of preeclamptic toxemia.

Treatment of Eclampsia It is the generally accepted opinion that some one or other of the so-called conservative routine methods of treating the eclamptic state once the patient has developed convulsions (or coma) gives far better results than active obstetrical intervention. Further it is generally stated that cesarean section is, next to the long abandoned accouchement force, the method of treatment attended by the worst results. Yet one discovers that in most of the accepted routines some form of interference is permitted after so many hours or days of conservative treatment if improvement is not noted or the patient grows worse, and in studying many series of eclamptics treated conservatively on occasion the method of interference used appears to be cesarean section, so that we must conclude that it has a place rarely at least

in the treatment of eclampsia also after failure of conservative treatment. Latest figures, quoting Plass again, show that of eighty-four cesarean sections done for eclampsia in Iowa in 1930-1932, sixteen died a mortality rate of 19 per cent. If we compare this maternal mortality of eclampsia treated by cesarean section all over one state, which implies in some instances at least a lack of detailed care with the figures given earlier in this essay from an individual series treated in a variety of ways but practically all "conservative" we find that these cases treated by section give equally good results as the "under observation" group and twice as good results as the "emergency group." No fair conclusion can be drawn from these comparative statistics for a variety of reasons. The purpose of stressing them here is to emphasize that *method of treatment and method of delivery in eclampsia* are two, on the whole separate propositions though they sometimes interlock. The question of *method of delivery* resolves itself into adding the least possible insult to an already heavily damaged body. From a practical point of view no delivery at all or normal delivery when possible does the least mischief. How much more eclampsia a given patient will take and live and how a given doctor views this aspect of the question is an individual matter and no routine can be laid down that meets the requirements of all cases. This is justifiable criticism of all "routine conservative treatment." Constant observation, treatment including rest, and individualized action depending on the results of these will give the best results in eclampsia.

Among the untold number of remedies for and theoretical treatments of eclampsia, two deserve special mention. It has been shown that a relatively small proportion of eclamptic deaths result from cerebral hemorrhage perhaps 10 per cent to 15 per cent. Such deaths are apt to occur in elderly women, probably with a hypertension background. The rest die of or with, edema of the lungs or brain or both. The typical moribund eclamptic is clinically a cyanotic woman with wet lungs and running fluid from the mouth—the head lowered for drainage. Teel, Reid, and Hertig have shown that a few preeclamptics exhibit acute left ventricular failure, seemingly the result of the prolonged hypertension of the preeclampsia and not associated either with chronic nephritis or chronic heart disease, and in one instance death resulted in the attack. It seems likely that the wet lung moribund eclamptic is in the same state for the same reason. From these findings of cerebral edema and edema of the lungs it may be laid down as a sound principle that any treatment which may increase edema is unsound. Hence the theory of balanced fluids in the eclamptic state deserves special consideration. Since it is known that the damaged

kidney will put out only what fluids its condition allows, more fluids than this amount taken in must increase edema. If it is true on the above reasoning that increased edema is bad then it may be reasoned that any agent which tends to reduce edema, especially cerebral edema probably the cause of the convulsions, is good. This brings us logically to the intravenous and intramuscular use of magnesium sulphate in eclampsia a phase of the subject neglected in this locality.

Schwaiz and Dorsett of St. Louis (*South M J* 23 288, 1930) report 186 cases of eclampsia treated basically and conservatively with intramuscular or intravenous magnesium sulphate with a maternal mortality of 7 per cent. Rucker* of Richmond (1931) reported 109 personal cases of eclampsia treated with intravenous magnesium sulphate (20 cc of a 10 per cent solution repeated p r n for convulsions or impending convulsions) with a maternal mortality of 5.5 per cent. His previous mortality had ranged from 31.6 per cent under active obstetrical treatment to 25.9 per cent under other conservative treatment, i.e., morphine, venesection, gastric lavage, and colonic irrigation. He says of his 109 cases "In only two cases was I unable to stop convulsions." And further to show that his mortality is not a corrected one "Of the six deaths that occurred in the 109 cases of the ultraconservative group, two were not treated ultraconservatively, two died of infections after the eclampsia had subsided and only two were truly eclamptic deaths treated in the manner described." Lazard of Los Angeles and McCord of Atlanta report similar, good results by this treatment. Such results, especially Rucker's comparative ones in his own hands, are highly suggestive.

In Conclusion We have indicated our belief in emptying the uterus prior to convulsions when possible in the eclamptic state. We have indicated that if the patient has passed the convulsion phase sharp individualization in *method of delivery* and *time of delivery* is necessary and the conviction that, on necropsy and statistical grounds, an extended trial of intravenous or intramuscular magnesium sulphate treatment should be made hereabouts, and that balanced fluids constitute an additional important feature of treatment.

Each patient threatened with eclampsia should be hospitalized and given the benefit of obstetrical consultation.

*Rucker's last figures 1934 show less than 5 per cent mortality in 1-3 cases. Digitalis for the prevention of pulmonary edema and venesection if it has occurred are added to the MgSO₄ treatment.

AIDS TO THE COMMITTEE OF ARRANGEMENTS

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

Dr. Scott W. Mooring of Gloucester, Dr. Albert Parkhurst of Beverly, and Dr. Nathaniel

Breed of Lynn, have recently been appointed from the Essex South District to assist the Committee of Arrangements for the Annual Meeting of the Massachusetts Medical Society at Springfield in June.

HAMPSHIRE DISTRICT MEDICAL SOCIETY

Dr. Lawrence N. Durgin of Amherst, Dr. Thomas F. Conden of Northampton and Dr. Stephen Brown of Northampton, have recently been appointed from the Hampshire District to assist the Committee of Arrangements for the Annual Meeting of the Massachusetts Medical Society at Springfield in June.

FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY

HAVE you paid your annual dues?

Remember that if you are delinquent your *Journal* will not be mailed to you. If you wish to have your files intact, please attend to this obligation.

MASSACHUSETTS LEGISLATIVE NOTES

House Bill 59 which defines the words "stillborn child" has been enacted.

House Bill 574 which was designed to provide that hospitals receiving public support should be required to accord equal rights of admission to patients of all duly registered physicians has been referred to the next annual session.

MISCELLANY

CHANGES IN SEVERAL BOARDS OF STATE INSTITUTIONS

According to current reports, His Excellency, Governor Curley, has nominated for the position formerly held by Frank B. Hall of Worcester, as Trustee of the Grafton State Hospital, Miss Martha Ducey of Shrewsbury.

Other nominations are the following: Monroe Kaplan of Boston to succeed Mrs. Esther M. Andrews of Brookline as a Trustee of the Boston Psychopathic Hospital, Michael McGrath of Salem to succeed Robert H. Sawyer of Haverhill, Mrs. Catherine Sullivan of Canton to succeed Mrs. G. S. Sutherland of Boston as Trustee of the Taunton State Hospital, Robert Portle of Worcester to succeed Howard W. Cowee of Worcester, Trustee of the Worcester State Hospital, John H. Craig of Natick to succeed Walter Channing of Dover as Trustee of the Medfield State Hospital, and William Bulman of Brockton to succeed Horace A. Keith of Brockton as Trustee of the Foxboro State Hospital.

Appointments as Trustees of the Massachusetts General Hospital Miss Betty Dumaine Henry V Morgan James H. Bushway and Dr Joseph San tonsoso.

Reappointments were Charles C Cain of Taunton as Trustee of the Taunton State Hospital and Charles F Rildoran of Sharon as Director of the State Division of Livestock Disease Control

AN ADDRESS BY DR. RUSHMORE

In response to an invitation by the Law Society of Massachusetts Dr Stephen Rushmore delivered an address before that body at the Boston City Club February 25 1936

A MEETING OF MEMBERS OF THE LEGISLATURE WITH PHYSICIANS

Worcester physicians entertained members of the Massachusetts Legislature from Worcester and vicinity Friday February 21 at the Worcester City Club The object of this meeting was the discussion of bills presented to the Legislature and which have a bearing on medicine and especially on public health.

After enjoying a bountiful dinner the assembly was called to order by Dr W F Lynch President of the Worcester District Medical Society who after welcoming the guests introduced Dr A W Marsh of Worcester and a member of the Legislative Committee of the State Society as master of ceremonies

Dr Marsh explained that this meeting was accorded to precede an occasion for presenting to certain leaders in the State Legislature the opinion of Worcester physicians respecting those bills before the Legislature which bear on medical problems

Several doctors after being introduced by Dr Marsh submitted analyses of some of the more important bills especially those relating to hospitals various forms of medical practice and particularly House 34 introduced by the Board of Registration in Medicine

Dr Morgan President of the State Medical Society closed the discussion with a spirited appeal for the recognition of the importance of scientific medicine in dealing with the ill of the people and urged the protection of the citizenry against incompetent practitioners In a supplemental admonition he emphasized the importance of an approved education for all physicians.

This meeting seemed to interest the members of the Legislature and is a commendable effort to secure cooperation

AFFAIRS IN CONNECTICUT

DR. C. C. BURLINGAME SPEAKS OF WITHDRAWING THE VEIL OF MYSTERY THAT SURROUNDS THE MENTALLY ILL."

Dr C Charles Burlingame physician in-chief of the Neuro-Psychiatric Institute and Hospital of the Hartford Retreat, addressed two lay audiences in

Hartford Conn. on January 31 1936 His subject was treated in a most interesting manner Concerning so-called mercy killing of the incurably diseased Dr Burlingame said

"The helpless monstrosity might not have been deprived of anything worthwhile in a mercy killing although even this is open to question The sufferer from an incurable disease may have appeared to benefit by a mercy killing although this is open to discussion. But one thing is certain That man has not sufficiently sublimated his sadistic tendencies to permit mercy killings without grave dangers to society as a whole suffering from a release of man's imperfectly suppressed sadism.

The speaker pointed out that the first step in prevention of mental illness is a knowledge of the nature of the disease and its causes He traced the etiology of some mental illnesses to the stresses and strains placed on the human mind by the civilizing process in which certain destructive tendencies natural in man had to be curbed as a natural development of society He cited war as an example of how instinctive destructive tendencies barely covered by the thin veneer of civilization, can be brought suddenly to the surface.

We need to think back no farther than our last war to see how quickly we brush aside the 'Thou shalt not kill' that we were brought up to regard as the greatest of the Ten Commandments and under the pressure of military training we have seen how easy it is to release sadistic tendencies and have millions of men accept with aplomb the job of killing

May I here interpolate that wars will not cease until there is a change in the brain of the human being Peace pacts leagues of nations and balances of powers will not prevent the periodic release of man's sadistic tendencies until the individual man has developed much further Wars will not disappear until the human brain makes a further development and finds a substitute for war

Dr Burlingame drew attention to the slight distinction which he said separates the normal from the abnormal in the following illustrations

It is only a little step from a Dr Samuel Johnson who felt obliged to touch every passing lamp post to the mentally ill person who must revolve seven times before sitting down

It is only a step from the frate golfer who smashes his club in anger and damns his club and the ball to the mentally ill person who attributes a definite personality to the radio or to the chair in his room

It is only a step from the smut hunting censor who sees dirt in everything to the mentally ill person who continually bathes himself to the exclusion of any productive activity in order that he may 'purify himself'

It is only a step from the ruthless dictator who wraps himself in a cloak of apostolic fervor and

thus makes his dream come true, to the hospital patient who in his manic drive develops delusions of personal grandeur to the point where he would readily undertake a reorganization of any portion of society with the assurance that the solution of all the difficulties of mankind lay in his hand"

Pointing out the prevalence of mental illness, Dr Burlingame stated that a patient was admitted to a hospital for mental illness somewhere in the United States every four minutes of the day and night. At the regular rate of incidence, he said, out of approximately 338,000 children now in the grammar and high schools in Connecticut, 15,000 could be expected to be patients in hospitals for mental diseases some time during their lives.

Despite the magnitude of the problem, Dr Burlingame expressed the belief that mental disease need not be the great calamity that many people regard it. He said it is no longer considered "the great destroyer we once thought it was" and "that along with other physical illness, it is in large measure preventable and fortunately curable to a very large degree." He decried the defeatist attitude of blaming everything on heredity as the cause of mental disease and said that other factors such as "mal education and environment play an active part." Among a large group of mentally ill, he said, "Mental illness is merely a natural reaction to mal education and faulty training of the emotions."

He pointed out that forms of mental illness due to glandular disturbances at certain periods in life are similar to mental disturbances which accompany purely physical disorders such as the delirium of typhoid fever, and that frequently, when the physical disease is cured, the mental symptoms disappear.

Dr Burlingame emphasized the statement that almost every trait found in the mentally ill is an exaggeration of traits found in the community. "It is not difficult to understand the mentally ill person," he said. "He is as we are, only just a little more baffled by the world, just a little less able to adapt himself to it." He cited several historical cases of political and military leaders of the past, who, according to present-day knowledge, "had personalities which might be considered at least psychopathic."

The speaker advocated a more rational public attitude toward mental illness, with an increased knowledge of the necessity of preventing it by proper training, "spiritual education, emotional education, education of the man as a unit to the end that he is fitted to survive happily in his ever-changing environment."

He warned, in his conclusion, against an effort to protect children against the world, saying that too much protection was harmful.

"We must realize that the prolongation of the protected environment for the child and safeguarding him from the realities of life is part of his mis-education which may cause him to be among the 15,000 of today's children in Connecticut who will enter mental hospitals."

— ST FRANCIS HOSPITAL, HARTFORD, CONNECTICUT

At the annual meeting of St. Francis Hospital, Hartford, Conn., held on January 29, 1936, Dr James F. Lynch was elected president of the Staff. Dr. John F. Dowling, president since 1916, resigned because of ill health. Dr. Lynch is a graduate of the College of Physicians and Surgeons, Baltimore, Md. Except for about one year while in the World War he has been connected with St. Francis Hospital since 1913.

Other staff promotions and new appointments are as follows: Dr. D. Dillon Reidy, chief of the urological service; Dr. Louis P. James, chief obstetrician; Dr. Henry Katz, from assistant to attending otolaryngologist and ophthalmologist; Dr. Joseph J. Connor and Dr. Edward A. Dignam, assistant otolaryngologists and ophthalmologists; Dr. Terence F. McNulty, assistant obstetrician; Dr. John T. Winters and Dr. Christopher J. McCormack, assistant surgeons; and Dr. R. W. Whitcomb, assistant oral surgeon.

RECENT DEATHS

CLAPP—FRANK HORACE CLAPP, M.D., of North Grafton, Massachusetts, died at his home February 26, 1936. He was born in 1861. After graduating from the University of Vermont, he studied at the University of Vermont College of Medicine and graduated in 1888.

Before coming to Massachusetts, he practiced among the families of lumber camps, and later attended postgraduate clinics in New York City. Dr. Clapp was a fellow of the Massachusetts Medical Society, having joined in 1892, and also of the American Medical Association. He formerly served as President of the Worcester District Medical Society. He had served on the School Committee and the Board of Health of his town for several years and was active in many civic enterprises. Surviving Dr. Clapp are his widow, Mrs. Maud (Bailey) Clapp, a son, Dr. William B. Clapp of North Grafton, a daughter, Mrs. Florence Sanford, and a grand daughter, Barbara Sanford.

CHASE—AUGUSTUS LUCIUS CHASE, M.D., of Randolph, Massachusetts, died at his home February 29, 1936.

Dr. Chase was born in 1849 and graduated in medicine from the Eclectic Medical College, Cincinnati, in 1872. His prominence led to his appointment as one of the original members of the Board of Registration in Medicine in 1894, serving in this capacity continuously for twenty-seven years. For many years Dr. Chase served on the Brockton Pension Examining Board and was interested throughout his long life in various civic activities in Randolph.

Surviving Dr. Chase are two sons, Dr. Gilman L. Chase of Clinton, Massachusetts, Hon. Judge Herbert Chase of Cambridge, and a daughter, Mrs. Ella Cottle of Bristol, Connecticut.

DELAYED NOTICE*

MASSÉ—JOHN BAPTISTE MASSÉ, M.D., of 96 Bradford Street, Lawrence, Massachusetts died suddenly October 15 1935 Dr Massé was born in Montreal Canada, in 1878 and came to Lawrence with his parents early in life He returned to Montreal to enter the University of Montreal Faculty of Medicine and graduated therefrom in 1903 and soon afterward opened an office in Lawrence for the practice of medicine In this field he was very successful and popular

He joined the Massachusetts Medical Society in 1907 and was a member of Lawrence Lodge 65 B P O E

Dr Massé is survived by ten nieces and nephews all living in Canada except Emil Massé of Biddeford, Maine. Several cousins are residents of Lawrence

Recently received.

NOTICES

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M. on Thursday March 12 in the Amphitheatre of the Peter Bent Brigham Hospital Dr Samuel A. Levine Senior Associate in Medicine, Peter Bent Brigham Hospital, will give a medical clinic. To it are cordially invited practitioners and medical students

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12 staff rounds will be conducted.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY

PROGRAM FOR THE POSTGRADUATE INSTITUTE

Fifty four of the prominent medical educators in a city noted for its medical education—Philadelphia—constitute the faculty of the Philadelphia County Medical Society's Postgraduate Institute to be held April 20 to 24 in the Bellevue-Stratford Hotel, according to the complete program just issued*

Considerable interest has been expressed in this undertaking which the county society hopes to make an annual event and many physicians already have sent in their registrations. Notices have been sent to doctors of the nearby states and a large attendance is expected.

Dr Frank H. Lahey will deliver the J. Chalmers DuCosta Foundation oration at the Philadelphia County Medical Society's meeting on the evening of April 22.

The Institute's general subject will be cardiovascular and renal diseases which the essayists will discuss from many angles. One approach will be prevention, to which little attention was paid by doctors of the older schools. This is recognized as a very practical mode of attack today

A copy for examination is in file at the Journal Office

BOSTON UNIVERSITY SCHOOL OF MEDICINE SURGICAL CLINIC AT THE BOSTON CITY HOSPITAL

Friday, March 6 121 Thorndike amphitheatre
Dr Frank H. Lahey will talk on "Thyroid Disease illustrated by lantern slides"
Physicians and medical students are invited.

NOTICE

Reprints of the article by Dr Francis T. Hunter under the title of Hutchinson-Boeck's Disease (Generalized Sarcoidosis*) will reproduce the illustrations more clearly than they appeared on pages 350 and 351 in the *Journal* of February 20

LAWRENCE CANCER CLINIC

Established April 17 1928

Lawrence, Mass., March 2 1936

To the Physicians of the North Half of Essex County
Dear Doctor

The regular Lawrence Cancer Clinic to be held at Lawrence General Hospital One Garden Street, Lawrence, upon Tuesday March 17 at 10 00 A.M. will be a Demonstration Clinic with Channing C. Simmons, M.D. of Boston, Associate in Surgery in the Graduate Courses in Medicine at Harvard University Medical School Surgeon-in-Chief to Collis P. Huntington Memorial Hospital member of the Cancer Commission of Harvard University Boston and Visiting Surgeon to the Massachusetts General Hospital present as consultant. You are invited to accompany any of your patients whom you desire shall have this service or to send them with a note and a report will be returned to you. The service is gratis. Your attendance at the Clinic is always welcome.

This clinic is endorsed by the Committee on Postgraduate Instruction of the Massachusetts Medical Society

Committee

ROY V. BAKER, M.D.
CHAS. J. BURGESS, M.D.
FRED K. D. McALLISTER, M.D.
JOHN J. McARDLE, M.D.
HARRY H. NEVINS, M.D.
THOS. V. UNIC, M.D.
J. FORREST BURNHAM, M.D., Chairman

REPORTS AND NOTICES OF MEETINGS

THE MASSACHUSETTS CENTRAL HEALTH COUNCIL

At the recent annual meeting of the Massachusetts Central Health Council the following designated officers were elected Miss Sophie Nelson R.N., of the John Hancock Mutual Life Insurance Company President Dr Gaylord W. Anderson of the State Department of Public Health, Vice-President and

Arthur J Strawson of the Massachusetts Tuberculosis League Secretary Treasurer

WILLIAM OSLER HONORARY SOCIETY

A meeting of the William Osler Society was held February 13, 1936, at the Boston City Hospital. This is the honor medical society at the Tufts College Medical School, the membership of which is composed of highest ranking third and fourth year students. The meeting was arranged and conducted by graduate members Carl M Binnig, M D, Albert E Sloane, M D, Harry H Brenner, M D, and William Fain, M D.

From the class of 1936 the following students were elected to membership:

Joseph A Reynolds, Sawyer Foster, Paul J Catinella, Benjamin Stein, Max Stein, Morris Botvin, Stanley W Machaj, Frank K Duffy, Norman E Peatfield, Mildred Adell, Jacob Mezer, Max Goldman and Israel Zeltzeiman.

Formal induction of the new members will take place at the Hotel Lenox, April 14, 1936.

THE ARLINGTON DOCTORS' CLUB

The regular meeting of the Arlington Doctors' Club will be held at the Nurses' Home of the Symmes Arlington Hospital on Tuesday evening, March 10, 1936, at 8 30 P M.

The speaker will be Dr Frank H. Lahey, director of the Lahey Clinic. His subject will be "Diseases of the Thyroid and Parathyroids."

The talk will be illustrated with lantern slides.

There will be a general discussion.

The members of the Somerville Doctors' Club have been invited to attend.

All physicians are welcome.

FRANK H GERRY, M D, *President*,

SIDNEY M SIMMONS, M D, *Secretary*

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held Friday, March 13, in the Auditorium of the Beth Israel Hospital, Boston, at 8 00 P M.

PROGRAM

Speaker: Dr Alexander Lambert, formerly Professor of Clinical Medicine, Cornell University Medical School.

Subject: Therapeutics of Drug Habits.

Chairman: Dr Harry Limenthal, Clinical Professor of Medicine, Tufts College Medical School.

SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday March 17, 1936, at 12 noon. The speaker will be Frank H. Lahey, M D, Harvard University Medical School 1904, F A C S, Director, Lahey Clinic, Surgeon in Chief, New England Baptist Hospital, Surgeon, New England Deaconess

Hospital. His subject will be "Influence of Thyroid Disease in General Practice." All physicians are cordially invited to attend. Luncheon will be served.

AN ADDRESS BY DR KENDALL EMERSON

On April 8 at Hotel Kimball, Springfield, Dr Kendall Emerson, Managing Director of the National Tuberculosis Association, New York, will address a joint annual meeting of the Massachusetts Tuberculosis League and the Hampden County Tuberculosis and Health Association. A program in the afternoon and the two board meetings will precede the dinner meeting.

GREATER BOSTON BIKUR CHOLIM HOSPITAL

Greater Boston Bikur Cholim Hospital medical meeting Wednesday evening, March 18, at 8 30 o'clock, at the Nurses' Home, 45 Townsend Street, Roxbury. Speaker: Dr. Herman L. Blumgart. Subject: Treatment of Angina Pectoris. The profession is invited.

HENRY BAKER, M D, *Secretary*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, March 10, at 8 15 P M.

PROGRAM

Presentation of Cases

Down the Lymphatics with Camera and Cannula. By Dr John Homans.

Medical students and physicians are cordially invited to attend.

MARSHALL N FULTON, M D, *Secretary*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, MARCH 9, 1936

Tuesday, March 10—

*9-10 A M Boston Dispensary, 25 Bennet Street, Boston. Mistakes Made in the Diagnosis and Treatment of Syphilis (Continued) Dr F M Thurmon.

2 30 P M Pediatric Ward Visit Massachusetts Eye and Ear Infirmary.

*8 15 P M Harvard Medical Society, Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance).

*8 30 P M The Arlington Doctors' Club Nurses' Home, Symmes Arlington Hospital.

Wednesday, March 11—

*9-10 A M Boston Dispensary, 25 Bennet Street, Boston. Indications for Radiation Therapy. Dr C E Dumas.

†12 M Clinico-Pathological Conference Children's Hospital.

Thursday, March 12—

*8 30-9 30 A M Clinic, Surgical and Orthopedic Staffs of Children's Hospital, at the Children's Hospital.

*9-10 A M Boston Dispensary, 25 Bennet Street, Boston. Gastrointestinal Clinic. Dr K S Andrews.

*3 30 P M Medical Clinic at the Peter Bent Brigham Hospital.

Friday, March 13—

*9-10 A M Boston Dispensary, 25 Bennet Street, Boston. Lung Abscess. Dr Frederick T Lord.

- 1 M. Massachusetts General Hospital (Haitian Meeting of the Staff of the Children's Medical Service Ether Dome)
- 8 P.M. William Harvey Society Beth Israel Hospital Boston

Saturday March 14—

- 9 10 A.M. Boston Dispensary 25 Bennet Street Boston Hospital Case Presentation Dr S. J. Thannhauser
- 10 1. Staff rounds at the Peter Bent Brigham Hospital

Sunday March 15—

- 1 P.M. Free Public Lecture Harvard Medical School Building D Longwood Avenue Hearing and Conservation Dr Hallowell Davis.

Open to the medical profession
Open to Fellows of the Massachusetts Medical Society

- March 5—Faulkner Hospital Clinical Meeting at 5 P.M.
- March 5—Boston University School of Medicine Surgical Clinic at the Boston City Hospital. See page 497
- March 6—American Society for the Control of Cancer See page 398 Issue of February '30
- March 10—Harvard Medical Society See page 498
- March 10—The Arlington Doctors Club See page 498
- March 12—Medical Clinic Peter Bent Brigham Hospital See page 497
- March 13—William Harvey Society See page 498
- March 17—South End Medical Club See page 499
- March 17—Lawrence Cancer Clinic. See page 40
- March 18—Greater Boston Bikur Cholim Hospital See page 498.
- March 20—Springfield Medical Association, 8 30 P.M. at the rooms of the Springfield Academy of Medicine 28 Maple Street The Development of Surgical Practice in Springfield Dr John M. Birnie
- April 8—Joint Meeting of the Massachusetts Tuberculosis League and the Hampden County Tuberculosis and Health Association See An address by Dr K. Adall Emerson. Page 428
- April 20—A Postgraduate Institute in Philadelphia See page 497
- May 12 16—The International Congress of Physical Medicine. See page 443 Issue of February '31
- June 15 18—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore Md
- June 18 July 22—Summer Course in Bacteriology See page 485 Issue of February '30
- September 1935—First International Conference on Fever Therapy See page 13 5 Issue of December '36 1935.
- October 19 23—Clinical Congress of the American College of Surgeons. See page 180 Issue of January '33

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

- April 1—Wednesday Essex Sanatorium Middleton. 5 P.M. Dinner 7 P.M. Speeches Dr Richard H. Overholt of the Lahey Clinic. Subject Chest Surgery
- May 7—Thursday Censors Meeting
- May 13—Wednesday Annual Meeting Salem Country Club Dinner at 7 P.M. Speaker Dr Paul White Subject to be announced later

R. E. STONE, M.D. Secretary

88 Lothrop Boulevard, Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings are held on the second Tuesdays of March and May at the Walden Hotel Greenfield, at 11 A.M.

CHARLES MOLINE, M.D. Secretary

Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings to be held at the Bear Hill Golf Club Stoneham at 12 15 P.M.

March 11 May 6.

K. L. MACLACHLAN, M.D. Secretary

1 Bellevue Avenue, Melrose.

NORFOLK DISTRICT MEDICAL SOCIETY

March 31—Hotel Kenmore at 8 P.M. Dr Benedict P. Boland—Cauterization of the Cervix Uteri Using Various Electrical Methods. Illustrated with lantern slides.

May—Annual Meeting (Place date and subject to be unannounced.)

The censors meet for the examination of candidates: May 7 1935, November 5 1936

FRANK S. CRUICKSHANK, M.D. Secretary
1236 Beacon Street, Brookline.

PLYMOUTH DISTRICT MEDICAL SOCIETY

March 19—Plymouth County Sanatorium South Hanson.

April 16—Brockton Hospital.

May 21—Lakeville State Sanatorium.

G. A. MOORE, M.D. Secretary
167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

March 18—Meeting at the Boston Medical Library The Laboratory and Clinical Story of Fatigue. Dr Arlie V. Book and Dr David B. Dill Discussion Dr Donald J. MacPherson and Dr Augustus Thorndike Jr

April 29—Annual Meeting at the Boston Medical Library The Treatment of Septicemia. Dr Champ Lyons. The Pleurisy of Scarlatinal Streptococcus Toxin Dr Sanford B. Hooker Discussion Dr Hans Zinsser

The medical profession is cordially invited to attend these meetings.

ROBERT L. DENORMANDIE, M.D. President,
CHARLES C. LUND, M.D. Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

March 11—Wednesday evening. Memorial Hospital, Worcester Mass. Dinner and scientific program.

April 8—Wednesday evening Hahnemann Hospital, Worcester Mass. Dinner and scientific program. Subjects of program to be announced later

May 15—Wednesday afternoon and evening Annual Meeting of Society Time, place and details of program to be announced in an April issue of the Journal.

ERWIN C. MILLER, M.D. Secretary
27 Elm Street, Worcester

BOOKS RECEIVED FOR REVIEW

The Diagnosis and Treatment of Pulmonary Tuberculosis. A handbook for practitioners a text book for students nurses and social workers. John B. Hawes 2nd and Moses J. Stone. 315 pp Philadelphia Lea & Febiger \$2.75

Reports on Chronic Rheumatic Diseases. Annual Report of the British Committee on Chronic Rheumatic Diseases Number One Edited by C. W. Buckley 159 pp New York The Macmillan Company \$1.00

Doctor of the North Country Earl Vinton McComb 238 pp New York Thomas Y. Crowell Company \$2.00

The Art of Ministering to the Sick Richard C. Cabot and Russell L. Dicks. 384 pp New York The Macmillan Company \$3.00

Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1935 158 pp Washington United States Government Printing Office 75c.

Clinical Miscellany The Mary Imogene Bassett Hospital Cooperstown, New York. Francis F. Harrison Charles C. McCoy et al. Volume II 1935 218 pp. Springfield and Baltimore Charles C. Thomas \$3.00

The Diagnosis and Treatment of Diseases of the

Peripheral Arteries Saul S Samuels 260 pp New York Oxford University Press \$3 50

Le Thymus Anatomie — Histologie—Physiologie Clinique et Thérapeutique G Worms and H Pierre Klotz 152 pp Paris Masson et Cie 30 fr

Endocrinologie Noel Fiessinger 152 pp Paris Masson et Cie 20 fr

You Must Eat Meat. Fancies, Foibles and Facts about Meat Max Ernest Jutte 164 pp New York G P Putnam's Sons \$2 00

Lobar Pneumonia and Serum Therapy With Special Reference to the Massachusetts Pneumonia Study Frederick T Lord and Roderick Heffron. 91 pp New York The Commonwealth Fund \$1 00

A Manual of the Common Contagious Diseases Philip Moen Stimson 437 pp Second Edition, Thoroughly Revised Philadelphia Lea & Febiger \$4 00

BOOK REVIEWS

An Introduction to Public Health Harry S Mustard 250 pp New York The Macmillan Company \$2 50

This book is the fruit, both of practical experience with the actual problems involved and of teaching public health to students, graduate and undergraduate, and to nurses. In it the general principles of preventive medicine, as they may be practically applied by society to the prevention of disease, are treated in perspicuous fashion and with a nice regard for relative values. The style is pungent and lucid, although the author may be mildly criticized for the use of too many "et ceteras." The subjects treated are as follows: The background of public health, vital statistics, organization and administration of public health work, the acute communicable disease, tuberculosis as a public health problem, the venereal diseases, sanitation, personal hygiene, the hygiene of infancy and childhood, school health service and noncommunicable diseases. This is not only an excellent textbook for the student, but because of its clear exposition, could be read and studied to great advantage by the intelligent citizen.

Complete Handbook on State Medicine J Weston Walch 158 pp Portland Debaters Information Bureau \$2 50

This is a compilation of articles and opinions relating to problems incident to medical care for the people of the United States and is especially designed for study by those who may use the material in debates.

The essential arguments pro and con relating to the costs of medical care and the suggestions of interested individuals and groups as to methods designed to meet the needs of the people are set forth in this publication. Explanations of the various forms of "health insurance", state, socialized, public and industrial medicine are set forth.

Although this book is designed to make available

information relating to the economic problems of dealing with illness, there is a great deal of information between the covers which will interest economists, sociologists, and physicians.

Groups interested in carrying on debates relating to these questions will find useful material in the book.

John Whitridge Williams Academic Aspects and Bibliography J Morris Slemmons 109 pp Baltimore The Johns Hopkins Press \$1 50

Dr Slemmons has given us a delightful account of the life and accomplishments of an outstanding man in American medicine. An investigator, a teacher, a writer, Dr Williams stands preëminent among the American physicians of our time, and we are grateful to Dr Slemmons for giving us such a stimulating account of his life.

The Theory and Practice of Anaesthesia M D Nosworthy 223 pp London Hutchinson Scientific 12/6 net

It is a pleasure to find a textbook of anesthesia that is modern in point of view and up-to-date in subject matter. Such recent additions to the field as cyclopropane, divinyl ether (vinethene), nembutal, evipal, and the carbon dioxide absorption method are well, though briefly, discussed. The chapters on premedication, nitrous oxide, carbon dioxide, acidosis, and difficulties in general anesthesia are of outstanding worth. Other subjects that are well treated are ether, chloroform, the endotracheal method, the mode of action of general anesthetics, and their aftereffects. Ethyl chloride, shock, and the stages and signs of general anesthesia are covered satisfactorily. The chapter on choice of anesthetics unfortunately rather slightes spinal anesthesia as well as the newer and less frequently used drugs and methods. The section on spinal anesthesia is a distinct disappointment in that it advises neglect of blood pressure, and does not deal with the two drugs that are most commonly used in this country, namely, procain (novocain, neocain) and pontocain (pantocain). The book lacks both a chapter on regional anesthesia and a description of any gas machine commonly used in this country.

The author shows a wide and thorough knowledge of the field, and in place of the prejudices so often evident in writings on medical specialties, exhibits well balanced judgment. The book is brief, the style direct, and the pages are filled with innumerable minor helpful bits of advice. It is the only book on general anesthesia known to the reviewer that he can warmly recommend as an up-to-date, brief, practical course of instruction for medical students as well as for those physicians who only occasionally administer anesthetics. For those who wish to specialize in anesthesia it is recommended as giving a good foundation in practical work which would serve as a starting point for further studies.

The New England Journal of Medicine

VOLUME 214

MARCH 12 1936

NUMBER 11

NEW ENGLAND SURGICAL SOCIETY

MALIGNANCY OF THE BREAST*

BY H. C. FARVIS, M.D.†

I HAVE nothing especially new or startling to present to this Society on the question of mammary malignancy. I will present some essential facts on the general question and show some of our methods at the Hartford Hospital and also present some facts that have been brought out by our Tumor Group.

It is an unquestionable fact that in the diagnosis and treatment of cancer of the breast the same progress has not been made as in the other branches of surgery. There is no statistical proof that cancer of the breast is recognized earlier or that the results of radical operation are better than they were fifteen years ago at which time this particular study began.

There are many factors which are to blame for this deplorable state of affairs. Many women defer going to a doctor because they have a deep-rooted aversion to a breast examination; others, a natural horror of such a mutilating operation as a breast amputation. Many believe that a tumor of the breast which is painless cannot be of serious moment while still others fear to hear the truth.

The doctors who first see the cases are under a grave responsibility. In many instances medical advice is sought early, but in the absence of typical signs or symptoms of carcinoma or because the patient is considered too young for malignant disease she is either kept under observation until the diagnosis of cancer is clinically beyond doubt, or is dismissed with the assurance that there is nothing to worry about. Both of these attitudes are inexcusable. Yet once the case has come to consultation her doctor must take the responsibility for seeing that a definite diagnosis is made without delay. Thus, the ultimate prognosis rests largely in his hands.

During the last fifteen years there have been a total of over 1,000 admissions for breast cancer on 791 different patients of which number 517 represent primary admissions. In our service about 80 per cent of the delay was due to the patient. Ignorance and carelessness on the part of the patients were definite factors but

the greatest factor was fear—fear that it was cancer—and nothing could be done to help them and fear of operation and mutilation. In the near future we hope to have some definite statistics on the life expectancy of patients with cardiovascular renal disease entering the Hartford Hospital and I am led to believe that the longevity of these cases will not be so good as the mammary cancer ones. If this is true I think propaganda stating this fact will help to allay this fear that cancer is a hopeless disease.

For examination patients stripped to the waist should be examined lying flat on their backs and I believe each examiner must work out details which give him the best results. The patient, not infrequently, can localize a lesion which the physician fails to find because she is familiar with the feel of her breasts and very promptly detects any change in their structure and for this reason it is a good thing for women to palpate their own breasts at rather frequent intervals. Finally transillumination may be done although I have no real confidence in this method. A positive diagnosis of the early lesion can be made only by a biopsy.

The question of differential diagnosis will concern us for a few moments only. I would like to reiterate that the only way to make a differential diagnosis is to explore the breast and to explore it even if only on suspicion. Erosion of the nipple or erosion which is associated with a thickened duct extending into the breast, suggests the early Paget lesion. A bloody discharge from the nipple is generally indication of ductal papilloma which in 50 per cent of cases is associated with secondary malignant growth. All tumors, or even suspicion of tumors should be explored. The patient should be prepared for immediate radical operation should the frozen section from the tumor prove to be malignant.

The male breast is subject to all the different types of tumor formation that affect the female breast but the incidence of tumor in the male breast is insignificant as compared with the frequency of its occurrence in that of the female. There are logical reasons for believing that the undeveloped state of the male breast, its lack of constant mobility and its consequent

Read at the Annual Meeting of the New England Surgical Society at Manchester, New Hampshire, Sept. 10, 1935.

†J. Farvis, M.D., Senior Surgeon, Hartford Hospital. For review and address of author see "The New England Journal of Medicine," Vol. 214, No. 1, p. 10, 1936.

lack of exposure to the traumatism of movement may partly account for this difference. From a review of all data, it appears that Williams' figure represents the incidence of all mammary tumors as being 1 per cent in the male. In our service of 650 malignant breast tumors, there were four males or .6 per cent.

Sarcoma is a much rarer condition. In our service it comprised less than 1 per cent and consequently because of this small number, we are unable to draw any definite conclusion.

TREATMENT

We have had no experience with the injection of colloidal lead as advocated by Blair Bell, or colloidal lead selenide as introduced by Todd.

Our cases have been treated as follows: (1) Surgical method alone; (2) By radiation alone; (3) A combination of both methods. I believe the injection methods are, for the most part, in an experimental stage. We have employed the radiation method alone in a few cases, but these cases have been so treated within the last few years, and they will not be discussed here because this paper considers only those cases operated in the last few years, with the results. We will discuss, therefore, only those cases treated entirely by surgery alone, or by surgery and radiation. We have given a few preoperative external radiations for mammary carcinoma, but not to enough cases to warrant any conclusion, but I personally feel that most carcinomata of the breast are radioresistant, so under these circumstances a preliminary application of external radiation can be regarded as a waste of valuable time in delaying the operation.

The next question to determine was what cases were inoperable. I believe a breast malignancy is inoperable: (1) When it is attached to the ribs or sternum; (2) When the supraclavicular lymphatic glands are invaded; (3) When the axillary lymphatic glands are fixed and confluent; (4) When it occurs in the fulminating and acute forms; (5) Cancer en cuirasse; (6) In the presence of distant metastases in lungs, pleura, abdominal and pelvic viscera and bones; (7) When the general condition does not justify a severe surgical operation. Except when one or more of the above condi-

tions were present all the carcinomata were operated upon in this series, even when the glands extended high up in the axilla, because, as stated before, we had nothing else to offer them except surgery and radiation. There were twelve deaths in 300 operative cases, giving an operative mortality of 4 per cent.

Wound infection	3
Pulmonary emboli	3
Pneumonia	4
Cardiac	1
Shock	1

During the period under discussion there were treated 320 cases. Two hundred and sixty-six or 80 per cent were operable. Fifty-four or 20 per cent were inoperable. The follow-up in the inoperable cases was 100 per cent and 100 per cent dead in five years. In the operable group 219 cases or 82.5 per cent follow-up, of these seventy or 32 per cent living without cancer for five years, eighteen or 8.3 per cent living with cancer for five years, 117 cases or 53.4 per cent dead with cancer in five years, fourteen cases or 6.3 per cent dead from other causes. So from our operable group at the end of five years 40 per cent are alive and 60 per cent are dead. The length of time a patient will be free from cancer depends, first, upon the type of malignancy and, secondly, on early recognition and adequate treatment of the disease.

Under the second heading we have staged our cases as follows:

- Stage I — Cancer limited to breast
- Stage II — Early and limited axillary metastases
- Stage III — Extensive axillary metastases—borderline operability
- Stage ? — Indeterminate from data available

In the group where there is a greater mortality the follow-up is better, so probably there are many cases in Group I free from disease, although of course they cannot be so counted.

Under the first heading we have a very interesting study—that is, determining by cytological examination how long each individual patient, everything else being equal, will be free from disease.

Forty years ago von Hansemann in his mon-

Type of Case	No of Cases	No of Cases c 5 Yr F U	% 5 Yr F U	No of Cases Living 5 Yrs s Cancer	% 5 Yr Cures of Cases c F U	No of Cases Living 5 Yrs c Cancer	% Cases Living 5 Yrs c Cancer	Cases Dying in 5 Yrs c Cancer	% Cases Dying in 5 Yrs of Cancer	Cases Dying of Other Causes in 5 Yrs	% Dying of Other Causes in 5 Yrs
Inoperable	54	54	100%	00	00 0%	00	00 0%	54	100%	00	00%
Operable	266	219	82.5	70	32.0	18	8.3	117	53.4	14	6.3
Stage I	108	83	76.8	42	50.6	5	6	26	31.3	10	12.1
Stage II	104	96	92.3	24	25	11	11.4	60	62.5	1	1.1
Stage III	29	27	93	1	4	1	4	23	83	2	7
Stage ?	25	13	52	3	23	1	7.7	8	61.5	1	7.8

ograph first presented the idea that a scale might be drawn up to represent the degree to which the morphology of a tumor departs from that of the mother cells from which it arises.

Greenough's 1925 study of series of cases from the records of the Massachusetts General Hospital was the first real attempt to do this grading in this country. Later workers were Patey and Scarff, Ewing, MacCarthy and Haagensen. On the other hand a few American pathologists, notably Reiman, have reached the conclusion that this histological study of breast cancer has little or no prognostic value.

The pathologist who does the grading at the Hartford Hospital has followed more or less closely Haagensen's suggestions. He has made three grades, the exact details of which grading I will not bore you with at this time except to say that in looking over previous slides the slides must be in fairly good condition, and that out of our series of breast cancer, we were able to follow only 193 cases, which was 67 per cent of our entire group.

There was some difficulty during the period of 1918 and 1919, or the so-called war period where the records of cases were not so well followed and the sections not so good.

Type of Case	Number of Cases	% of Cases Living 5 Yrs	Number of Cases Living 5 Yrs
Grade I with metastases	8	62%	5
Grade I without metastases	23	95%	23
Grade II with metastases	104	33%	35

Grade II without metastases	42	62%	28
Grade III with metastases	8	00%	0
Grade III without metastases	8	60%	5

From this chart there are several conclusions one might be able to draw:

1 If a patient has a Grade I carcinoma of the breast she has over 90 per cent chances of being alive at the end of five years, while those cases having a Grade III carcinoma are practically all dead at the end of five years.

2 The cases in between these two extremes vary accordingly. It is interesting to note that Grade I cases, even with metastases, have just as good a chance for a five-year survival as Grades II or III when the carcinoma is confined to the breast.

3 It is also a very interesting observation we have made that the more cases of breast tumor that are explored and found to be benign, the greater the percentage of carcinoma patients examined without metastases.

In conclusion, there are only a few things we would like to point out:

1 The results of radical operation for carcinoma of the breast are not much if any, better than they were fifteen years ago.

2 The ultimate result of any one case depends upon, (1) its early recognition and, (2) upon a low grade type of malignancy.

3 The greater the number of breasts that are explored and the tumors found to be benign, the greater the percentage of malignant cases that will be found to be without metastases.

RESULTS IN MAMMARY CARCINOMA AT THE ELLIOTT HOSPITAL*

BY GEORGE C. WILKINS, M.D.† AND GEORGE F. DWINELL, M.D.†

THE purpose of this paper is to analyze as fairly as possible the results in our treatment of mammary cancer at the Elliott Hospital. This study includes all the cases admitted from September 1919 to September, 1930. During this period eighty-six cases were treated. Since 1930 fifty-one have been admitted but none of these have been considered because we believe a study of breast cancer in patients who have been operated less than five years is of little value in appraising the results of one's work.

Of the seventy-nine operations performed seventy-four radical and five palliative. Fifty-five were performed by us and the remainder

by five other surgeons on the staff. Many of the cases operated upon had a known incidence of palpable tumor for a year or more while others were fairly early.

It is certain that many patients with active extensive carcinoma and glandular involvement have been afforded a fairly long period of palliation and sometimes a cure, after being operated in a thoroughly painstaking and radical manner. Unless there are supraclavicular nodes, thoracic metastases or fixation to the chest wall, radical operation is nearly always indicated. The amount of tissue removal must be based entirely on the operative standard, and should not be reduced on account of contemplated postoperative radiation therapy.

In all but twenty early cases postoperative x-ray therapy was given and in several of the apparently more advanced cases, both preop-

*Read by D. Dwinell at the Annual Meeting of the New England Surgical Society at 31 n. boston New Hampshire September 27, 1931.

†Wilkins, George C.—Surgeon, Elliott Hospital, Dwinell, George F.—Assistant Surgeon, Elliott Hospital. No records and add cases of authors see "This Week's Issue" page 544.

erative and postoperative radiation therapy were utilized. It is not within the scope of this paper to discuss the merits of x-ray therapy as an adjunct to operation, but we believe every case should have postoperative radiation. The amount of x-ray therapy, as now measured in r units, has been gradually increased and if there is benefit to be derived from this adjunct we should expect better end-results in the next five or ten years.

In spite of some very encouraging reports following intensive radiation treatment of breast cancer with radium packs, deep therapy x-ray and interstitial radium, we believe surgery offers the most hopeful form of treatment in all but the definitely incurable cases and that radiation should be reserved for palliation and as an adjunct to surgery.

In practically all of the radical operations the Rodman incision was used. This incision lends itself to many modifications, the scar is usually below the axilla on the chest wall and it allows dissection from above downward without disturbing the breast and chest wall tissues until nearly the end of the operation.

Whatever form the skin incision may take, the operation itself must include a wide dissection of the skin, away from the tumor, the removal of all axillary contents, nearly all of the pectoralis major, all of the pectoralis minor and the deep fascia, including the upper anterior fascia of the rectus muscle.

Table 1 shows the results in our series after eliminating the cases that should not be included in an end-result study.

TABLE 1			
Total cases admitted		86	
Radical operation	74		
Palliative (mastectomy)	5		
Radiation only		6	
Died of other causes under 5 years		6	
No operation		1	
Untraced		11	24
Cases available for end results		62	
Number cases now well (1919-1930)	22	35%	
Number 5 year cures	31	50%	
Number 10 year cures (op. prior to 1925)	11	18%	

The involvement of lymph nodes of metastatic extension immediately lowers the probability of cure. In approximately four-fifths of our cases the axillary nodes were found involved by the pathologist. The most careful palpation of the axilla before operation may be very misleading. Negative evidence of involved nodes in the axilla is of no value.

Table 2 illustrates the serious menace to life involved in metastatic extension of cancer to the lymph nodes, and how much more favorable are the results in patients who have been operated before the beginning of lymphatic involvement.

When the diagnosis of cancer can be made immediately by inspection and palpation it also indicates a well-developed and fairly long existing tumor. Unfortunately, our present clinical methods are inadequate for making a correct early diagnosis of breast cancer.

Fixation of the skin usually means there is also axillary involvement, and in patients with large breasts the tumor usually exists for a considerable time before it can actually be palpated.

TABLE 2				
Total number patients			86	
Untraced, x ray only and no operation			17	
Available for study			69	
		Living 5 Years	Living 10 Years	
With metastatic nodes	54 (78%)	21 (49%)	5 (9%)	
With no metastatic nodes	15 (22%)	10 (67%)	7 (47%)	

We assume a universal agreement on the advisability of removing any tumor of the breast and if it is impossible to be definitely convinced as to its malignancy, the tumor should be removed, examined by the pathologist at once if possible and the wound closed, or a radical operation proceeded with. Even when it is necessary to wait twenty-four hours it apparently does not increase the danger of metastatic spread, providing a wide excision is made about the tumor and it is removed with a considerable depth of surrounding normal tissue.

We found it advisable to carry out this procedure in eleven cases, and eight of these patients have lived from five to ten years without recurrence.

Patients with inflammatory carcinoma, metastatic supraclavicular nodes or with bone metastases should be treated with deep therapy x-ray, sometimes assisted by interstitial radium. Occasionally simple mastectomy will make the patient more comfortable.

In our postoperative care we like to have the patient ambulatory as soon as possible after operation. The upper arm is held close to the side until the morning after operation.

From then on the patient is urged to use the arm as much as possible and they should be able to touch the top of the head on the third or fourth day. They sit up in bed in twenty-four hours and are usually in a chair by the third day. X-ray therapy commences as soon as the wound is healed.

Every effort should be made to induce women to examine the breasts occasionally for lumps. They should be taught that breast cancer is curable in exact relation to its early discovery and treatment. We have found in both office and clinic practice an increasing number of

women coming for breast examinations. These women, however, are from younger and better informed groups and rarely have cancer. They come as the result of educational efforts which we hope will produce better results in the future. No matter how imaginary or trivial the cause may be, these patients are commended and urged to return for examinations whenever they become alarmed.

The advisability of considering routine sterilization of breast cancer patients below the menopause age is before us now and it is reasonable to suppose that the absence of ovarian stimulation may reduce the incidence of recurrence. We intend to adopt this therapeutic measure in the future.

With increased use of transillumination of the breast the occasional use of aspiration biopsy in appropriate cases and a greater opportunity of seeing early breast cancer through education of the public there is reason for an attitude of hopeful expectancy in the end results of our breast cancer patients treated in the future.

DISCUSSION

Dr. CHARLES SIMMONS, Boston Mass. Mr President and Gentlemen—I am very glad to have heard these papers. As you all know it is a subject in which I am very much interested. I think they have covered it very fully and there is relatively little added.

Our best advice to women with a tumor of the breast is to consult a physician at once and for the physician to explore any suspicious tumor as biopsy is about the only way we can be sure of our diagnosis.

The importance of no delay is shown by a group of cases we have recently been studying in which the mean duration of the cases without axillary involvement was three months. The mean duration of the cases with axillary involvement was six months.

Roughly speaking if we see the cases early before metastases have taken place we can cure a large percentage. There are certain cases of cancer of the breast that cannot be cured by surgery, which operation is contraindicated, namely cancer in lactating breasts in young women.

The statement made by certain men that no woman under forty should have a radical operation for cancer of the breast, as it is incurable by surgery, however I do not think is correct. We have had many cases of women in that decade of life with cancer of low malignancy cured by radical surgery.

In studying the groups of cases we have been impressed that the prognosis depends on two things, the extent of the disease and the degree of malignancy of the tumor. Dr Jarvis brought this point out.

As regards the grade of malignancy in low malignancy we obtain approximately 90 per cent of 5-year cures. In medium malignancy 45 to 50 per cent. In high malignancy 16 to 20 per cent. We have had a few cases of high malignancy cured by surgery even some with axillary involvement. Although the degree of malignancy does not influence the treatment it gives some idea of the prognosis in a given case.

We have found that from 10 to 15 per cent of the cases living without evidence of disease at the end of five years will develop late metastases.

At the present time a great deal has been said and clinics and laboratories are working on the relation of the ovarian hormone to cystic disease and cancer of the breast. At certain clinics an artificial menopause is being induced in every woman with cancer of the breast before the menopause to destroy the ovarian hormone. This was suggested originally by Beatson in 1898 and Tront of Roanoke has done some work on the subject.

All we can say at present is that it is an interesting piece of investigative work.

Another point that has caused much discussion is the value of preoperative and postoperative radiation. Several years ago at the Massachusetts General Hospital Dr Greenough and I operated upon practically all the breast cases in order to have control. On the group one half of these cases were referred to Dr Holmes for prophylactic radiation. The remaining cases received no radiation. Dr Holmes chose to give preoperative radiation treatment. In comparing the five-year results of these two groups the percentage of cures was found to be the same. We are speaking of radiation as given in 1920, to 1930. We now give much higher dosage. On the other hand other investigators were using approximately the same dose at that time. All we can say is that apparently in our hands it had no effect on the prognosis and that our figures do not agree with those of certain others. At present we are not recommending it if there is a good chance of permanent cure by surgery.

Before operation all cases have x-ray films taken of the lungs, spine and pelvis and often the skull to rule out the possibility of remote metastasis. If remote metastasis is present the case should not be operated upon for the disease can be controlled as well by radiation.

The results of radiation as a palliative measure and in prolonging life are striking.

I was glad to hear Dr Dwinell state that he allows the patient to use the arm shortly after operation. I use a scultetus bandage with the last half of the scultetus as a shoulder strap. The patient is allowed to use the arm from the first. The patients may have more serum in the wound but there are fewer stiff shoulders.

About the amount of tissue removed we take out the breast, both muscles and the contents of the axilla. If the skin is sufficiently undercut it is possible to remove all the tissue necessary and yet be able to close the wound in the majority of cases. First intention healing will not be obtained in every wound by any manner of means if sufficient tissue is removed.

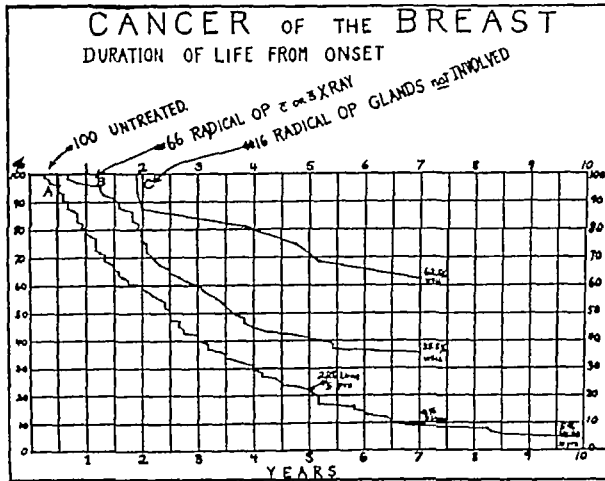
PRESIDENT JOHNSON. These papers are open now for general discussion.

Dr. ERNEST M. DALAND, Boston Mass. I would like to show two slides in connection with this subject and also in connection with the paper that I am going to read a little later in the afternoon.

One thing I would like to emphasize that both men have referred to is the importance of removal of muscles. Dr Wainwright of Scranton Pennsylvania a few years ago demonstrated that the pectoral muscles should be removed for two reasons, first, that they cover the upper axilla and we cannot expose the upper axilla without taking out the muscles but more important is the fact that the muscles may become involved in cancer. He showed a number of large slides, full sections of the breast in which he demonstrated cancer in the muscles and in front of the muscles. He pointed out that one should take out all the muscle to the insertion and

also that one should reflect the skin flap and cut the insertion without seeing the rest of the muscle, because he felt that there were nodes and nodules in front of the muscle that might be spread

(Slide 1) This is a group of one hundred untreated



SLIDE 1 Surg Gynec & Obst 44:265 1927

ed cancers of the breast A little later I am going to give you some cures on one hundred untreated cancers of the rectum

The first curve, Curve A, is a survival curve of one hundred untreated cases These patients had absolutely nothing done in the nature of operation or radiation At the end of five years we have 22 per cent living with the disease, 5 per cent at ten years, and the last two patients died at thirteen years Those patients had cancer all the way through the thirteen years This is a chart we published four or five years ago These other curves are from the Massachusetts General Hospital Curve B represents sixty six radical operations with and without x-ray, with and without axillary nodes The survival is very definitely above the other line, and we have at seven years 35 per cent well These are from onset of symptoms and not seven years postoperative They probably average about five years postoperative

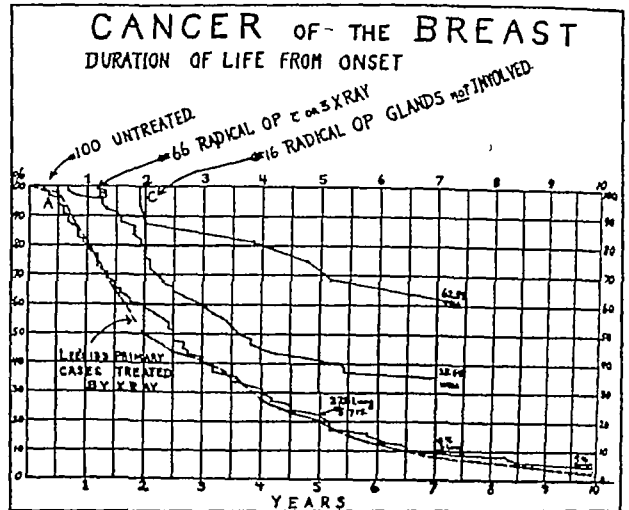
The third group includes sixteen selected cases without axillary nodes, with 62 per cent alive and well at seven years There was one operative death. (Indicating) This is a case that accidentally got into the series She did have supraclavicular nodes, but not axillary nodes

There is just one further point which is that the median point in this curve is at the end of two and a half years At the end of two and a half years, half of these patients were dead and half were alive The median is a little different from the average The average figure was forty months as against thirty months, the median figure Every thing above this line is gain from operation

(Slide 2) Dr Burton Lee of the Memorial Hospital charted one hundred and thirty three primary breast cancers against this curve The only difference between his cases and mine is that his patients were a little younger than my group They average four or five years younger and, therefore, he felt that the grade of malignancy and rapidity of growth would have been greater in his series But the duration of life is exactly the same as in the group of untreated cases

The only other thing in favor of this primary radiation without operation in this group is that in many instances he healed the ulcerations, kept cancer from breaking down and, doubtless, made his patients a little more comfortable One hundred

and thirty-three cases treated by primary radiation instead of operation because they were inoperable, lived no longer than if they had been untreated



SLIDE 2

DR GEORGE C WILKINS I have very little to say because so much that can be said has already been expressed by the speakers and by the men who have discussed the papers

I wanted to bring out the point of early diagnosis by excision as being not perhaps harmless, but perfectly justifiable I think the nearer we get to early diagnosis in cancer of the breast, the more difficulty we are going to have in making an absolute diagnosis of the tumor by any of our known methods, by palpation or by any of our clinical methods, I mean

So that leaves it that the only way open is to examine the tumor microscopically, and to do that it must be removed As we said in our paper, it can be done by removing the tumor with a good margin and having it examined I do not believe it is going to be detrimental to the recovery of the patient

There is one thing we must always beware of in tumor of the breast, with a small tumor, and that is to get the idea that it is an early tumor It may be a slow growing tumor We have had several of them in which the tumor was small and the axillary nodes were larger by one or two sizes than the original tumor

In regard to sterilization in the patients under fifty or under menopause age, I do believe that it offers something in the way of improvement in the after-results for those patients The paper of Dr Dresser before the American Radium Society last spring at Atlantic City rather convinced me of the value of it. I think it is worth carrying out.

In regard to the relative values of preoperative and postoperative x-ray, I believe the postoperative x-ray is the more important The objection to the preoperative x-ray with our present day methods of using the x-ray is that if we give enough x-ray before operation to do some real good, the operation is going to be extremely difficult and the healing very slow In the old days, when comparatively small x-ray dosage was given, one could operate afterward without any particular trouble, but with the dosage that should be given today, either before or after operation, you will find it a very difficult job to remove the breast

Also, there is so much tissue that will take up the x-rays, and the deeper tissues, deeper lymphatics, which are the ones we wish to get at, are so far

beneath some of the breasts that I doubt the efficiency of it. After the breast is removed and there is nothing but skin over the ribs then the x-ray will do all the good possible.

I just want to say one more word about the value of the Rodman incision. I am very much pleased with it and I think a better chest wall better axilla and better movement of the arm result when that technique is used.

DR. JOE VINCENT MEIGS Boston Mass. I should like to sound a word of warning to those roentgenologists who are attempting destruction of the ovary by x-ray treatment in order to determine the value of such treatment in cancer of the breast in the woman who is still menstruating. Even though menstruation is stopped by x-ray treatment, it does not necessarily follow that the ovarian hormone is destroyed. We have had a number of patients in the hospital recently who even though menstruation had ceased still had estrin in the urine and no prolactin. If the menopause had occurred prolactin should be present and no estrin. Therefore I think that before statistics are presented on patients who have had treatment of that sort, it should be determined that the actual menopause had been brought

about. The only way at the present time that that can be done is to determine the estrin and prolactin content of the urine of each patient. Endometrial biopsy to determine the state of the endometrium should also be carried out. If it is atrophied the menopause is probably passed, but if proliferation or secretion is present the ovaries are still active.

DR. ALFRED M. ROWLEY Hartford Conn. Mr. President—No mention has been made of chronic mastitis the lumpy breast, which may harbor malignancy. I wish to make a plea, that these cases be carefully watched so that a true growth may not be overlooked. The public and physicians have been instructed through the teaching of those who have had much experience in breast pathology and surgery that chronic mastitis is not followed by malignancy. We have had several cases in which the two conditions were associated. I also wish to call attention to the method of examination of breast tumors in our tumor clinic. In the last few years we have allowed but one or two physicians to examine the breast tumor. If many roughly palpate a growth malignant cells may be expressed into the lymphatics.

MORPHINE AND INTESTINAL ACTIVITY*

BY FREDRICK F. YONKMAN, PH.D., JOHN M. HIEBERT, M.D., and HARKISHEN SINGH, M.D.

ANTEDATING Plant and Miller^{1, 2} morphine was held to be a "bowel splint", by virtue of its supposed immobilizing effect on the intestine. But since the appearance of the excellent contribution by the Iowa investigators, ample confirmation^{3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100} has been so forthcoming as to modify our views concerning the true action of morphine and certain other opium alkaloids on intestinal activity. Instead of immobilizing the intestine by a depressant action we now have the conception that in ordinary dosage of 1/8 and 1/4 grain, morphine attains its clinical advantages through stimulation of motility and tone.

METHOD

While studying the effects of various doses of strychnine* on the intestine we were privileged to observe also the effects of morphine in five patients, a woman and four men, two of whom had a Mikulicz operation, one a cecostomy and two a colostomy. To obtain a graphic record of what occurred in the intestine we used the same method employed by Plant and Miller and others. Long sausage shaped, rubber balloons tied to rubber catheters were inserted into

the large and small intestines of the patients. The catheter was then connected to a water manometer in which any change in water level (at 25 cm. pressure) and hence in air volume was distributed graphically to a smoked paper on the kymograph through a modified¹⁰ Brodie air bellows. All patients were given break fast, and the balloon was usually inserted with pain in no instance, at about 9:30 or 10:00 A.M. The patient was allowed to assume a comfortable position on his back in his own bed and varied slightly from this position for four six or seven hours with little discomfort. All injections of morphine sulphate were given intramuscularly after a normal record of one hour's duration or after the effect of strychnine had disappeared.

Our kymograph was so placed at the bedside that the patient saw no part of the record unless shown to him by mirror image. This was willingly done when the patient manifested interest in the proceedings. As well as could be determined these diversions left no effect by way of altering the existing record. Conversation was indulged in, but within reasonable limits and ward activities were partially excluded with screens.

RESULTS

Illeum. Fig 1 represents a record taken from a man with a Mikulicz operation which allowed access to his ileum as well as ascending colon. The normal record shows his intestine to be very active. At this time he was complaining of the excessive "burning" which accompanied the excoriation in the abdominal "scar pocket" surrounding the operation. With the hope of

*From the Department of Pharmacology Boston University School of Medicine and the Evans Memorial Hospital.

*No attempt has been made to enumerate every investigation concerning the action of morphine on the intestine since excellent reviews are given by most authors quoted in this paper.

*We are greatly indebted to Dr. H. M. Pollock, Dr. W. Christie, Dr. A. L. Hamman and Miss V. Ballou, R.N. of the Massachusetts Memorial Hospital and to Dr. W. R. Morrison, Dr. E. S. A. King, and Miss Agnes MacDonald, R.N. of the Boston City Hospital for their hearty cooperation in this investigation.

*Yonkman, Fredrick F.—Associate Professor of Pharmacology Boston University School of Medicine. Hiebert, John M.—Associated with the Department of Clinical Research, Winthrop Chemical Company. Singh, Harkishen—Instructor in Pathology, Massachusetts General Hospital. For records and addresses of authors see "This Week" issue, page 544.

slowing up his intestine to allow for maximum absorption and hence lessen the fluid content of the ileum as it arrived distally, atropine, in the form of tincture of belladonna, was administered for three days. Slight relief was obtained but not sufficient because of seepage of the added fluid intake required to satisfy the patient's excessive thirst. The record from the ileum, however, reveals almost complete absence of peristalsis. In this condition morphine was admin-

Fig 3 is taken from a woman with a Mikulicz operation whose ileum was not so accessible. Hence her colon only was studied. As the record demonstrates, morphine, 15 mgm (1/4 grain) in a colon not acted upon by 2 mgm (1/30 grain) of strychnine, elicits a definite increase in tone and a rather pronounced increase in rhythmic frequency. About forty-five minutes after injection the patient began to vomit with gradual return of tonus to normal.

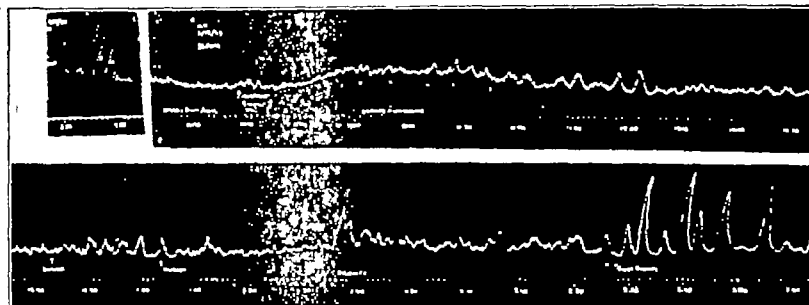


FIG 1 Man aged fifty three Mikulicz, record of ileum February 18 1933 Time interval in minutes At 10 49 A M 8 mg of morphine intramuscularly At 12 45 dinner with brandy (30 cc) at 1 05 P M Cramps indicated by \ marks

istered in 1/8 grain dosage resulting in a definite stimulation of tone and peristalsis which persisted for one hour. This patient is of special interest since morphine activated the quiescent, atropinized bowel which fact Plant and Miller¹ first demonstrated in their unanesthetized animals. The remainder of the record shows the effect of dinner and brandy after morphine. Peristalsis, with "cramps", prevails

in the next two hours. In our series this woman was the only patient to vomit.

Fig 4 is a record taken from a man's ascending colon approached through his cecostomy. The interesting feature as regards his "normal" is the slight activity present. This was augmented appreciably by a large dose, 3 mgm (1/30 grain) strychnine for almost two hours when the man's hunger was mildly ap-

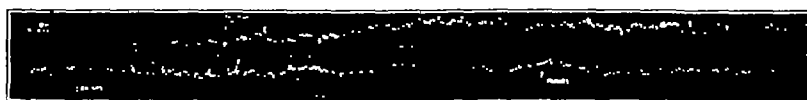


FIG 2 Man aged fifty three Mikulicz, record of colon February 15 1933 Time interval in minutes At 1 55 P M 15 mg of morphine intramuscularly At 5 05 P M brandy (30 cc) Cramps indicated

Ascending Colon Fig 2 is a record of activity of the ascending colon of the patient described above. These records were not taken simultaneously, the colon was studied three days before the ileum. This tracing also shows that morphine had rather marked, stimulating effect on the colon as regards tone and peristalsis, tone persisting at 20 mm above normal three hours after morphine administration.

During this study of the ascending colon, increased activity was observed in the ileal "stump" at the site of operation. The ileum flared out trumpet-like with each wave of activity and after morphine we recorded ten to twelve waves compared with seven and eight per minute prior to morphine. We feel that these waves of activity represented rhythmic waves because of their frequency. At the same time, however, fluid seepage seemed to increase at the ileal "stump."

peased by a few crackers, the effect of which is definitely recorded. To serve as a control, thus obviating any "psychic" effect of the needle, one cc of normal saline was injected with no stimulation following. Forty-five minutes later 15 mgm (1/4 grain) of morphine produced a very gradual increase in tone with only slight, delayed effect on rhythmic and peristaltic activity. This case presents the least activation observed in our series. When compared with figs 2 and 3 one finds these particular ascending colons much less active normally than the distal colons to be described below. The suggestion comes to mind that a lessened activity might be expected with diminished function of the large bowel accompanying cecal elimination.

Fig 5 represents the record of activity of a man's distal colon approached through a colostomy. A fairly active distal colon was depressed by 2 mgm (1/30 gr) of strychnine and in this

condition morphine 15 mgm (1/4 gr) was administered with slight and delayed increase in tone resulting. The tone increase persisted for an hour and was accompanied by a definite in-

crease in rhythmic and peristaltic waves. Gas was passed at various times further demonstrating propulsive activity. This patient was not observed beyond the second hour following morphine. The record shows the normal period and the complete lack of effect following 3 mgm. strychnine after which morphine 1/4 gram produced an immediate and pronounced stimulation both of tone and rhythmic activity. Peristaltic frequency was also increased but is not so readily perceived from the record due to the marked



FIG. 3. Woman, aged fifty-four, Milwaukee, with cecal approach and record of colon June 19 1932. Time interval in minutes. At 4:16 P.M. 5 mg of strychnine intramuscularly. At 4:58 P.M. 15 mg of morphine intramuscularly. Vomiting (V) indicated.

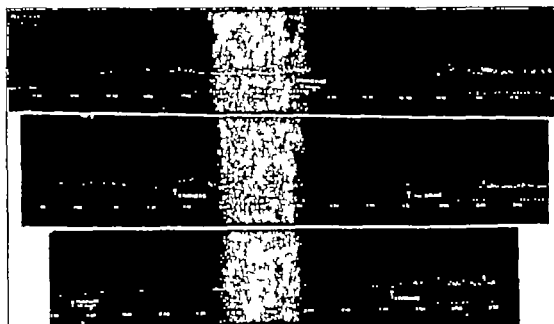


FIG. 4. Man, aged fifty-two, Cecostomy March 2 1934. Time interval in minutes. At 11:10 P.M. 5 mg. of strychnine intramuscularly. At 3:10 P.M. 1 cc. saline intramuscularly. At 3:55 P.M. 15 mg of morphine intramuscularly.

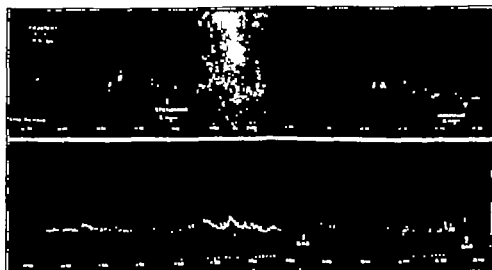


FIG. 5. Man, aged forty-eight, Cecostomy February 13 1934. Time interval in minutes. At 11:05 A.M. 2 mg of strychnine intramuscularly. At 1:28 P.M. 15 mg of morphine intramuscularly. Gas seepage indicated.

crease in rhythmic and peristaltic waves. Gas was passed at various times further demonstrating propulsive activity. This patient was not observed beyond the second hour following morphine.

nine after which morphine 1/4 gram produced an immediate and pronounced stimulation both of tone and rhythmic activity. Peristaltic frequency was also increased but is not so readily perceived from the record due to the marked

increase in tone and rhythmicity. For almost two hours after injection, morphine had maintained this extreme condition, following which there was a gradual return toward normal within the next hour. At the end of three hours and fifteen minutes, tone was still higher than

we observed that the drug in smaller dosage, produced an increase in tone for over an hour, a marked increase in peristaltic amplitude and frequency and a marked increase in rhythmic frequency and amplitude. After two hours the picture appeared normal. Saline was given

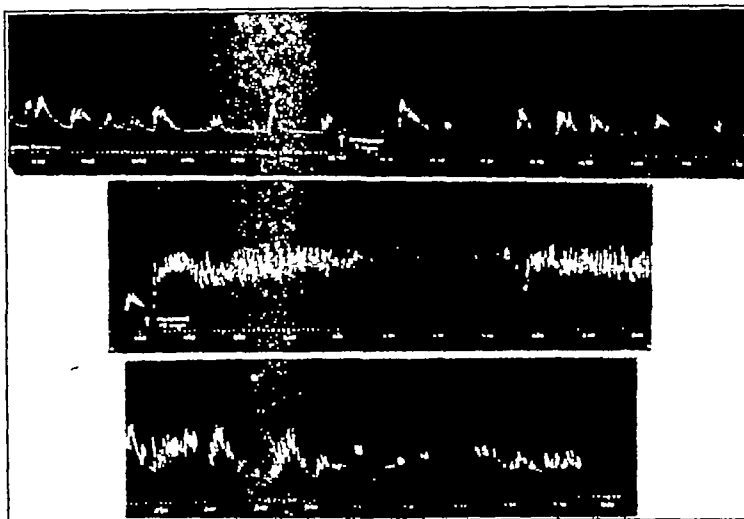


FIG 6 Man aged fifty five Colostomy, February 15 1934
Time intervals in minutes At 12 01 P.M. 3 mg of strychnine
intramuscularly At 1 31 P.M., 15 mg of morphine intramuscularly

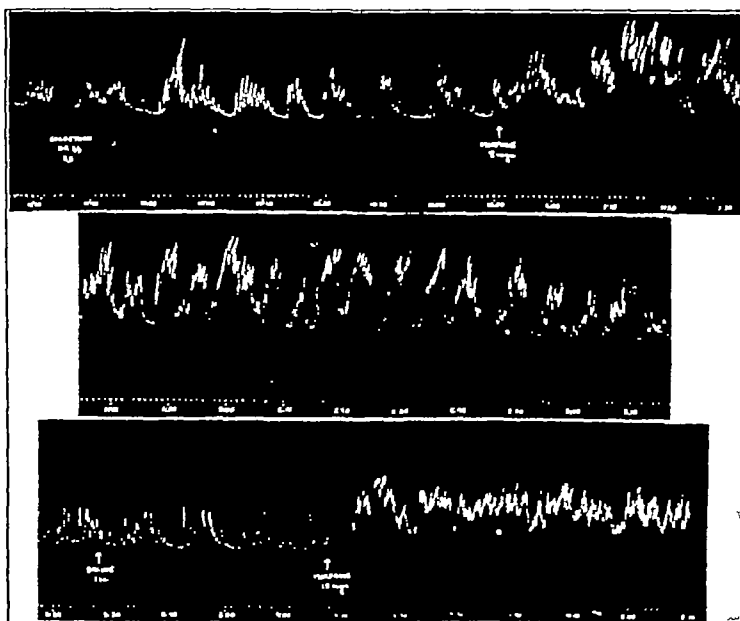


FIG 7 Man aged fifty five Colostomy February 5 1934
Time intervals in minutes At 12 51 P.M. 8 mg of morphine
intramuscularly At 3 28 P.M. 1 cc. saline intramuscularly
At 4 08 P.M. 15 mg. of morphine intramuscularly

before morphine, and peristaltic and rhythmic frequency were still augmented. This patient had been studied for seven hours before supertone terminated the observations.

Because of the pronounced activity observed in this patient with 1/4 grain of morphine we desired to learn the effect of 1/8 grain dosage. Thus three weeks later as fig 7 demonstrates,

about one half hour later to rule out "psychic" effect of the needle. The record shows no change. Then morphine, 1/4 grain, produced a picture somewhat similar to that resulting from the same dosage in the same patient as shown in fig 6. The increase in tone is marked in both, but the increase in peristaltic frequency is more evident in fig 7. After one hour the effect of

morphine was still very marked but the patient was observed no longer since supper trays attracted his attention after six hours of observation.

During all of our observations we were alert for any expressions from the patients regarding their experience of pain, general discomfort or any untoward sensation. Thus we learned from one patient that after morphine he felt a sensation of wriggling activity,—in his own words, "wormy movements." Another said he felt like passing gas. One said that he was positive he could "produce a movement" if he could only sit upright (and this despite the fact that his rectal colon was disconnected and non functioning)! Could a balloon have been inserted rectally, it might have graphically verified his contention. Some of our patients said they felt "cramps." Our interest was directed to the time of appearance of the cramplike pains. We found three variations. In some they appeared at the height of a peristaltic wave, in others they appeared at the beginning of a wave while in one patient complaint of a "mild, dull cramp" appeared after the curve showed that the balloon was filled, i. e. at the conclusion of a peristaltic wave. This cramp probably was due to distention but why it should appear at the end of a wave, rather than prior or during is of speculative interest.

DISCUSSION

All of our patients showed some form of stimulation of either ileum or colon, the result depending upon the individual patient, the area studied and the dose of morphine employed. We hope to add cases to our present group from time to time as opportunity affords. If future results are comparable with those reported here and by other investigators we see logic in the contention that morphine should be used in suspected peritonitis to prevent excessive distention provided the dosage is repeated with sufficient frequency—perhaps at three or four hour intervals as is at present advised and practised in many hospitals. Dr. Charles F. Branch of the Department of Pathology concurs in the opinion that where there is probability of a weakened intestine to perforate, increased tone under morphine might be advantageous, since distention, a factor augmenting perforation mechanically, would be obviated. Further, ulcerative margins might repair more readily when in close approximation rather than in a flaccid or distended bowel.

Postoperatively, morphine by increasing bowel tone would conceivably relieve so-called "gas pains" by preventing distention. Increased

bowel activity would promote gas passage and also allow for better absorption of gas as well as liquid. Thus, comfort received from morphine is apparently brought about by a peripheral stimulating action in the intestine as well as by a central depressant action on pain perception.

In intestinal hemorrhage, morphine would offer relief more quickly if tonus were increased than if the intestine were relaxed. If one compares the action of morphine on the intestine with the action of ergot on the uterus post partum one sees the fallacy of attempting to explain the efficacy of morphine on the basis of bowel relaxation which obviously would increase the hemorrhage. One might suspect increased activity to interfere with clotting but if sufficient dosage is employed the most prominent effect is the excessive tone increase which one also observes with ergot in the uterus.

SUMMARY

The action of morphine on the intestine was studied by the "balloon method" on seven occasions in five patients, with cecostomy, colostomy or a Mikulicz operation. In all cases, except one, some form of stimulation was soon observed in the area of intestine studied, in the exception, a delayed response followed strychnine depression. The beneficial effects of morphine's stimulating action on the bowel are discussed in relation to postoperative ileus, peritonitis, perforation and intestinal hemorrhage.

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The Massachusetts Medical Society

PROCEEDINGS OF THE COUNCIL

Stated Meeting, February 5, 1936

A STATED meeting of the Council was held in John Waite Hall, Boston Medical Library, 8 Fenway, Boston, on Wednesday, February 5 1936, at 12 o'clock, noon. The President, Dr Charles E Mongan, Middlesex South, was in the chair and the following 153 Councilors were present

BARSTABLE

S M Beale, Jr
W D Kinney

BRISTOL NORTH

W H Allen
A R Crandell

BRISTOL SOUTH

E L Merritt
R H Baxter
P E Truesdale

ESSEX NORTH

C F Warren
E S Bagnall
R V Baketel
J F Burnham
H F Dearborn
A P George
T R Healy
J J McArdle
F W Snow
L T Stokes
W D Walker

ESSEX SOUTH

Hanford Carvell
N P Breed
C L Curtis
J F Donaldson
R E Foss
J F Jordan
O S Pettingill
C H Phillips
W G Phippen
R E Stone

FRANKLIN

H M Kemp
H G Stetson

HAMPDEN

E P Bagg Jr
J J Carroll
G L Gabler
G D Henderson
M W Pearson
G L Schadt
G L Steele

MIDDLESEX EAST

J H Blaisdell
Richard Dutton
J H Fay
E M Halligan
K L MacLachlan
R R. Stratton

MIDDLESEX NORTH

E O Tabor
G A Leahey
T A. Stamas
M A Tighe

MIDDLESEX SOUTH

S H Remick
C F Atwood
E W Barron
C F K Bean
G F H Bowers
C O Chase
A C Cummings
D F Cummings
J E Dodd
D C Dow
A W Dudley
W G Grandison
N M Hunter
C M Hutchinson
Josephine D Kable
A A Levi
L W McGuire
J A McLean
Edward Mellus
C E Mongan
F L Morse
J P Nelligan
E J O'Brien Jr
C T Porter
W D Reid
E F Sewall
F G Smith
H P Stevens

NORFOLK

F G Balch
H G Batchelder
A S Begg
D N Blakely
H K Boutwell
D G Eldridge
I A Finkelstein
J E Fish
Maurice Gerstein
J B Hall
C J Kickham
H M Landesman
W A. Lane
J S H Leard
F W Marlow Jr
F P McCarthy
E P Ruggles
Victor Safford
D D Scannell
H F R Watts

NORFOLK SOUTH

C S Adams
R L Cook
W G Curtis
G V Higgins
C A Sullivan

PLYMOUTH

W T Hanson
L A Alley
P H Leavitt
T H McCarthy
J J McNamara
G A Moore

SUFFOLK

Gerald Blake
W J Brickley
C S Butler
David Cheever
R C Cochrane
F J Cotton
W P Cross
G P Denny
Reginald Fitz
Channing Frothingham
Joseph Garland
John Homans
H T Hutchins
E P Joslin
R I Lee
G A Leland
C C Lund
W R Morrison

A K Paine
F W Palfrey
W F Regan
G P Reynolds
W H Robey
G C Shattuck
W R. Sisson
Louisa Paine Tingley
H P Towle
Shields Warren
F A Washburn
Conrad Wesselhoeft

WORCESTER

W F Lynch
J C Austin
W P Bowers
G A Dix
E B Emerson
G E Emery
E L Hunt
E R Leib
A W Marsh
E C Miller
J W O'Connor
F H Washburn
R P Watkins

WORCESTER NORTH

G P Norton
F M McMurray
H R Nye
W F Sawyer

The meeting was called to order by the President at 12 05. The Secretary read an abstract of the records of the previous meeting. The record in full was published in *The New England Journal of Medicine*, issue of November 28, 1935. The records as published were declared approved.

The President then proceeded to read the obituaries of the Councilors who had died since the last meeting.

DR. JOHN SHEPARD MAY of Jamaica Plain with an office in Roxbury, died suddenly October 10, 1935. He was born in Augusta, Maine, in 1870, the son of John H. and Ellen F. (Guild) May. He graduated from Bowdoin College in 1893 and from the Jefferson Medical College in 1897. After receiving his medical degree, he settled in Roxbury where he practiced the remainder of his life.

He was a Fellow of the Massachusetts Medical Society and of the American Medical Association and a member of the West Roxbury Medical Association.

Dr. May is survived by his widow, a sister and a brother.

DR TIMOTHY JOSEPH MURPHY of Roxbury with an office in Boston, died January 1 1936 after a short illness.

He was born in 1866. He graduated from Boston College in 1888 and received his M.D. degree from the Harvard Medical School in 1892.

Dr. Murphy was chief of staff of the Boston Sanatorium, Professor of Medicine at Tufts College Medical School, a member of the staff of St. Margaret's Hospital, and had served as President and Censor of the Norfolk District Medical Society, and at the time of his death was a member of the Council.

He was recently appointed Medical Examiner of the M. C. O. F. In addition to the Massachusetts Medical Society, Dr. Murphy was a Fellow of the American Medical Association.

He is survived by six children.

Dr. William R. Morrison, Suffolk, presented a report of the Committee of Arrangements for the Annual Meeting. It is quite apparent that much interest is being shown in the coming Annual Meeting which will be held in Springfield. (See Appendix No. 1.)

The Treasurer read his annual report showing that the finances of the Society are in excellent condition. (See Appendix No. 2.) It was voted to accept the report and the President, Dr. Monahan, complimented the Treasurer upon it. Dr. Stetson Franklin, moved that the Council record its appreciation of the excellent work done by the Treasurer. This was seconded and passed.

The Auditing Committee was not present to submit its report and the President directed the Secretary to read the report of the Certified Public Accountants, Hartshorn & Walter, which indicated that the accounts had been duly checked and found correct. (See Appendix No. 3.) The Treasurer informed the President that the Auditing Committee appeared with him at the safe deposit vault on January 7, checked his securities and promised to present a report at this meeting. It was moved and seconded that the explanation of Dr. Butler, together with the report of the Certified Public Accountants, be accepted as the report of the Auditing Committee. (The report of the Auditing Committee was received after the meeting and is published as Appendix No. 4.)

Dr. Blakely, Norfolk, presented the report of the Committee on Membership and Finance on changes in membership. (See Appendix No. 5.) The Council voted to accept the report and subsequently voted to adopt the recommendations contained in the report. Dr. Blakely then proceeded to present that portion of the report of his Committee dealing with finance. (See Appendix No. 6.) The President commented upon the task which confronts the Committee on Membership and Finance and called

for a vote upon the acceptance of the report. It was unanimously adopted. He next asked for action on the recommendations contained in the report and this was likewise passed without exception. The President then paid a tribute to the work of Dr. Blakely and his Committee and pointed out that this has been so well performed that with the exception of two years the Society has lived within its income. The Council passed a vote of thanks to Dr. Blakely.

The Council then moved to go into executive session to consider certain matters of a confidential nature. There was no action recommended and the Council then resumed the regular schedule of work in ordinary session.

The President announced that since the work of the Committee on Public Relations had been divided among its various subcommittees he would call upon the chairmen of these subcommittees following a short recess for luncheon (Recess from 1:10 to 1:45 P.M.).

Inasmuch as the report of the Committee on Postgraduate Instruction had been received and was quite brief, it was read at this time and was accepted by vote. (See Appendix No. 7.)

Dr. Channing Frothingham, Suffolk, reported for the subcommittee on Public Health and Practitioner of the Committee on Public Relations. He stated that the subcommittee had been trying to stimulate the practitioners of the State to take a more active interest in public health problems including that of immunization. As a result, the Council had passed a series of motions at the last Annual Meeting, in which health departments and public health officials were urged to do no more immunization work than was absolutely necessary and urging the practitioners to engage in this preventive treatment. The result of these votes has been a certain amount of criticism from public health officers who interpreted the action taken as an attempt to have the work discontinued by them. It seems to the subcommittee therefore that a very definite challenge has been given to the physicians to take this phase of preventive medicine seriously or stop making complaints against public health officials for performing this most essential work. The chairman stated that the subcommittee was asked by the Committee on Public Relations as a whole to formulate a statement which might be printed and endorsed by the Society through the Council with the understanding that such statement could be distributed to the laity by physicians without its being considered unethical. Such a statement could be handed to patients as they leave lying in hospitals and also could be issued by public health officials the whole procedure being carried on with the idea of trying to educate the public respecting the value of immunization and also to teach the public that this work should be done by the physician. In accordance with these instructions the subcom-

mittee made certain recommendations which were approved by the full Committee at its last meeting (The recommendations appear on a card) (See Appendix No 8) Dr Frothingham went on to state that the sentence, which reads "Family physicians throughout the Commonwealth are organizing to do this and other work in preventive medicine at a price commensurate with the patient's ability to pay", has led to a certain amount of misunderstanding but is the result of the consensus of physicians in Boston, including the Norfolk District, Suffolk District and Middlesex South District, who have organized to do this work at a price commensurate with the patient's ability to pay. The report of the subcommittee was accepted by the Council and by a separate vote the recommendations of the subcommittee were adopted.

Dr Tighe, Middlesex North, reported for the subcommittee on Social Legislation and Insurance. He recounted the progress which had been made by the committee in conducting a campaign of public education throughout several districts on the evils of compulsory sickness insurance. In certain districts the work has been handled with enthusiasm while in others not much has been done. He called attention to individual addresses which had been given to lay audiences by certain members of the Society and quoted favorable comments from newspapers. He announced that there would be a radio program on Saturday, February 8, at 9 30 P M on Station WNAC of the Yankee Network. This program was planned to include a five-minute introduction by President Mongan on the aims and purposes of the Massachusetts Medical Society and the reasons why the Society is engaged in this program of public education. There would follow a fifteen-minute period of questions and answers. Dr Mongan would ask the questions and the replies would be given by Dr Tighe and Dr Begg. The last ten minutes of the program would be used by the President in summing up the arguments which had been developed in the question period. Dr Tighe reported that the subcommittee was also engaged in a study of plans, which have been suggested or which are in operation, designed to offer a means of meeting some of the difficulties in the way of making adequate medical care available. He announced that Mr Ross Garnett, the Coordinator of the Medical Economic Security Administration of Washington, D C, was to be in Boston on February 17 and 18 under the auspices of the Massachusetts Medical Society, the Massachusetts Dental Society and the Boston Hospital Council. Dr Tighe's remarks were accepted as a report of progress.

Dr Hunt, Worcester, reported for the subcommittee on the Adequacy of Medical Care. He stated that the plan in Worcester which was proposed for support by the Works Progress

Administration had been refused approval after consideration for a period of eight months. He stated that with the aid of Dr Lombard of the State Department of Public Health a questionnaire blank had been prepared for the purpose of making a test survey of people of low income in the Worcester District. This survey had included one hundred families. In addition the members of the Committee on Public Relations had undertaken to include twenty-five more families each, so that four hundred families shall have been studied when the survey is completed. He suggested that the Councilors present might assist in the survey if they would take a number of the forms and persuade the local district nursing groups to conduct a similar survey. While he would not care to commit the Society to an expense, he stated that for each family in the Worcester survey those who made the study were paid twenty-five cents for the information on each card that was turned in. He thought that with proper cooperation the survey might be extended to include one thousand families. Pending a completion of the survey the committee felt that it would be profitable to consider some of the studies which had already been made, particularly the medical service represented by the distribution of physicians, hospitals and perhaps the nursing service. His charts showed, for instance, that there is one doctor to each four hundred of the population in the eastern part of the State whereas in the western part there is only one doctor to each nine hundred of the inhabitants. It also appeared that there is one hospital bed for every two hundred and twenty-one persons in the State of Massachusetts not including those in special hospitals. The committee is attempting to gather material for an exhibit at the Annual Meeting in Springfield. He reported that the newspapers in Worcester had inquired as to the object of the study and had offered to help by stating the purposes to the public and by publishing a copy or condensation of the questionnaire so that people might fill it in and send it to the committee voluntarily. The Council voted to accept Dr Hunt's statements as a report of progress.

Dr Blaisdell, Middlesex East, reported for the subcommittee on Hospital Relations. He recalled to the Council that in June, 1933 recommendations of the Public Relations Committee had been adopted which stated that industrial cases should be hospitalized as private or semi-private cases. In March, 1935 the Supreme Court in the Zombra case rendered a decision which liberalized the interpretation of the clause in the statute which provides for a choice of physician by the patient and to that extent sustained the position of the Society. He reported that conferences with the Industrial Accident Board had not been successful in leading to an interpretation of its rules as to free

choice but it does appear that, since the Zombra decision and since the agitation by the committee the Industrial Accident Board has been more liberal in certain specific cases. In the opinion of legal counsel there should be a selection of cases which can be brought before the Supreme Court in order to clarify the situation. Dr Blaisdell's statements were accepted by the Council as a report of progress.

Dr Mongan then called for the report of the Committee on State and National Legislation which was read by the Committee's secretary, Dr Lionberger, Norfolk. (See Appendix No. 9.) The report of the Committee was formally accepted by the Council. The President stated that he would like to stress the reference made in the report to the practice of individual members of the Society of introducing bills in the Legislature and then asking for the support of the Society. He stated that this was not the proper method. If a bill is worthy of support it should be referred to the Committee on State and National Legislation for study before the Society is committed to its support or its opposition. In answer to a question from the floor President Mongan stated that the Committee on State and National Legislation did not feel disposed to decide upon the question of support or opposition to the proposal made by the Board of Registration in Medicine that physicians be required to register annually. It was decided, therefore, to place the matter before the Council for its consideration. He then directed the Secretary to read House Bill 35 which is entitled "An Act providing for the Annual Registration of Physicians and the Annual Publication of the List of Physicians duly registered."

Dr J. B. Hall, Norfolk, spoke on the previous attempt which had been made to procure similar legislation and stated that he thought that since that time there might have been some change in the opinion of the members. The speaker's opinion differed from that of several years ago although the idea was expressed that the annual registration fee might be one dollar instead of two and that this reduction might be more acceptable. He moved that the Council approve of the legislation. The motion was seconded and discussion was called for.

Dr Richard Dutton, Middlesex East, read an extract from an editorial in *The New England Journal of Medicine* for December 12, 1935.

Dr Burnham, Essex North, commented on the editorial quoted and emphasized the principle that there should be a published list of physicians in Massachusetts. He suggested that the Editor of the *Journal* tell the Council if in his opinion, a simple bill for registration of physicians, having the approval of this Society, would be a move in the right direction.

In response to the President's request Dr Bowers, Worcester, stated that the purpose of

the bill in his opinion was good. He thought that the objection raised here, namely, that the law now provides adequate facilities for taking care of the situation, is theoretically correct but practically faulty. The law to register physicians is an exercise of the police power of the State and it is the duty of the police officers to carry into effect laws relating to registration and to see that physicians are registered. His experience led him to believe that the police of the State have not assumed that function. He failed to find coöperation and upon several occasions had been obliged to institute proceedings in the Court in order to secure action. It was stated that in all our cities in the Commonwealth there are a certain number of people who are practicing medicine without being duly registered. Since most of these are incompetent practitioners, every licensed doctor who practices medicine ought to be registered under the provisions of the bill in order to promote the safety of the people. The size of the fee which seemed to be the stumbling block could be reduced by a modification of the stated amount. He pointed out, however, that it was necessary to have a certain amount of money available if the Board of Registration is to carry out its policies. This money would be expended in the hire of trained investigators who would operate throughout the State. It was further stated that the bill was looked upon with favor since it was an effort to improve the practice of medicine in Massachusetts.

Dr Tighe, Middlesex North, pointed out that after all, as Dr Bowers had stated, enforcement is up to the police who evidently have no interest in the matter and the State Board of Registration in Medicine has no funds which it may use for the hire of investigators to discover and prosecute these illegal practitioners. He pointed out, however, that when a tax is paid to a city or state the money goes into the general fund and he saw no provision in this bill whereby the tax of two dollars would go for the use of the Board of Registration in Medicine.

A Councilor from Middlesex East stated that objection had been raised in that District to the power given to the Board in asking for such other information as they might require. He felt that there was no objection to the registration but that there was distinct objection to the powers given under the bill. On January 8 Middlesex East District Medical Society went on record as opposing House Bill 35 as now written.

Dr Burnham, Essex North replied to the member from Middlesex North and stated that while he was not absolutely certain, from reports of the Board of Registration in Medicine it would appear that the money now collected by the Board for examinations goes into its

funds and that they use it as they please and that any money left over is paid to the State. He felt that under these circumstances one would suppose that the two dollar registration fee would go into the same fund. Dr. Burnham noticed that Dr. Bowers disagreed with this opinion and suggested that he explain it. In the meantime he mentioned as an amendment that we go on record as approving the bill if it can be made satisfactory to the Committee on State and National Legislation.

Dr. Bowers asked for the privilege of interrupting to make an explanation. This request was granted and Dr. Bowers proceeded to show that the Councilor from Lawrence was misinformed about the funds of the Board of Registration in Medicine. It was explained that the Board operates under an appropriation as do all other Boards and that the earnings of the Board are turned over to the State Treasury. As a result the Board of Registration in Medicine has contributed to the funds of the State a sum considerably in excess of its expenditures. He stated that the Board had repeatedly asked for an investigator and had been consistently denied on the basis of the argument that the police departments would take care of the irregularities, but that it was the purpose of the Act to secure a sufficient number of investigators to supplement the work of the Board.

Dr. Mongan stated that there is no provision in the bill that the money raised by registration shall go otherwise than into the Treasury. He ruled that the amendment proposed was so comprehensive that it does not appear to be germane to the question.

Dr. Burnham asked the President to settle the matter since the member from Middlesex East raised objections to the bill and, if the objections were eliminated, the bill would apparently be satisfactory to the members of the Middlesex East Society. It was his idea to have the bill altered by the Committee on State and National Legislation so that it would be satisfactory and the Council could then pass on it.

The Secretary procured the President's permission to speak on the subject under discussion and stated for the information of the Council that the Committee on State and National Legislation could have no part in the alteration of the bill. The bill was prepared by its sponsor, has been entered into the House under its number and has been assigned to a committee for a hearing. The Committee on State and National Legislation of the Massachusetts Medical Society could not obtain the change of a comma, so that any motion which is dependent upon getting a change in the bill is a waste of time.

Dr. Burnham withdrew his motion.

Dr. Lane, Norfolk, spoke at length recapitulating the objections based upon the amount of the tax, pointing out what had happened in the case of other taxes originally enacted for a

specific purpose but subsequently diverted. He stated that he would like to make a motion to the effect that the Massachusetts Medical Society approve of a bill which provides for the appropriation of money for this specific purpose of enforcing the registration law and suggested that all physicians serve as unofficial police officers in their respective districts to discover those who are practicing medicine illegally. He stated, however, that he was not inclined to vote to support the bill as it is now written.

A member from Hampden District expressed his belief that the State should undertake this matter without additional taxation. He stated that the physicians are paying taxes as are other citizens and that in his opinion it was not the size of the tax to which he would object but to the unsound principle of what amounts to a class tax.

President Mongan recalled the Council to the consideration of the question, namely, Is the Council disposed to vote to support House Bill No. 35? He then called for a vote and it was quite evident that the motion was lost.

The President asked the Secretary if there were any other communications from the Committee on State and National Legislation. The Secretary stated that the Committee had likewise referred to the Council the question of its attitude toward House Bill 1408 entitled "An Act relative to the Selection of Physicians under the Workmen's Compensation Law." The hearing on this bill was set for February 6 before the Committee on Labor and Industries. The bill was read. The Secretary pointed out that this bill was presented on petition of Representative McDonough who in turn was acting for a member of the Norfolk District Medical Society. This physician was under the impression that, when he submitted his material to Representative McDonough, he was embodying the principle of the New York law which has recently been passed. This law was designed to close certain loopholes that existed in that state. In its present form, however, the bill simply calls for the publication by the Department of Labor and Industries of a list of physicians in each plant that employs labor and provides that this list shall be prepared by the Department and shall include all registered physicians within the several districts who make application to the Department for enrollment.

The President pointed out that this is another bill introduced by one of our members and that this member asks us to support it. It has not been thoroughly studied by the Committee.

Dr. Landesman, Norfolk, stated that he felt that it was an excellent bill and that the Society should go on record as favoring it. A Councilor stated that the present law enables any employee to call on any physician whom he may wish and, while he is aware that some of

the insurance organizations in industrial plants tell employees that they have a choice of only one or two physicians the law as it stands permits the employee to be treated by any physician whom he desires to call upon.

The Secretary stated that the bill calls for a subdivision of the State into districts of approximately one hundred thousand population and that if the employed person happens to be in the same district with the physician all well and good, but that in a district such as Metropolitan Boston this is not always the case. A man may live in one district and work in another some distance away. In addition to this, Section 28 says that in the selection of a physician, the employee shall select from the list. He is given no choice. It seemed to the Secretary that this provision is probably unconstitutional because free choice is denied the worker.

The President then called for action on Dr. Landesman's motion which had been seconded. The motion was lost.

Dr. Dutton reminded the physicians present that, since the hearing on House Bill 1408 was set for the next day (February 6) it would be well to convey the general attitude of the Society to the Senators and Representatives.

The President next called for the petitions for restoration to Fellowship and the Secretary reported that Dr. Charles L. Judkins of Lynn had been recommended by Drs. John W. Trask, O. C. Blair and George H. Kirkpatrick. It was voted to restore Dr. Judkins to Fellowship under the conditions laid down in the committee's recommendations. Dr. Sanford M. Lilvestrom of Worcester had been considered by a committee consisting of Drs. Ralph W. Ellis, Raymond W. Cutler and John M. Fallon. He was unanimously recommended for restoration under the usual conditions. The Council voted to restore Dr. Lilvestrom.

The Secretary reported applications for reinstatement as follows: Dr. John R. Agnew of the Hampden District with suggestion that the committee consist of Drs. W. A. Hare, M. F. Hosmer and E. T. Smith; Dr. George E. Tucker of Salem the investigating committee to consist of Drs. Henry Tolman, Jr., J. Frank Donahon and D. Scoville Clark; and Dr. R. E. Hubbard formerly of East Northfield and now of Springfield the committee to consist of Drs. John M. Birnie, W. A. R. Chapin and A. G. Rice. The Council voted to approve of the committees suggested in each case.

In the absence of the Chairman of the Committee on Medical Education and Medical Diplomas, the Secretary informed the Council that there was no formal report but that the Chairman, Dr. Fitz, had recommended Dr. Fredrick H. Pratt, Professor of Physiology at Boston University for Honorary Fellowship in the Society. The President stated that according to the rules this name would be referred to the Committee on Membership and Finance.

The President announced that the next item of business would be the election of Delegates and Alternates to the House of Delegates of the American Medical Association for two years beginning June 1, 1936.

Dr. Blaisdell arose to state that he had been informed of the President's intention to make changes in the personnel of the Delegates and among these changes he was considering the elimination of himself. He stated that he could well appreciate the embarrassment under which the President labored in the matter but it would be an irreparable loss to the Society if with his years of knowledge of and participation in the work of the American Medical Association the Society should at this time be deprived of his services. He moved, therefore, to nominate as Delegate to the House of Delegates of the American Medical Association for the term of two years from June 1, 1936, Dr. Charles E. Mongan of Somerville. The nomination was received with applause.

Dr. Tighe seconded the nomination and paid a tribute to the leadership of President Mongan. The President acknowledged the motion and thanked the Fellows for their expression of sentiment. He then proceeded to nominate as his Alternate, Dr. Arthur W. Marsh of Worcester. The other Delegates and Alternates nominated were as follows: Dr. Michael A. Tighe of Lowell, Delegate and Dr. Walter G. Phippen of Salem, Alternate and Dr. Walter A. Lane of Milton, Delegate and Dr. P. P. Henson of Hyannis, Alternate. The Council voted to elect the Delegates and Alternates as nominated.

The President then nominated Dr. A. S. Begg as the Delegate to the Annual Congress on Medical Education and Licensure of the American Medical Association to be held at the Palmer House, Chicago, February 17 and 18, 1936. The Council voted approval.

The President then announced the appointment of Delegates to the Annual Meetings of the five New England State Medical Societies to be held in 1936:

Maine: Justus G. Hanson of Northampton.
Hanford Carvell of Gloucester.
New Hampshire: E. O. Tabour of Lowell.
G. P. Norton of Fitchburg.
Vermont: R. J. Carpenter of North Adams.
H. J. Downey of Pittsfield.
Rhode Island: E. L. Merritt of Fall River.
Charles Shanks of New Bedford.
Connecticut: George L. Schadt of Springfield.
W. F. Lynch of Worcester.

The nominations were approved by the Council. The President asked the Secretary to read the report of the Joint Committee appointed by the Council of the Massachusetts Medical Society and the Boston Medical Library which was submitted by the Chairman, Dr. Robert B. Greenough. (See Appendix No. 10.) The Council voted to accept the report. The President then decided to refer the report to the

Committee on Medical Education and Medical Diplomas with instructions to report at the next meeting

In the absence of Dr. Roger I. Lee the President called upon the Secretary to present the report of the Committee Appointed to Consider the Type of Person to be Admitted to Fellowship in the Massachusetts Medical Society. The Secretary stated that he had the report which was of a general nature and somewhat extensive and the President ordered that the report be received and published with the Proceedings (See Appendix No. 11.)

The President asked the Secretary to read a communication submitted by Dr. M. Luise Diez, Director of the Division of Child Hygiene, in which a request is made that the Massachusetts Medical Society establish a Section on School Hygiene. The President ruled that this communication should be referred to the Committee on Public Relations with directions to report at the next meeting. His ruling was confirmed by vote.

The Secretary then presented a letter from Dr. Guralnick of East Boston which suggested the possibility of establishing a pension system for physicians. The President referred the matter to the Committee on Public Relations.

Communications received from Dr. W. A. Hutton of Melrose and Dr. Richard Dutton of Wakefield were referred to the Committee on Public Relations.

Dr. Alexander A. Levi, Secretary of the Middlesex South District Medical Society, presented the following communication:

Resolved That the names and addresses of applicants for membership in the Massachusetts Medical Society, together with the names of members of the Society acting as sponsors in such cases requiring this action (in accordance with the By-Laws of the Massachusetts Medical Society Chapter I, Section 1 [and] Chapter V, Section 1 [and] Chapter VII Section 5) and the name and address of the secretary of each district be published in *The New England Journal of Medicine* three weeks prior to each censors meeting.

The necessity for giving publicity to the names of the applicants for membership was stressed by Dr. Levi and substantiated by the President. After some comment as to the time factor in the resolution, it was finally adopted by vote.

The President then announced that Dr. George Blumer of New Haven had been chosen as the Shattuck Lecturer for the next Annual Meeting in Springfield.

The meeting adjourned at 3:35.

ALEXANDER S. BEGG, M.D.,
Secretary

APPENDIX TO THE PROCEEDINGS OF THE COUNCIL

APPENDIX NO. 1

REPORT OF THE COMMITTEE OF ARRANGEMENTS

To the Council of the Massachusetts Medical Society

Your Committee of Arrangements wishes to report that the plans for the Annual Meeting and Dinner at Springfield on June 8, 9 and 10 are well in hand, and have progressed most favorably. Through the activity of Dr. Stetson and Mr. Robert Boyd, to date forty-four booths have been sold, considerably more than were sold last year at this time.

The local Committee of Arrangements in Springfield, which was appointed by me last fall, has arranged for excellent clinics at the various Springfield hospitals.

The Women's Committee are planning an extensive program of entertainment for the wives and daughters of our members, and a Kicker's golf tournament will be held, which will appeal to all our members who are interested in golf.

Your committee has arranged for all the section meetings to be held in the Springfield Auditorium, together with the Scientific and Commercial Exhibits, which will be of interest to the general practitioner, as well as to the specialists in certain branches of medicine.

After consultation with the President, Dr. Mongan, and the Secretary, Dr. Begg, I called a meeting of the chairmen of all the various sections to discuss the type of papers to be presented in the section meetings, and asked for any suggestions from either the Chairman or Secretary of each section. I have also arranged for the chairman of each section and the officers of the Society, as well as the members of the Committee of Arrangements, to write editorials in their particular fields, for *The New England Journal of Medicine*, so that each individual member of the Society will be informed of what is going to be presented on each day of the meeting.

I have visited practically all of the District Societies with your President, Dr. Mongan, and your Secretary, Dr. Begg, and have been very much impressed by the welcome given your state officers, and with the enthusiasm which has been manifested by District Societies.

We look forward to a most successful meeting in Springfield, and ask for your continued support.

WILLIAM REID MORRISON, M.D., *Chairman*

APPENDIX NO. 2

TREASURER'S REPORT

February 5, 1936

To the President and the Council

The past year, 1935, has been a year of progress in finances, for our Society. There have been, however, a number of difficulties, especially in the re-investment of available funds. We, in the United States, have experienced unparalleled low money rates, when short term bonds and notes have sold to net a (small) fraction of one per cent, and long, 25 and 30 year, corporation bonds have sold, and are selling, to net less than 3.20 per cent, and savings banks pay only 2½ per cent on deposits. In addition, a number of the bonds, held for years by our Society, with coupons of 5 or 6 per cent, have

been called for payment. These influences have reduced the year's income of the General Fund and the *Building Fund*. The Treasurer hesitates to buy new issues with 3½ per cent coupons and long maturities, at present high yes abnormally high prices when his judgment tells him that, perhaps within a few years the same securities may sell to net 4½ per cent and 5 per cent. Another problem is the serious threat of further inflation in United States currency and credit, by legislation at Washington. Some inflation of credit we already have. Who can tell how much farther we shall go in that direction?

Therefore the investment policy of the Society regarding our funds should be carefully considered, to decide whether the Treasurer shall invest available money in common stocks and equities, to try to take prompt advantage of opportunities as a hedge in case of dangerous inflation or whether the Treasurer should continue to invest, in the hope that wiser and more conservative counsel at Washington, will prevail. The Treasurer has sought advice and suggestion from outside sources from wise bank executives and from men of foresight and long experience. The Society's problem is not too difficult because of the main source of our revenue. In view of the fact, therefore, that our Society receives about 90 per cent of its revenues from annual assessments and only about 9 per cent from interest on securities the Treasurer is of the opinion that our investment policy for the present should continue as in the past, to try to conserve our principal in high grade bonds. He hopes moreover that this policy will meet your approval, and also in the long run, be wise.

Fortunately our Society has escaped taxation. Correspondence between the United States Department of Internal Revenue at Washington and the Treasurer has established the position that our Society is a nonprofit, mutually benevolent and educational corporation. As such, therefore under the United States laws of 1934 and 1935 our Society is exempt from Federal taxation.

The total revenues received in 1935 from annual assessments of resident Fellows amount to \$44,657 the largest sum ever received by the Society from this source. For this result, District Treasurers are to be congratulated. Additional dues received from non resident Fellows amount to \$1,463 so that total dues received in the year were \$46,125. Other revenues received first from invested funds of \$4,194 secondly from proceeds of sales of \$49.50 a gift of \$10.00 and, finally profit (from securities sold and called for payment) of \$787 together amount to \$5,040. Therefore the total gross revenues of the Society from all the above sources (but not including separate income of Building Fund nor dues for Postgraduate Courses) were \$51,166. This, again is the largest such total ever received in one year by our Society.

From dues for Postgraduate Courses the Treasurer received \$2,914. This sum with a credit remaining from 1934 of \$4,233 and the appropriation by the Council of \$1,000 for 1935 (a total of \$8,196) was more than used in the expenses of the Committee on Postgraduate Instruction, with an over draft from funds of the Society of \$831 a total expenditure by the Committee of over \$9,000.

The "*Building Fund*" continues gradually to increase. Income of \$1,850 for the year was added to principal, and with a profit of \$376 brought the Fund to a total of \$55,997 book value, and \$19,347 market value. The increase in prices of high-grade bonds has brought more closely together the book value and market value of our securities, with the result that market value of the *General Fund* is about 100 per cent of cost.

Expenses, during the past year include a number of unusual items which materially increased the total as follows: additional equipment, and rental of new office for the President and for the Secretary expense of an attorney to work at the State House with the Committee on State and National Legislation a dinner to the President and President Elect of the American Medical Association a special meeting of the Council, with Cotting luncheon and the overdrawn account of the Committee on Postgraduate Instruction. The Treasurer urges therefore, more careful consideration of our expenses for 1936 in the desire for economy and efficiency and in order that expenses will not outrun our revenues. The expenses of the Society in the past three years have increased \$8,000 a dangerous trend.

The Society ends 1935 with unexpended revenues of \$2,441.42. The total assets of the Society amount to \$186,715.10.

Your Treasurer again thanks the officers of the Society and the officers of the District Societies for their coöperation. The past year has been a very busy year in the office of the Treasurer. He is especially grateful for the helpful and loyal assistance on the part of the staff of *The New England Journal of Medicine* without which he could not have carried on the increased work.

CHARLES S. BUTLER, M.D., Treasurer

APPENDIX NO. 3

TREASURER'S REPORT FOR THE TWELVE MONTHS ENDED DECEMBER 31 1935

Hartshorn and Walter
Certified Public Accountants
50 Congress Street
Boston

February 1 1936

The Auditing Committee Dr. Richard M. Smith
and Dr. Harry P. Cahill

The Massachusetts Medical Society
Boston, Massachusetts
Gentlemen

At the request of your Treasurer Dr. Charles S. Butler we have audited the books and accounts of The Massachusetts Medical Society for the twelve months ended December 31 1935 and submit herewith

Schedule A Statement showing the Assets and Liabilities of The Massachusetts Medical Society December 31 1935

Schedule B Statement showing the Revenue and Expenses of The Massachusetts Medical Society for the twelve months ended December 31 1935

The cash on deposit in the banks has been reconciled with the bank statements and found correct.

All known cash receipts have been properly accounted for and disbursements are supported by vouchers or canceled checks.

We have made no examination of the securities but are informed by Dr. Butler that you have personally examined these securities, also the savings bank books and found them correct.

The attached statements showing the financial condition of the Society on December 31 1935 and the current account for the twelve months ended December 31 1935 are true to the best of our knowledge and belief.

Respectfully submitted
HARTSHORN & WALTER.

TREASURER'S REPORT

Showing the Assets and Liabilities of the
Massachusetts Medical Society
December 31, 1935

SCHEDULE A

Assets

Cash			
Merchants National Bank	\$2 903 45		
New England Trust Co	3 012 56	\$5 916 01	
		160 798 09	
Investments			
New England Journal of Medicine		1 00	
Total		\$166,715 10	
Liabilities			
Endowment Funds			
Shattuck Fund			
G C Shattuck 1854-1866	\$9 166 87		
Phillips Fund			
Jonathan Phillips 1860	10 000 00		
Cotting Fund			
B E Cotting \$1,000—1876-1881-1887	3 000 00	\$22 166 87	
Building Fund			
Principal	\$53 986 38		
Income Uninvested	2 010 99	55 997 37	
General Fund			
Balance, January 1 1935	\$86 109 44		
Add—Increase for the twelve months ended December 31, 1935	2 441 42		
Balance, December 31 1935		88 550 86	
Total		\$166 715 10	

INVESTMENTS

December 31, 1935

SCHEDULE A EXHIBIT 1

Endowment Funds	Investment	Income Net
Shattuck Fund		
Annuity Policy—Massachusetts Hospital Life Insurance Co	\$9,166 87	\$275 01
Phillips Fund		
\$10,000 Commonwealth of Massachusetts 3½s Jan 1 1944 (Reg)	10,000 00	350 00
Cotting Fund		
Deposit—Institution for Savings in Roxbury	1,000 00	27 50
Deposit—Provident Institution for Savings Boston	1 000 00	30 00
Deposit—Suffolk Savings Bank Boston	1 000 00	27 50
Totals	\$22,166 87	\$710 01
Building Fund		
Cash—New England Trust Co	\$2 010 99	
Deposit—Framingham National Bank Savings Dept	334 58	\$8 97
Deposit—Franklin Savings Bank	1 651 50	43 96
\$1 000 Blackstone Valley Gas & Electric First Mtge and Coll Trust 4s Nov 1, 1965 (Purchased Nov 6, 1935)	1 025 00	55*
1,000 Boston & Albany R. R First Mtge 4½s April 1 1943 (Purchased April 26 1935)	967 50	19 37
1 000 Canadian National Ry Equip Series L—1930 4½s June 1, 1937 (Purchased Jan 1 1935)	1 026 70	34 65
1 000 Canadian National Ry 5s Oct 1 1969	990 00	50 00
5,000 Conveyancers Title Insurance & Mortgage Co 4½s Parti-Mortgage Oct 31, 1939 (In Default)	5 000 00	
5,000 Certificate of Deposit Chicago R. I & Pacific Ry 1st 4s April 1, 1934 (In Default)	4 735 00	
1 000 Cincinnati Union Terminal First Mtge Series C 5s May 1 1957 (Guaranteed)	1,000 00	50 00
1,000 City of Buffalo N Y Series C 4 20% Sept 1 1939 (Purchased Feb 13 1935)	1 040 00	18 10
1,000 City of Fitchburg Mass 4s Aug 1 1939 Reg (Purchased Mar 11, 1935)	1 054 50	2 44*

— City of Peabody Mass 3½s Aug 15 1935 (\$1,000 matured Aug 15, 1935)		35 00
1,000 City of Kansas City, Mo Series C 4½s Dec 1 1945 (Purchased Dec 19 1935)	1 040 00	1.89*
1,000 City of Pittsburgh Pa Series C 3½s Apr 1 1939 (Purchased July 1 1935)	1 042 50	7 94
1,000 City of St Paul, Minn 4s Feb 1, 1939	1 016 00	36 00
1 000 City of Newburyport Mass 2s Nov 1, 1937	1 001 50	20 00
1 000 City of Quincy, Mass 3½s 1943	1,020 00	30 00
— Commonwealth of Massachusetts 3½s July 1 1935 Reg (\$2,000 Matured July 1, 1935)		70 00
1,000 Commonwealth of Massachusetts 3½s Jan 1, 1936 Reg	1 002 50	35 00
1 000 Commonwealth of Massachusetts 3s July 1, 1939 Reg (Purchased Mar 8, 1935)	1 030 50	2.58*
1 000 Edison Electric Illuminating Co of Boston 5s April 15 1936	990 00	50 00
1,000 New York Central R R Equip 5s June 1 1936 (Purchased Dec 2, 1935)	1,018 60	
1 500 N Y Chicago & St Louis Ry 6s Notes Oct 1 1935 (In Default as to principal) (to be extended, to 1938)	1 500 00	89 86
— Northern Ohio Traction & Light Co Gen'l & Ref Series A 6s Mar 1 1947 (\$2,000 called Sept. 1, 1935)		120 00
— U S Treasury 2½s Mar 15, 1935 (\$1,000 sold Mar 8, 1935)		24 52
— U S A Certificate 1½% June 15, 1936 (\$1,000 sold Mar 8, 1935)		2 57
Boston Medical Library Note 4½% due April 1, 1936	24,500 00	1 107 07
Totals	\$55,997 37	\$1 850 55

General Fund

Deposit—Franklin Savings Bank	\$1 074 48	\$32 22
\$3,000 Appalachian Electric Power 1st & Ref 5s May 1, 1956	2 910 00	100 00
— Attleboro, Mass 3½s Mar 1, 1935 (\$2,000 matured Mar 1, 1935)		35 00
1,000 Blackstone Valley Gas & Electric Co Gen'l 4% & Col Trust	1 025 00	56*
— Boston & Albany R R 4s May 1 1935 (\$1 000 matured May 1 1935)		20 00
2,000 Boston & Albany R R 1st 4½s Apr 1 1943 (Purchased Apr 26 1935)	1 935 00	38 74
1 000 Canadian National Ry Equip 4½s May 1 1938 Guaranteed (Purchased Feb 26, 1935)	1,037 00	12 62
1 000 Canadian National Ry Equip 4½s May 1 1939 Guaranteed (Purchased Feb 26 1935)	1 060 25	22 12
2,000 Cedars Rapids Manufacturing & Power Co 1st 5s Jan 1, 1953	1 870 00	100 00
3 000 Central Power & Light Co 1st 5s Aug 1 1956	2,730 00	150 00
1,000 Chicago, Burlington & Quincy R R 1st & Ref 5s A Feb 1, 1971	970 00	50 00
1 000 City of Buffalo C 4 20% Sept 1 1939 (Purchased Feb 13, 1935)	1,035 00	13 10
3 000 City of Cambridge 3½s Dec 1, 1937	3 007 45	129 30
1 000 City of Providence 4½ C Apr 1 1936 (Purchased May 27, 1935)	1 012 50	00
— Commonwealth Edison 1st Mtge 5½s June 1, 1962 (\$1 000 called July 22, 1935)		35 29
3 000 Commonwealth of Australia 5s July 15 1955	2 985 00	150 00
— Commonwealth of Massachusetts 3½s July 1 1935 Reg (\$4 000 matured July 1, 1935)		140 00
— Commonwealth of Massachusetts 3½s July 1 1935 Reg (\$1,000 matured July 1, 1935)		30 00
— Commonwealth of Massachusetts 3½s Nov 1 1935 Reg (\$2 000 matured Nov 1, 1935)		52 69
3,000 Commonwealth of Massachusetts 3½s July 1, 1938 Reg	3,010 00	100 00

*Interest paid out.

1 000 Commonwealth of Massachusetts 3 1/2% July 1 1940 Reg. (Purchased Mar 4 1935)	1 055 00	1
1 000 Commonwealth of Massachusetts 3 1/2% Jan 1 1941 Reg. 000 Conveyance Title Insurance & Mortgage Co 4 1/2% Dec. 1, 1937 (In Default)	1 000 00	25 00
1 000 Connecticut River Power Co. 1st Mgtg 5% Oct 1 1935	000 00	
— Consolidated Gas Electric Light & Power of Baltimore 4 1/2% Feb 14 1935 (\$4,000 matured Feb 14 1935)	810 00	50 00
— Dayton Power & Light 1st Ref 5% Dec. 1 1941 (\$3 000 called Dec. 1 1935)		21 8
1 000 Edison Electric Illuminating Co of Boston 5% Apr 15 1935	150 00	
— Edison Electric Illuminating Co of Boston 5% 1937 (\$1 000 called July 18 1935)	900 00	50 00
1 000 Edison Electric Illuminating Co of Boston 1st Mgtg 3 1/2% July 1 1935 (Purchased July 5 1935)	311	
1 000 Erie County 4% C Oct. 15 1935 (Purchased June 3, 1935)	1 037 40	2.43
2 000 Erie Equipment 4 1/2% Dec. 15, 1935 Guaranteed (Purchased Feb 26 1935)	1 045 00	14 66
2 000 Great Northern Ry Co Gen'l 2 5/8% Jan 1 1935	1,047 3	4.5
1 000 Georgia Power Co 1st Ref 5% Mar 1 1937	193 50	110 00
3 000 Guarantee Title & Trust Corp 5 1/4% Oct. 1 1935 (In Default)	882 50	50 00
3 000 International Paper Co Ref. Series A 5% Mar 1 1935	3 000 00	
4 000 Los Angeles 4 1/2% Feb 1935 (Purchased July 5 1935)	3 076 00	180 00
1 000 Maine Central Equip 5 1/2% June 1 1937 (Purchased May 1 1935)	4 030 00	21 28
2 000 Metropolitan Ice Co 1st Mgtg 7% Jan 1, 1934	1 030 00	1 03
1 000 Narragansett Electric Co 1st Mgtg Series A 5% Jan 1 1937	100 00	140 00
1 000 Narragansett Electric Co 1st Mgtg Series C 5% June 1 1935	360 00	50 00
— " " Chicago & St. Louis R R 6% Notes Oct 1 1935 purchased Apr 11, 1935—\$5 000 matured May 15 1935	98 50	50 00
1 000 Peoples Gas Light & Coke Co 1st & Ref 6% June 1 1937	7 00 00	45 00
1 000 Public Service Co of No. Illinois 4 1/2% July 1 1930 1st Lien & Ref Series I (Purchased July 30 1935)	367 50	60 00
4 000 Public Service Co of No. Illinois 1st & Ref 5% Oct. 1 1935	1 000 00	3.63
1 000 Rockland Light & Power Co 1st Ref A 4 1/2% May 1 1935	3 610 00	00 00
1 000 Salem Reg 4% Feb 1 1935 (Purchased June 20, 1935)	925 00	48 00
2 000 So Pacific (Ors Lines) 1st Mgtg A 4 1/2% Mar 1 1937	1 009 40	4 55
3 000 U S Cold Storage Co 1st Mgtg 6% Jan. 1 1945	1 605 00	10 00
— " U S Treasury 4 1/2% 3 1/4% Oct. 15, 1943 45	3 000 00	180 00
— " U S Liberty 4 1/2% June 15 1932 47 (\$1 000 called June 15 1935)	400 00	71 50
— " U S Treasury 3 1/4% June 15 1938	1 000 00	50
— " U S Treasury 3 1/4% Aug 1 1941	2 000 00	65 00
1 000 U S Treasury 4 1/2% 3 1/4% Oct 15 1943 45	1 015 00	3 0
— " U S Treasury 4 1/2% 3 1/4% Oct 15 1943 45	2 000 00	65 00
— " U S Treasury 4 1/2% Mar 15 1935 (\$1 000 sold Mar 8 1935)	2 000 00	49
— " U S Treasury 3% Feb 15 1934	000 00	60 00
— " U S Rubber Co 1st & Ref 6% Jan 1 1947	1 735 50	100 00
— Wilcox Co Inc 1st 6% April 1 1941 (\$3 000 called Nov 1 1935)		180 00
3 000 Wilcox Co Inc 1st 4% July 15 1938 (Purchased Aug 6 1935)	3 000 00	7.00
Totals	\$5 633 35	\$3 181.31

Interest paid out

Summary

Endowment Funds	\$22,166 87	\$710 01
Building Fund	55 397 37	
General Fund	8,632 85	3,181.31
Totals	\$160 738 09	\$1 191.31

Note: The Income from Building Fund amounting to \$1 850 55 has been transferred to Building Fund

BUILDING FUND

December 31 1935

SCHEDULE A EXHIBIT -

Balance January 1 1935	\$53 7 0 29
Additions	
Income from Securities	\$1 850 55
Profit on Sale of Securities	378 53
Total Additions	2 229 08
Balance, December 31 1935	\$55 90 3

STATEMENT

Showing the Revenue and Expenses of
The Massachusetts Medical Society
for the Twelve Months Ended
December 31 1935-

SCHEDULE B

Revenue

Assessments Received by District Treasurers:	
Barnstable	\$44 00
Berkshire	280 00
Bristol North	690 00
Bristol South	1 826 00
Essex North	1 887 00
Essex South	2 420 00
Franklin	410 00
Hamden	810 00
Hampshire	610 00
Middlesex East	1 060 00
Middlesex North	1 130 00
Middlesex South	802 00
Norfolk	7305 8
Norfolk South	710 00
Plymouth	1 370 00
Suffolk	148 00
Worcester	3 774 00
Worcester North	970 00
Total Revenue	\$43 557.28
Assessments Received by Treasurer	1 100 00
Non Resident Assessments	1 468 00
Sale of Directories and History	49 50
Income from Funds	4 194.3
Profit on Sales of Securities	87 40
Donation—Rudnick Charitable Foundation	10 00
Total Revenue	\$51 166 30

Expenses

Salaries	
Secretaries	\$3,958 33
Treasurer	1 000 00
Assistants to President	9 17
Executive Assistant	487 75
Expenses of Officers and Delegates	\$6,155 49
President	\$47 40
Secretary	1 053 48
Treasurer	325 5
District Treasurers	233 14
Censors	819 00
Delegates to American Medical Association	2 1 67
General Expenses:	
Maintenance of Society Headquarters (including Clerical and Other Expenses)	\$4 193.16
Shattuck Lecture	06.00
Cottling	
Lunch-ones	295 8

Committee Expenses		
State and National Legislation	\$1,628 83	
Public Health	24 44	
Medical Education and Diplomas	115 00	
Membership and Finance	4 95	
Ethics and Discipline	18 09	
Public Relations	745 19	
	<u>2 536 50</u>	
Miscellaneous Expenses	31 25	
	<u>7 356 73</u>	
Refunds to District Societies		5 000 00
Standing Committees		
Publications		
A New England Journal of Medicine	\$18 500 00	
B Annual Directory	1 947 74	
	<u>\$20,447 74</u>	
Malpractice Defense	742 40	
Committee on Postgraduate Instruction	1 881 68	
Committee of Arrangements—Annual Meeting	1,784 03	
	<u>24 855 85</u>	
Total Expenses		48 724 88
Net Revenue		\$2 441 42

APPENDIX NO 4

AUDITING COMMITTEE'S REPORT

To the Council of the Massachusetts Medical Society

The Auditor's Committee has received from Hartshorn and Walter the audit of the books of the Treasurer herewith submitted. It has examined the securities in the hands of the Treasurer as of January 11, 1936 and found all to be present as shown in this account

RICHARD M SMITH,
HARRY P CAHILL

APPENDIX NO 5

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE ON MEMBERSHIP

At the October 1935 meeting of the Council Rev Francis James Dore, S J, Professor of Biology at Boston College, was nominated for Honorary Fellowship in the Massachusetts Medical Society. Father Dore received the degree of A B from Boston College in 1898, of M D from Harvard Medical School in 1902 and of Ph D from Fordham University in 1918. After graduating from Harvard, he was engaged in the practice of medicine until 1907. He was a Fellow of this Society from 1905 until he resigned in 1907. In the latter year he went to Europe and entered the Society of Jesus at London.

Your Committee heartily endorses this nomination and recommends that Father Dore be elected to Honorary Fellowship.

DAVID N BLAKELY, *Chairman*

February 5, 1936

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE ON MEMBERSHIP

This Committee recommends

1 That the following named fifteen Fellows be allowed to retire as of December 31, 1935, under the provisions of Chapter I, Section 5, of the By-Laws

- 1 Ayei, Silas Hibbard, Boston
- 2 Bailey, Walter Channing, Boston
- 3 Conant, William Merritt, Boston, with remission of dues, 1933, 1934, 1935
- 4 Curtis, Francis George, Ashfield
- 5 Greene, Edward Miller, Boston
- 6 Harlow, Corydon Webster, Melrose Highlands, with remission of dues, 1933, 1934, 1935
- 7 Hayes, Frederick Legro, Brookline, with remission of dues, 1935
- 8 Jack, Frederick, Lafayette, Boston
- 9 Lamoureux, Joseph Elzear, Lowell
- 10 McNally, William Joseph, Roslindale
- 11 Morrison, Archibald Benjamin, Brookline, with remission of dues, 1934, 1935
- 12 Pike, Forrest Wiley, Stoneham
- 13 Preble, Wallace, Cambridge
- 14 Richardson, Anna Gove, Lakeville
- 15 *Smith, George Carroll, Boston

and, under the provisions of the same section, that one retired Fellow be restored to active Fellowship

Whittier, Francis Fremont, Brookline

*Deceased.

2 That dues of the following named ten Fellows be remitted under the provisions of Chapter I, Section 6, of the By Laws

- Borden, Charles Richardson Cobb, Brookline, 1936
 Danforth, Mary, Peiping, China, 1936
 Drake, Arthur Knowlton, Avon, Ill, 1936
 Dunscombe, William Colby, Ensenada, Porto Rico, 1936
 Guardo, James Leslie, Stoneham, 1934, 1935
 Guidone, Earl Linguiti, Harding, (Medfield) 1933, 1934
 Hamilton, Robert DeLancey, Newburyport, 1936
 Lord Heinstein, Esther Lucile, Dorchester, 1934, 1935
 Wilder, Edward Wheeler, Madura, So India, 1936
 Young, Ralph Randall, Jamaica Plain, 1933 1934

3 That the following named eleven Fellows be allowed to resign as of December 31, 1935, under the provisions of Chapter I, Section 7, of the By Laws

- Berry, Walter Durant, Stratton, Maine
 Blain, Daniel, New York City, with remission of dues, 1933, 1934, 1935
 Brayerman, Morris Moses, Northville, Mich
 Hill, Thomas Chittenden, Vero Beach, Florida
 Hyde, Corinne Coté, Boston
 Nute, Albert James, Jamaica Plain
 Quennell, Willard Leslie, Highland Park, Mich
 Ritter, Benjamin, New York City
 Saul, Leon Joseph, Chicago
 Sutliff, Wheelan Dwight, Chicago, with remission of dues, 1935
 Wroblewski, Walter George, Nashua, N H

4 That the following named thirty one Fellows be deprived of the privileges of Fellowship under the provisions of Chapter I, Section 8, Clauses (a) and (b) of the By-Laws

- Angell, Edwin Olin, Millbury
 Bennett, Max, Brighton
 Bennett, Theodore, Brookline
 Boyer, Joseph Napoleon, Springfield
 Caron, Gerald Hamelin, North Wilmington
 Cassels, Louis Raymond, Worcester
 Charron, Ovide Toussaint, New Bedford

Curtis, Walter Stanley Youngstown, Ohio
Devine Bernard Francis, Boston.
Gafney Harry Dabol Wawa.
Grady Thomas Francis West Lynn.
Hayden, John Joseph, Worcester
Islerwood Ainsworth Varnum Lowell.
Kramer Sidney David Brooklyn N Y
Langevin William Edward Southbridge.
Lanson Freeman Arthur Malden.
Learned Elmer Turell, Fall River
MacCallum Wallace Peter Boston.
McDonald Samuel James, Boston.
McMahon Francis Joseph Brookline
Osgood, George New York City
Penn Henry Samuel, Los Angeles, Calif.
Peterson John Adna Hingham Center
Powell James Patrick, Arlington.
Stevenson William Robb Suffield Conn.
Stoller Louis William Red Hook N J
Toombs Herbert Raymond, Westfield
Wellington Anna Colburn North Grafton
Whiteside, George Shattuck, Pine Orchard, Conn
Williams David, Lawrence Jamaica Plain
Yorshis Philip Cambridge.

5 That the following named three Fellows be allowed to change their membership from one District Society to another without change of legal residence under the provisions of Chapter III Section 3 of the By Laws

Two from Norfolk to Suffolk

- 1 Castle William Bosworth, Brookline.
- 2 Chapman, Earle MacArthur Brookline

One from Worcester North to Worcester

1. Cheatham, Donald Butterworth Athol

6 That the Massachusetts Medical Society nominate and recommends for Affiliate Fellowship in the American Medical Association in accordance with the By Laws of that association a retired Fellow namely

Schorer Cornelia Bernhardine Johanna, Foxborough

DAVID N BLAKELY *Chairman*

February 5 1936

APPENDIX NO 6

THE MASSACHUSETTS MEDICAL SOCIETY TREASURER'S REPORT FOR CALENDAR YEAR 1935 IN COMPARISON WITH THAT OF 1934

DISBURSEMENTS

	1934	1935
Salaries		
Secretaries	\$3,000 00	\$3,958.33
Treasurer	500 00	1,000 00
Executive Assts. to President	2,500 00	729 17
Executive Assistant		467 79
Expenses of Officers and Delegates		
President and Vice President	105 14	477 70
Secretary	850 36	1,068.48
Treasurer	28 83	35.53
District Treasurers	2,300 38	339 11
Censors	1 100	319 00
Del. sales to American Medical Association	450 06	327 67
General Expenses		
Maintenance of Society's Headquarters	3,297 81	4,192.16
Shattuck Lecture	200 00	400 00
Cotting Luncheons	65 70	395 82

Expenses of Committees		
Of Arrangements for Annual Meeting	322.43	1 784 03
Publications		
A. New England Journal of Medicine	18,500 00	18 500 00
B. Annual Directory	1 884 00	1 947 1
Membership and Finance	12 4	4 25
Ethics and Discipline	1 5	18.00
Medical Education and Diplomas	70 14	116 00
State and National Legislation	151 10	1 6 8 33
Public Health	3 67	1 14
Malpractice Defense	1 002 40	42 40
Public Relations	437 33	745 19
Postgraduate Medical Instruction	1 000 00	1 881 68
Special Appropriations		
Contribution to Boston Better Business Bureau	5 00	5 00
Surety Bond District Treasurer	6 25	6 5
Board of Trial	110 34	—
Revision of By Laws	301 5	—
Refund to District Societies	5,000 00	5 000 00
Net Revenue (unexpended)	8 095 13	441.12
	\$49 801 54	\$51,166 30

REVENUES

	1934	1935
Assessments		
Paid to District Treasurers	\$42 388 8	\$42 537 8
Paid to Treasurer	1 15 60	1 100 00
Paid by Non Resident Fellows	1,408.81	1 463.00
Sales of Directories and History	44 20	45 50
Shattuck Fund	75 01	75 01
Phillips Fund	300 00	350 00
Cotting Fund	90 00	85 00
General Fund	2,631 53	3,484 31
Gift to Society	10 00	10 00
Profit	3 451	787 70
Total Revenues	\$49 801.54	\$51 166 30

Statement of Finances of Committee on Postgraduate Medical Instruction

	Dues Received	Appropriation by Society	Expenses	Balance Dec. 31
1933	\$3 013 00	\$1,000 00	\$1 63 3	\$ 749 77
1934	3,553 13	1 000 00	3 070 6	4 28 77
1935	2,914 00	1 000 00	9 077 9	

Total Expenses of Society

1933	1934	1935
\$40 79 65	\$42,099 90	\$43,706 36
		\$48 7 48

REPORT OF COMMITTEE ON MEMBERSHIP AND FINANCE, ON FINANCE, FEBRUARY 5 1936

BUDGET FOR 1936

The following Appropriations are recommended

	Appropriated in 1935
Salaries	
Secretary	\$3 000
Treasurer	1 000
Executive Assistant	1,200
	\$5 200
Expenses of Officers and Delegates	
President and Vice President	\$ 00
Secretary	1 000
Treasurer	400
District Treasurers	2,400
Censors	300
Delegates to House of Delegates American Medical Association	500
	5 900
Maintenance Society Headquarters, including clerical and other expenses	5 500
Shattuck Lecture.	200
Cotting Luncheons.	300
	2 600

Standing Committees

Arrangements for Annual Meeting	\$2,000	\$1 600	
Publications			
A New England Journal of Medicine	20 000	19 500	
B Annual Directory of Fellows	1,800	1 800	
Membership and Finance	25	25	
Ethics and Discipline	100	50	
*Medical Education and Medical Diplomas	600	800	
†State and National Legislation	2,200	1,900	
Public Health	100	100	
Malpractice Defense	1 500	1 500	
	28 325	27 275	

Special Committees

Postgraduate Instruction	\$1 000	\$1 000	
Public Relations	1,500	1,000	
Section of Obstetrics and Gynecology	100	—	
Boston Better Business Bureau	25	2 625	25 2 025

Returns to District Societies

5,000 5 000

Contingent Fund

2 200

Total \$53,050 \$49 650

Estimated Income \$51 000 \$49 000

*Including expenses of delegate to annual congress at Chicago and prize offered to interns in Massachusetts

†Including expenses of delegate to annual congress at Chicago

DAVID N BLAKELY, *Chairman*

APPENDIX NO 7

REPORT OF THE COMMITTEE ON POSTGRADUATE INSTRUCTION

The Committee on Postgraduate Instruction wishes to report that the extension courses for 1935-'36 are in progress. The districts have been divided into two divisions, one half had their courses during the autumn, and the other half will have their sessions next spring.

At the present time the Committee is considering the plans for the future of this work and will make the final report at the Annual Meeting in June.

FRANK R OBER, *Chairman*,
LEROI E PARKINS, *Secretary*

APPENDIX NO 8

IMMUNIZATION AGAINST DIPHTHERIA

It is recommended that every child be immunized during the second half of the first year of life with an appropriate toxoid preparation which is injected under the skin and is entirely harmless. This toxoid preparation should be used on any child under twelve years of age.

In children of twelve years or over immunization should be done with the toxin-antitoxin mixture which is also injected under the skin and is also entirely harmless.

SCHICK TEST

A simple skin test called the Schick Test will demonstrate whether an individual has a natural or an acquired protection against diphtheria. If protection exists, immunizing injections are not necessary.

IMMUNIZATION AGAINST SMALLPOX

It is recommended that every child be vaccinated against smallpox during the second half of the first year of life.

It is recommended that this work be done by your family physician.

Family physicians throughout the Commonwealth are organizing to do this and other work in preventive medicine at a price commensurate with the patient's ability to pay.

MASSACHUSETTS MEDICAL SOCIETY

APPENDIX NO 9

REPORT OF THE COMMITTEE ON STATE AND NATIONAL LEGISLATION

Mr. President and Members of the Council

Your Committee on State and National Legislation has held several meetings during the Society's current year. The past two months it has endeavored to make a careful study and evaluation of the current legislative grist and classified it into legislation which should be favored and which should be opposed. There is considerable proposed legislation of a "reform" or perfunctory nature, or related to one of our allied causes, which consumes much time in its study but which it is deemed best to classify for "no action." Because of pertinent imperfections and because of the diversity of opinion among the Society's members in the matter of two proposed pieces of legislation the Committee decided to render no decision and refer them to you for consideration and your instructions.

These two Legislative Bills are the following:

- 1 H 1408 an act relative to selection of physicians by employees injured in industrial accidents
- 2 H 35 an act for the annual registration of physicians and the publication of a list of registered physicians

Your Committee has given serious thought to the apparent ineffectiveness in securing aggressive or more appropriately progressive legislation. It has given equally serious thought to the ineffective resistance to retrograde legislation. Our legislative ineffectiveness is a very real problem. Your Committee can present your cause at a hearing before a Legislative Committee but unless this is backed up by the physicians among a legislator's electorate our efforts can very readily be of no avail. The Legislator is the representative of the people of a community (this includes its physicians) and it is sad commentary to hear a legislator say in all earnestness, "Well, my family doctor hasn't said anything to me about this," or "Well, the doctors in my district haven't brought this to my attention." The average legislator as well as the average physician wishes to serve his people. It behooves the rank and file of our members to become "politically minded" and take the time to become acquainted with their legislators and talk their medical problems over from the standpoint of public and professional good. It is quite impossible for your Committee on State and National Legislation to make your cause felt unless we have the individual support of our members.

The Committee records with regret that recently at a hearing on H 34, which measure your Society favored to improve medical standards, one of our members saw fit to oppose you in this point of view and so expressed himself at the hearing.

There are certain obligations the Society owes its members and one of these is to keep them informed.

about legislative matters and also it must supply the mechanism for legislative effectiveness. The policy inaugurated last year to give to every member a list of the legislators in his district will be continued. It is also planned to send out to the district legislative committee a bulletin which carries a brief digest of every bill. The society's stand (Favor or Opposed) the hearing dates before committees, also any pertinent remarks on a particular piece of legislation. We believe this will be of considerable practical help as this information will now be condensed and readily available thus avoiding the handicap of gleaning it here and there in our rather voluminous *Journal*.

Also the Committee calls to your attention the problem of independent presentation of bills by our members without referring them to your legislative committee or any other committee whom you may create or designate. This has given rise to a number of embarrassing situations. For example Two years ago we had three separate Lien laws proposed, each with obvious defects. Then your Society was requested to support these bills. Also members may propose legislation and if your Committee does not come forward with spontaneous support there is the vicious insinuation that we are not sufficiently interested in "The Welfare of the Doctors." Such independent petitions for legislation do not make for uniformity of opinion or support. If this situation is not abated it may be necessary to petition you for some remedial measure.

In conclusion, your committee is at your service. It is always glad to receive suggestions and its present recommendations are that for the best interests of our Society the two before-mentioned proposed legislative measures be submitted to you for consideration.

Respectfully submitted—

D. L. LIONGUEUR

APPENDIX NO. 10

The joint committee appointed by the Council of the Massachusetts Medical Society and the Boston Medical Library has had two meetings, and has the honor to present the following report:

It is the unanimous opinion of the members of the joint committee that a closer affiliation between the Massachusetts Medical Society and the Boston Medical Library would be of mutual advantage. The Boston Medical Library is one of the largest and most important medical libraries in this country and contains material relating to medicine in colonial history which is unique. It contains the original library of the Massachusetts Medical Society serves as a reference library for all of the New England States and is used continuously by students and instructors of the three important medical schools in Boston.

Your committee believes that the services of the Boston Medical Library might be and should be made more readily available to all of the members of the Massachusetts Medical Society. There are various ways in which this can be accomplished. For example in connection with the Postgraduate Courses given in the different districts it is suggested that a system of extension service by the library coordinated with the subject matter of the extension courses in each district could be developed at small expense which would greatly increase the interest and the value of the instruction given.

Another plan is to have the library send out packages of books to the districts of the state making some one man responsible for the care and return

of the books so sent. In this way the Fellows of the Massachusetts Medical Society could have an opportunity to see and examine new books as they came out, or perhaps they would prefer groups of books or reprints dealing with one or another special subject. The scheme has many variations.

Meantime bibliographic service for individuals working on a special topic is an important item which needs and deserves closer attention. The point is that whatever the form of service or services may be the library stands ready to undertake to supply it provided only that the Fellows of the State Society will give the project their encouragement and their support.

The joint committee is confident that the successful development of such a service would greatly increase the number of physicians in the state who would find the library of real value in broadening their professional and cultural activities.

Respectfully submitted

JOINT COMMITTEE FOR THE
BOSTON MEDICAL LIBRARY AND THE
MASSACHUSETTS MEDICAL SOCIETY

LINCOLN DAVIS
CHARLES F. PAINTER,
FRANCIS M. RACKEMANN
P. E. TREMBLE,
ERWIN C. MILLER
R. B. GREENOUGH

February 5 1936

APPENDIX NO. 11

REPORT OF THE COMMITTEE TO CONSIDER THE TYPE OF PERSON TO BE ADMITTED TO FELLOWSHIP IN THE MASSACHUSETTS MEDICAL SOCIETY

The qualifications for membership in medical societies have been under rather desultory discussion for some years. Apparently there are at present 7014 physicians in Massachusetts according to the thirteenth edition of the A. M. A. Directory. On April 1 1935 there were 4737 members of the Massachusetts Medical Society. Roughly speaking, two-thirds of the physicians of Massachusetts belong to the Massachusetts Medical Society. There are of course three possibilities: (1) To allow things to go on as they are, which is more or less drifting. (2) To try to encourage membership so that a larger proportion of the listed physicians would be members of the Massachusetts Medical Society. In support of this view it is urged that the Massachusetts Medical Society would be in a stronger position if it were more truly representative of the total number of physicians and secondly although men might be poorly qualified either from their medical training or from their practice nevertheless, by membership in the State Society these individuals might be improved and reformed and thus be made desirable and worthy members. (3) The third possibility is to scrutinize more carefully than has been done in the past the candidates for election to the District Medical Societies. It can be pointed out that once a man is a member of a District Medical Society it is extremely cumbersome as well as difficult to terminate his membership if he objects. It is likely that there are in the Massachusetts Medical Society and every other state medical society a small proportion of undesirable members who probably do harm to the profession and to the Society.

The Committee on Medical Education and Medical Diplomas has been much concerned in regard to its relationship to this problem. This Committee passes on the educational qualifications in general

avoidance, always, of any unnecessary instrumentation

Oral medication

There is little agreement over the value of any particular oral medication. Sandalwood oil in 5 to 10 minim doses, three times a day, after meals, is the most widely used. It is said to relieve urgency and reduce discomfort when, in the early stages of a posterior urethritis or an acute prostatitis, those are annoying symptoms. Whether the fluid intake must be reduced to provide for effective concentration of the oil in the urine, and whether such reduction in fluid intake is in itself a serious disadvantage, is a much debated subject.

Alkalies, balsams, bromides, hyoseyamus and various other drugs also find some use as urinary sedatives. Perhaps the best that can be said of oral medication is that if one of the urinary sedatives relieves the patient's discomfort, its administration may be worth while.

As a rule, unless there are special contraindications, it is considered advisable to increase, considerably, the patient's daily intake of water. Any contraindications must be learned by experience as they vary from patient to patient.

Urethral medication

The objects of urethral medication are to remove the accumulation of pus in which the membranes are bathed, to provide free drainage, to improve local circulation, to stimulate, mildly, the membranes, and least of all to kill the gonococcus (except those on the surface) by any direct antiseptic action. Any drug powerful enough to kill the gonococcus in the depths of the mucosa will add to the damage already being done to the membranes by the infection.

Nonirritating, nonstinging drugs, in dilute solution, at a temperature comfortably warm, injected without force, through suitable syringes or irrigators, give good results. Irritating drugs, astringents, strong solutions, high pressure injections, too much heat or too little, and improper instruments only add to the patient's discomfort, delay cure and cause complications.

For best results, no patient should be permitted to inject medication into his own urethra. Patients may inject too much, thus overdiluting and traumatizing the urethra and often forcing pus into the posterior urethra. Posterior extension, prostatitis and epididymitis may result. Other patients will inject insufficient medication or neglect treatment.

However, many patients cannot afford to pay for or give the time to frequent visits to the doctor's office. Compromise is necessary in these cases, but it must be permitted only in the treatment of the anterior urethra.

A proper syringe preferably a rubber bulb, one-diam, glass syringe of the "Asepto" type,

should be prescribed (or better, dispensed) and insisted upon. The patient should be taught, by actual demonstration in the doctor's office, how to inject and hold the medication. The amount which can be injected safely into a given patient's urethra (they all vary in size) must be determined accurately. Some simple method must be devised by which the patient may always measure the same amount. He should be taught to cleanse and boil the syringe after each use. It may be advisable to give some patients written instructions for the entire procedure.

If the patient is allowed to treat his own urethra, he must be warned to stop all treatment at once and report to the physician if there is any exacerbation of discomfort or discharge or any evidence of extension or complication.

Among the drugs which the patient may use, the organic silver salts (argyrol, silver nucleinate, protargol and neosilvol) enjoy the widest use. Which of these is to be prescribed depends largely upon what the patient can afford, and how important it is to avoid staining of the clothing. Argyrol and silver nucleinate will stain fabrics. Silver nucleinate is the less expensive. Protargol and neosilvol are cleaner. The latter is the more expensive. Argyrol, silver nucleinate and neosilvol may be used in strengths up to 10 per cent although the weaker (5 per cent) solutions are safer for routine use. Protargol may be used in strengths of one fourth per cent to one half per cent.

Urethral irrigation should be done only by the physician. An irrigating tank is safer than a syringe as it cannot deliver the irrigant at a pressure greater than the weight of the column of fluid. The fluid column should never be higher than two, or at the very most, three feet above the level of the urethra.

Irrigation of the anterior urethra is given through a tip which fits into the meatus. Anterior-posterior irrigations are best given through the same type of tip. The patient can be taught, in most cases, to relax the cut off muscle for posterior irrigations. Except in the hands of a highly qualified expert, a catheter should never be passed into the urethra until the urethral infection has subsided and it is necessary to fill the bladder preliminary to prostatic massage. Any instrument passed into an inflamed urethra is certain to cause damage. More strictures have been caused by injudicious instrumentation than by the disease itself. As the treatment of gonorrhea becomes more gentle, strictures become progressively fewer in number.

Potassium permanganate in strengths of from 1:10,000 to 1:8000 is by far the most satisfactory irrigant in use and has stood the test of time. Silver nitrate, 1:10,000 is also useful. A variety of other drugs have enjoyed sporadic popularity, but possess no advantages and some

disadvantages over potassium permanganate. The temperature of the irrigant should be as high as the patient can stand with complete comfort—usually not higher than 110 degrees F (in the reservoir).

If the infection is active in the posterior urethra when the patient is first seen or it extends into the posterior urethra later, all direct treatment of the urethra must be omitted until the activity has subsided. Thereafter the patient may continue to treat his anterior urethra if necessary, but the physician must give the anterior posterior irrigations.

Dressings

The patient who has a urethral discharge is disturbed over the soiling of his clothes. The physician should appreciate this and provide for it in order that objectionable dressings will not be used.

The dressing has only esthetic value and it must not be allowed to interfere with drainage or treatment. A sanitary bag (gonorrhea bag) may be prescribed, into the bottom of which gauze (not cotton) may be placed. The gauze should be replaced by a fresh supply after each urination. A butterfly dressing will collect urethral discharge, but will not protect the clothing against the stains of colored medications. A hole is cut in the center of a strip of gauze, the glands slipped through the hole and the foreskin pulled down to hold the dressing in place. The gauze should project from the penis in sufficient quantity to collect the pus which accumulates between at least frequent urinations.

Prostatic massage

When the urethral infection has subsided and is under control or it is obvious that there is no further progress toward cure the prostate is examined and if it has been infected it is treated by massage. The prostate is always infected if the infection extends into the posterior urethra.

The object of prostatic massage is to free the prostate of infection. This is accomplished partly by the gentle evacuation of its contents (thus improving drainage) and gentle stimulation of circulation to relieve congestion.

Here, as in any stage of the management of gonorrhea, gentleness is essential. Massage should never be so strong as to cause pain. It should never be vigorous. It should be begun lightly and limited at first to a very few strokes. The pressure may be increased and the massage more thorough with time and ability of the patient to stand it with comfort.

Proper massage may or may not produce a visible discharge of fluid at the urethral meatus. Examination of the urine or irrigant voided after the massage will give ample evidence of the evacuation. If the patient has had treatment elsewhere, it may be well to explain this

point as some patients have been allowed to believe that a massage which does not produce a visible evacuation is not adequate.

Proper prostatic massage is an art. It can be learned only by patience and experience.

Careful study of many cases has disclosed that the vesicles are more often involved following a posterior urethritis, than it has been generally supposed. It seems improbable that they could escape at least some degree of infection in view of their relation, like that of the prostate, to the posterior urethra.

Seriously involved vesicles may be palpated rectally, above the upper border of the prostate. If they can be palpated, great care should be taken to leave them alone so long as there is any evidence of activity, for epididymitis may follow injudicious meddling. If they cannot be palpated, their involvement may be indicated by the amount and nature of the detritus in the urine voided after massage. Poorly draining vesicles may cause backache or referred pains which sometimes lead to mistakes in diagnosis.

When it is safe to treat the vesicles they can be stripped during prostatic massage by carrying the massaging finger as far above the upper border of the prostate as possible.

There should be some fluid in the bladder when the prostate is massaged as the urethra should be cleansed by emptying the bladder through it after massage. Urine is the best irrigant at this time. The unnecessary filling of the bladder with an irrigant adds only to the dangers of unnecessary trauma.

If the patient has emptied his bladder or if the physician must examine the urine prior to massage (two-glass test) the bladder should be partly filled before massage. The routinely used irrigant may be used for this purpose. If the patient and the physician have learned to fill the bladder through a meatal tip so much the better. Otherwise a small sterile, soft rubber catheter, well lubricated may be passed into the urethra beyond the cut-off muscle (without using force) and the bladder partly filled through it. Instrumentation, or the passage of a catheter is usually contraindicated if the urethral infection is still active.

MISCELLANEOUS TREATMENT

Sitz baths are excellent for the relief of an acute posterior urethritis or prostatitis. They add to the comfort of the patient and improve the circulation of the affected parts.

Sounds have no place in the treatment of an active urethral or prostatic infection. Their use should be limited entirely to

- 1 Therapeutic test for cure after all signs and symptoms of infection have disappeared.
- 2 For the treatment of stricture after any active infection has subsided.

- 3 In the hands of the expert, the urethra may be massaged gently over a sound, if, in a long-standing, persistent, low-grade infection, it appears that submucous infiltration is the cause of failure to improve. Other causes of persistent infections must be ruled out first, such as, a prostatitis, misconduct on the part of the patient, overtreatment and too vigorous treatment. The urethral infection must first have received adequate routine treatment until it is evident that no further improvement is to be expected.

Vaccines, foreign proteins, filtrates, diathermy and other special or widely promoted drugs or methods have no place in the routine treatment of gonorrhea. Vaccines, foreign proteins and filtrates may be of use in the treatment of certain complications, such as arthritis or epididymitis. Diathermy may be useful in epididymitis. Dilators had better be discarded as obsolete and dangerous except as surgical instruments in the hands of trained urologists.

Meatotomy

Rarely, even in a large practice, may it be necessary to enlarge the urethral meatus (meatotomy) in order to promote drainage.

RECORDS

It is impossible to judge of results by impression alone. That physician will best adjust his methods to eventual success who keeps careful records and who studies them for results.

The minimum record should consist of at least the following:

- 1 History of the infection
- 2 Examination of the patient with particular emphasis upon the genito-urinary system
- 3 Laboratory findings
- 4 Diagnosis
- 5 Treatment, by date and treatment used
- 6 Conduct of the patient
- 7 End-results, with a summary of the progress of the case

These records should be studied from time to time with the following questions in mind:

- 1 Proportion of patients neglecting treatment?
- 2 Proportion of patients cured?
- 3 Stage of infection when first seen?
- 4 Proportion of patients having had previous treatment and with what results?
- 5 The time required for cure? Relation of the patient's conduct to the time required for cure?
- 6 Tests which most satisfactorily indicate cure?

- 7 Relation of good results to the kind of treatment?
- 8 Relation of poor results to the kind of treatment?

SUMMARY

On the whole, the fundamental principles of the successful management of gonorrhea in the male are the following:

- 1 Good conduct on the part of the patient with especial emphasis upon abstinence from any form of sexual excitement and alcohol
- 2 Proper evaluation of any previous treatment
- 3 Regularity and continuity of treatment
- 4 Careful instruction of the patient concerning any treatment which is to be self-administered
- 5 Gentleness
 - (a) Mild solutions, nonirritating and nonastringent
 - (b) Suitable syringes and irrigators which avoid traumatization of the inflamed membranes
 - (c) Avoidance of force in giving injections and irrigations
 - (d) An irreducible minimum of urethral instrumentation
 - (e) Gentle prostatic massage

SHORT CUTS

In addition to the above, it is urgently recommended that the physician familiarize himself with a simple plan of routine treatment in the giving of which he may become proficient. It is further suggested that he turn a deaf ear to the high pressure salesman who appears every month or so with a new "cure-all" or a new addition to the therapeutic armamentarium. The innumerable offerings of the past have passed quietly into oblivion after enjoying a brief hour upon the stage, leaving behind them distrust, disappointment and uncured patients. If the future produces anything sufficiently sound to deserve a permanent place in the management of gonorrhea, its announcement will come from those of the medical profession who are qualified to judge, after adequate experience, of its value. The pronouncements of non-medical, clinically ignorant manufacturers of drugs, backed by the alleged testimonials of physicians who are in no sense qualified by experience to testify, should be given the little consideration which they are worth. Many of the high-pressured concoctions of the past and present have enjoyed large sales. They may have enriched their producers, but they have not contributed to the more successful management of a disease which has too long been the football of the quack and the drug-house. It is time that the management of gon-

orrhea became a medical problem. It is time that the medical profession began thinking a straight way through the maze of colored solutions, pills, and tradition instead of darting to the right or to the left at the appearance of every dazzling therapeutic signpost which shrieks hysterically "this is the way." The only way to the successful management of gonorrhea known today has been outlined in prin-

ciple, here. There are no short cuts. Those byroads which appear to be sort cuts lead only to dead-ends or to the ravine called "complication."

The next paper by The Neisserian Medical Society will consider the treatment of gonorrhea in the male step by step, in detail, for the various stages of the infection.

A REVIEW OF THE CARDIAC DEATHS IN 1,245 MEDICAL EXAMINERS' CASES THAT HAVE COME TO AUTOPSY IN THE MASSACHUSETTS STATE HOSPITALS FOR MENTAL DISEASES*

BY ANNA M. ALLEN, M.D.†

WITHIN the last twenty-one years out of 1,245 Medical Examiners' cases which have come to autopsy in the State Mental Hospitals of Massachusetts, 154 or approximately 12.4 per cent have shown cardiac lesions, single or combined in the main causes of death. These were classified from the cause of death on the certificate under headings indicating the structures involved. (See Table 1.)

TABLE 1

Pericardial deaths	8	{ Acute	7
		{ Chronic	1
Mycardial deaths	71	{ Chronic myocarditis	40
		{ Acute dilatation of the heart	14
		{ Fatty degeneration	8
		{ Cardiac rupture	7
		{ Acute myocarditis	2
Endocardial deaths	38	{ Acute vegetative endocarditis	7
		{ Chronic	31
Coronary disease	57	{ Sclerosis	33
		{ Occlusion	24

In viewing this table please note that in many cases two cardiac conditions were given in the cause of death as for instance—coronary sclerosis and chronic myocarditis, and that these are here listed separately.

Pericardial deaths are listed eight times, all except one of these being acute and with effusion. The pericardial condition was unsuspected in life and would have been undiscovered without autopsy illustrating as Osler says:

There is probably no serious disease so frequently overlooked as pericarditis with effusion.

Mycardial deaths totaled seventy one. Under this heading there are forty instances of chronic myocarditis. In the majority of these chronic cases fibrous replacement had presumably occurred secondary to coronary sclerosis.

Presented at the meeting of the Massachusetts Medical-Legal Society, October, 1923.

† Allen, Anna M.—Formerly Pathologist, D. V. State Hospital and Massachusetts Department of Mental Diseases. For record and address of author see "This Week's Literature," page 531.

in two syphilis was present. *Acute cardiac dilatation* was given as the cause of death in four teen instances. In some this had occurred following convulsive seizures; in other cases it occurred in association with endocarditis, influenza, heat prostration, postencephalitis, etc. *Fatty degeneration* was listed in the causes of death eight times. Death occurred quite suddenly, and at autopsy the heart muscle is described as being very soft. It is possible that in many of these the softening of the muscle was due to postmortem change as most of the autopsies were performed more than eight hours after death and microscopical examination was not made to confirm the diagnosis. Chronic endocarditis and coronary sclerosis were also present as associated pathology in some of these cases. *Cardiac rupture* occurred seven times. The left ventricular wall had broken through in all of these and in each case coronary sclerosis was present. Associated trauma may have been a factor in one case in which two ribs were broken on the right side and a laceration of the liver was found but here also the left ventricular wall was fibrous and thinned out in the region of the tear. The rupture frequently occurred at the edge of an aneurysmal dilatation in the ventricular wall the aneurysm being situated over an area in which fibrous replacement had occurred as the result of coronary artery occlusion. *Acute myocarditis* mentioned twice might perhaps be listed as suppurative myocarditis. In both there was abscess formation in the wall of the left ventricle, one which occurred secondary to a purulent pericarditis and the other in association with a vegetative endocarditis.

Endocardial deaths totaled thirty eight. Acute vegetative endocarditis was given as the cause of death seven times. Chronic endocarditis was present in thirty one. The mitral valve alone was affected in fifteen cases, aortic valve alone four times and both valves together were diseased in eleven cases. One case of congenital valvular disease, aortic, died suddenly.

Coronary disease was held responsible for fifty-seven deaths, of which twenty-four were found to have a definite occlusion in the major branches. The occluding agent was usually a thrombus, but occasionally a softened atheromatous plaque was described as obliterating the lumen. The left coronary artery was occluded in eighteen cases, and the right coronary artery in the remaining six.

A brief analysis of the age at death in this group shows that only eight or less than 5 per cent were under forty years of age. The average age for the total group was 62.6 years. The youngest was twenty years of age and the oldest eighty-eight years. For the group with coronary thrombosis the average age when death occurred was 65.3 years. The youngest death from coronary occlusion was forty-nine years and the oldest seventy-six years. With regard to sex, ninety-five males and fifty-nine females died suddenly from cardiac lesions.

The most striking fact that comes to light in this review is the comparative infrequency of sudden death from acute coronary occlusion in mental patients. No explanation of this is vouchsafed though reference may be made to the paper by Donald Gregg, "The Lethal Power of the Emotions,"* presented before the American Psychiatric Association, Washington, D. C., June 1935. He gives the incidence of coronary sclerosis and angina pectoris in the general population as 13.8 times greater than that of the State Hospital population. He also points out the predominance of endocarditis, myocarditis and general arteriosclerosis in mental patients and suggests that this may be due to the age factor and to the fact that cerebral arteriosclerosis brings many cases to the hospitals.

In those cases dying suddenly with coronary occlusion the lumen of the artery was occluded within a few centimeters of its origin from the aorta. Coronary sclerosis without occlusion, while frequently listed as an incidental finding at autopsy, was given as a cause of death in only thirty-three cases.

It appears impossible to make a valid correlation of the psychosis and the cardiac death, but regardless of this a table is presented giving the number of sudden cardiac deaths for

each psychosis. The average age at death is given also, but where the number of cases drops below fifteen the average is likely to be affected by the small number of cases. It

PSYCHOSES IN 154 CARDIAC DEATHS			
Psychosis	Num- ber	Average Age at Death	
Dementia Praecox	48	60.5 years	
With Cerebral Arteriosclerosis	20	68.6 "	
Senile Dementia	16	74.2 "	
Manic Depressive	15	59.2 "	
Alcoholic	15	63.2 "	
Mental Deficiency	9	50.0 " *	
With Other Brain and Nervous Disease	7	50.4 " *	
With Somatic Disease	5	66.0 " *	
Undiagnosed	5	64.9 " *	
Epilepsy	4	53.5 " *	
Involution Melancholia	4	64.5 " *	
General Paralysis of the Insane	3	49.6 " *	
With Psychopathic Personality	2	47.0 " *	
With Brain Tumor	1	67.0 " *	
		<hr/>	
		154	

*May be inaccurate because of the small number of cases used in making the average.

might be mentioned in passing that seven cases out of forty-eight of dementia praecox died of coronary occlusion and that three cases out of four of involution melancholia died with the same condition.

- SUMMARY
1. Within twenty-one years 1,245 Medical Examiners' cases have come to autopsy within the Massachusetts State Hospitals for Mental Diseases.
 2. Cardiac lesions caused death in 154 or 12.4 per cent of these.
 3. Coronary occlusion was a cause of death in only twenty-four cases.
 4. (a) The average age at death for the total group of cardiac deaths was 62.6 years.
(b) The average age at death for those with coronary occlusion was 65.3 years.
 5. There were ninety-five males and fifty-nine females in this series.
 6. As for type of psychosis, dementia praecox headed the list, forty-eight in number.

REPORT OF A PERFORATION OF THE UTERUS WITH PROTRUSION OF THE APPENDIX THROUGH THE HIATUS

BY FREDERICK DJERF, M.D.*

THIS is a résumé of a case of perforation of the uterus with the vermiform appendix protruding through the hiatus. Examination of the literature discloses many cases of perfora-

tion of uterus, but none of this nature, so far as the writer has found.

*Djerf, Frederick—Junior Visiting Surgeon, Burbank Hospital, Fitchburg. For record and address of author see This Week's Issue, page 544.

CASE No. 67855. Burbank Hospital, Fitchburg. A para-4 twenty-eight year old woman entered my office in mid June, 1935, with a history of amenorrhea of six weeks' duration. Examination revealed

enlargement of the uterus Hegar's and Chadwick's signs plus a long partially prolapsed cervix. This woman had been delivered normally in April 1934 of an eight pound six ounce boy. Her physician had informed her that all signs indicated a pregnancy.

On September 8 1935 while I was not on duty she was admitted to the Burbank Hospital because of vaginal bleeding of two weeks' duration. She admitted that some mechanical manipulation had been performed on her and that she had passed placental tissue and a fetus. She had had frequent chills and sweating spells for the past two days.

On entrance, examination revealed a fairly well developed and well-nourished young woman lying propped up in bed complaining of generalized weakness and cramps in the lower abdomen.

Her face was drawn anxious and ashen. The mucous membranes of lips and conjunctivae indicated marked anemia. The skin was hot and moist, the tongue dry and coated and the throat normal. Visible pulsations were apparent on the right side of the neck. The lungs were clear and resonant with no rales, the heart of normal size without adventitious sounds and of good quality with a rate of 134.

The abdomen was level with tenderness over the entire lower part, and markedly tender above the symphysis but not rigid or spastic. There was a moderate serosanguineous vaginal discharge of a sweetish odor. No vaginal examination was performed. The temperature was 104 respirations 24. Urine clear pale yellow 1002, no albumin, no sugar. Microscopic examination of sediment negative.

Blood Hgb 80 Tallqvist, white blood count 16 750 and red blood cells 1 930 000.

The patient was given shock treatment and by the twenty-sixth of September had improved with temperature normal for five days, pulse 80 to 90 with the blood picture much better. There persisted however an increasing flow of blood from the vagina so that an examination under ether was indicated in order to determine the advisability of a dilatation and curettage.

MOTHER'S DAY

(Continued from page 526)

- 5 Examination of the mother at six weeks three months six months and one year after the baby is born.
- 6 Arrangements for continuous medical supervision of the baby

UPON WHOM DOES RESPONSIBILITY REST?

First, upon the prospective parents themselves. One of the purposes of this special Mother's Day effort is to tell expectant mothers what care they should have. The late Dr. Whitridge Williams of Johns Hopkins University said: "When the women of America realize the value and need for maternity care they will demand it. Then and only then will they get it."

Secondly upon the medical profession generally and each member of that profession who cares for pregnant mothers. This group as a whole is struggling virtually unaided in many communities.

Thirdly the social and health agencies public and private. The duty of this group is to find mothers in early pregnancy and to direct them to places where adequate care is given.

Under gas-oxygen anesthesia, the patient was placed in lithotomy position and prepared locally for examination. Digitally the cervix was found about one inch within the vaginal canal. The uterus was enlarged to that of a two months pregnancy soft and boggy. After insertion of a weighted speculum and, grasping the anterior lip of the cervix with volsellum forceps an elongated rounded piece of tissue not unlike a cord, protruded through the os. This was gently drawn down and found to consist of the appendix and meso-appendix.

The patient was hastily placed in Trendelenburg position and consultation arranged with Dr. A. P. Lowell of Fitchburg. On opening the abdominal cavity he found old clots of blood in the pelvis with the cecum resting on the surface of the uterus between cornua. On gentle retraction the appendix was withdrawn from the uterine cavity showing a perforation of the uterine body with ragged edges and one half inch in diameter. Free bleeding from the edges of the wound was in progress. Due to the condition of the patient, hysterectomy was deemed unwise. The perforation was closed with purse-string and through and through chromic No. 2 sutures. The appendix was removed in routine fashion and two drains inserted into the pelvis. The abdominal wall was closed in layer sutures about a drain.

After a stormy convalescence the patient was discharged and one month after the operation was in good condition.

Grossly the appendix measured 10.5 by 17 cm. The serosa was covered with a thin layer of fibrin. The tip was somewhat darkened the lumen patent throughout, containing soft fecal material. The mucous membrane was intact. The condition of the appendix indicated recovery from a former appendicitis with acute peripendicitis.

Reconstruction of the situation led us to believe that some instrument had perforated the uterus when an abortion was performed and the appendix had slipped through the opening and sufficiently plugged the orifice to prevent bleeding. This undoubtedly saved the patient's life.

Do not let another Mother's Day pass without taking the first step in your community toward making maternity safe.

The Maternity Center Association 1 East 57th Street, New York City upon request will gladly supply suggestions for the conduct of special Mothers' Day educational efforts in local communities.

REST FOR THE TUBERCULOUS LUNG

Rest for the diseased areas of the lung—which means complete rest for the individual—is the basis of the modern cure for tuberculosis. The reason the fight against this disease has been such a long and hard one is not that science is without enough knowledge but it is difficult for people to be persuaded to accept this knowledge. The disease is not a dramatic one. Quick saving of lives by an emergency operation or the injection of a single dose of antitoxin, appeals to the public more than the slow patient battle against tuberculosis. Patience as a human quality does not make a big bit at the movies.—Bulletin N Y State Medical Society

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CAROT, M D

TRACY B MALLORY, M D, *Editor*

CASE 22111

PRESENTATION OF CASE

A sixty year old white Canadian janitor entered complaining of abdominal pain.

He had been perfectly well until six weeks prior to entry. At that time he began to lose his appetite and three weeks later he noted a dull aching intermittent epigastric pain which seemed worse in the late afternoon and had no relation to meals. It spread to the right upper abdomen and flank, and gradually lessened in intensity. Four weeks after the onset he vomited some greenish material. Emesis occurred three or four times thereafter. During the week preceding admission he was nauseated continually and became progressively weaker. For an indefinite period his bowel movements, which had previously been quite regular, became costive. The stools were normal in appearance. He believed that he had lost considerable weight since the onset of his illness. No other symptoms were elicited.

He had been in the hospital two and a half years before this present admission because of cellulitis and gangrene of the penis following sexual exposure. Incision and drainage and finally amputation of the glans were done. Hinton and Wassermann tests were negative.

Physical examination showed a drowsy, moderately jaundiced man in no acute distress. (The patient had not known that he was jaundiced.) His lips were bluish in color and cracked. His pupils were slightly irregular but reacted promptly to light. Examination of the fundi exhibited narrowing of the arterioles with nicking of the veins. The lungs were negative except for some dullness at the right base posteriorly. The heart was enlarged to the left but was otherwise negative. The blood pressure was 125/85. The liver edge extended three fingerbreadths beneath the costal margin and was stony hard in consistency. One examiner noted questionable palpation of the gallbladder. The prostate was said to be small and nodular.

The temperature was 99.5°, the pulse 90. The respirations were 20.

Examination of the urine showed a specific gravity of 1.030 and was otherwise negative. Later specimens showed increasing amounts of

bile. The blood showed a red cell count of 5,800,000, with a hemoglobin of 90 per cent. The white cell count was 18,000, 82 per cent polymorphonuclears. The stools were watery, light brown in color, but were otherwise negative. There were negative reactions to guaiac tests upon several specimens. The serum protein was 5.2 grams per cent. A van den Bergh showed 9.37 milligrams per cent of bilirubin, direct reaction. The blood cholesterol was 312 milligrams per cent. The sedimentation rate was 1.04 millimeters per minute.

A barium enema was negative. A gastrointestinal series showed no evidence of organic disease. Films of the vertebrae showed marked hypereptrophic changes of the lower dorsal spine but no evidence of metastatic malignancy.

The patient became progressively weaker and the van den Bergh rose to 16.5 milligrams per cent. Thereafter the patient continued to go downhill and died on the eleventh hospital day.

DIFFERENTIAL DIAGNOSIS

DR CHESTER M JONES The very shortness of the story is quite important it seems to me.

A person who comes in with upper abdominal pain of six weeks' duration at the age of sixty immediately makes one think of malignancy, and very frequently malignancy of the stomach, but it is quite unusual not to have some relation between the intake of food and occurrence of pain. If this patient has disease in the stomach I shall be surprised because of that one fact. I have no idea why the pain became less severe. One certainly has to include in the differential diagnosis disease of the organs in the right upper quadrant.

Things are happening rather rapidly here and it would seem to me that the vomiting, particularly of green material, must indicate that the bile passage was open or nearly open, and in the second place, if the vomiting is on an obstructive basis, the obstruction must be below the common bile duct. It does not sound like the vomiting of cancer of the stomach. I would rather think of some disturbance around the duodenum causing right upper abdominal pain and also enough irritation to cause vomiting.

"For an indefinite period his bowel movements, which had previously been quite regular, became costive." If that indefinite period means months, it is of some importance because it means there was trouble in the gastrointestinal tract for a long time. Change in bowel habits very frequently is the first symptom in cancer of the gastrointestinal tract and may precede any other symptoms by months.

From the story alone I think the important points to summarize are the following: that the history is short in duration, that it is associated with discomfort and dull pain rather than sharp colicky pain, that the pain apparently has no relation to meals and shifts to the right side, and

that there is a story of vomiting the vomitus containing bile but no blood. That certainly would make me feel that there is something wrong in the region of the duodenum. It may be the pancreas. It may be the duodenum itself. It may be the gallbladder. It may be the liver. If there is disease of the pancreas it is rather curious that that pain was not in the back rather than the front. It seems to me that most patients with pancreatic cancer if they have pain at all tend to have it in the back. The rapidity with which it has progressed in this case is still in favor of malignancy.

It seems that the past history has no relation at all to the present admission. It probably represents infection of the penis and one not specific in nature.

Jaundice was so slight that the patient did not notice it. The fact that he was drowsy might, however, indicate that he was cholemic whatever that means. It may mean only that he was dehydrated and pretty sick. The lips were cracked either from fever or dehydration. He has reason for dehydration with a certain amount of vomiting and lack of food intake.

"The lungs were negative except for some dullness at the right base posteriorly." That may mean one of three things: fluid in the pleural cavity due to something underneath it; it may mean a large liver raising the diaphragm and causing fluid at the base; or it may mean subdiaphragmatic abscess of some sort.

The enlargement of the heart is not surprising in view of the fact that he is sixty. He has a certain amount of arteriosclerotic heart disease, but it probably does not enter the picture as a cause of symptoms at all.

There is no mention of the upper border of the liver and I think that is something we almost always forget to put into our records but I am assuming, because of signs in the back, that it was up, and that there was enlargement of the liver to explain the dullness at the right base. The fact that it was stony hard is extremely important. It is hard to palpate a liver and describe it with any real degree of accuracy. The liver edge is not described as soft and I think that is of very real importance. No nodules are described and I think the examiner left them out purposely. It is a very difficult thing to be sure of nodules and the examiner is usually wrong when he says they exist. They are occasionally felt and described but usually are subcutaneous rather than hepatic nodules.

If the gallbladder was felt that is an important physical fact. It is difficult particularly for the average man on the medical ward to be sure he is feeling the gallbladder. We are not accustomed as the surgeons are to feeling the gallbladder but if it were gallbladder it brings out the question of what is causing such

an enlargement. It can be enlarged very rarely from association with gallstones but that is very unusual and it usually is taken to mean and quite correctly, that there is a blocking of the flow of bile and that the gallbladder is fairly normal, the blockage is usually due to cancer of the head of the pancreas. I was interested in looking up Courvoisier's law to learn that Cecil does not include it at all in his index. Osler does and it is worded in various ways elsewhere. Probably it should be stated that in the absence of pain and in the presence of jaundice and a palpable gallbladder the cause is probably malignancy.

If the prostate was nodular it seems to me that is an important point although I am not sure it explains the rest of the picture. A nodular prostate should raise the question of cancer. There is no mention as to whether it was hard, but usually a nodular prostate is hard.

Dr. BENJAMIN CASTLEMAN. A urological consultant did not think it was cancer.

Dr. JONES. The urine examination fits in with the picture of dehydration perfectly well. It also shows that the jaundice was increased and whatever was the cause of the jaundice it was progressing. The high specific gravity was proof of dehydration.

The fact that the stools were described as brown should be taken as a proof that there was no complete biliary tract obstruction. If that is true it means that the jaundice was an intrahepatic jaundice. One can have a very marked degree of jaundice such as in acute yellow atrophy and still have brown stools, whereas complete obstruction with deep jaundice we associate with clay-colored stools. If the stools were brown it is definitely against jaundice being due to obstruction of the common bile duct and suggests that there is involvement of the liver itself.

The stool examination is of some importance; it seems to me as a negative finding. It does not rule out cancer of the gastrointestinal tract but it is certainly against it. A cancer which has caused enough involvement to make the patient as sick as he is by this time should be ulcerated and should be bleeding, if it is primary in the gastrointestinal tract.

I do not think the direct van den Bergh reaction is of any diagnostic significance. The blood cholesterol is high. It can be demonstrated in any degree of liver disturbance but is not diagnostic in itself.

The sedimentation rate is about three times the normal. It is not diagnostic in any sense, coming with infection or with parenchymatous changes in one organ or another. It simply indicates how much cellular disturbance there is. It is important because if surgery is to be considered here is a patient who represents a real risk from spontaneous bleeding.

The story so far is one of involvement of the liver in a patient with a very short story and with jaundice. If the gallbladder is palpable it suggests cancer of the head of the pancreas more than anything else. But if there is cancer of the pancreas it is not causing complete obstruction because the stools have bile in them. Therefore, some of the jaundice must be explained on involvement of the liver itself, and very marked involvement, because metastatic disease in the liver rarely produces evidence of liver disease until it is diffusely spread through the entire organ.

A barium enema was negative and a gastrointestinal series was negative. So far as could be determined there was no evidence of malignant disease in the gastrointestinal tract, one of the commonest sources for metastatic cancer of the liver.

I think the striking feature in this case is the rapidity with which conditions progressed. Here is a story of practically two months in a patient who was up, was perfectly well two months before, and at the end of two months died of a disease which produced jaundice, emaciation, dehydration, and marked involvement of the liver without much pain, I believe he has cancer without much question, and the most important reason for saying so is the shortness of the story and the degree of sickness he presents. The question is where is it primary, and on statistics alone it would seem to me that cancer of the pancreas would be the most logical place to mention as a primary source. On the other hand we would expect, with cancer of the pancreas, jaundice, and a palpable gallbladder, not to find bile in the stools. It is true you may have cancer with jaundice and have a remission so that the jaundice disappears and reappears some weeks or months later but that is unusual. I do not believe he has malignant disease of the gastrointestinal tract with secondary involvement of the liver. It is possibly in the bile ducts or gallbladder with metastases to the liver. My own impression is that almost always if there is cancer of the gallbladder there is apt to be a preceding story of gallstones. This man had no story suggesting gallbladder disease prior to entry to the hospital. I do not know how sound an impression that is to base a diagnosis on but for that reason I am going to say it is more likely to be of the bile ducts than of the gallbladder, and as a possible second bet, cancer of the pancreas. The liver must be very much involved. Of course it is damaged still further by the fact that he is dehydrated, undernourished, the glycogen all gone presumably, but if the jaundice is intrahepatic to a large degree, it seems there must be striking involvement of the liver with fine metastases and that would be very obvious at autopsy. I think he died of liver insufficiency. I was quite interested in looking up one or two cases of so-called

acute yellow atrophy to find one where there had been stone in the common duct with complete obstruction and death from prolonged jaundice with typical histologic findings of central necrosis in the liver. In other words, obstruction as such may produce the clinical picture of acute yellow atrophy, so I should think it is much better called acute hepatic insufficiency. He has metastatic cancer in the liver, possibly it is primary in the common bile duct or gallbladder, and we must consider pressure on the duodenum possibly with ulcer in the ducts to produce this leucocytosis and the number of polymorphonuclears in the smear.

DR GEORGE W. HOLMES: The chest film confirms Dr. Jones's interpretation of the physical findings. There is a very high diaphragm and no evidence of fluid in the chest. The large amount of gas below the diaphragm may account for its position. I think the liver is definitely enlarged. The aorta is prominent. The heart shadow is not particularly large. It may be hidden in part by the high diaphragm and may be larger than it appears. The film taken of the urinary tract was blurred by motion. The edge of the liver is visible. It does not seem to be particularly low. The colon appears to be normal. The transverse portion is a little low for that type of man and there is a good deal of dullness above the colon.

DR JONES: Is there some pressure on the right side?

DR HOLMES: Yes, it looks as if there might be.

The stomach is displaced away from the liver to the left as though there was something pressing against it. Some of the films show the duodenal loop fairly well and that does not seem to be enlarged. A few cases of cancer of the pancreas show a wide loop. There is some evidence against the pancreatic tumor.

DR ARTHUR W. ALLEN: I saw this man in consultation in the medical ward and felt that the chance of being able to do anything for him surgically was extremely slight. He looked as if he could not live very long in spite of anything that could be done and it has been our experience that when we explore inoperable malignancy we have a very high mortality from the exploration. A considerable number of these patients will succumb to the disease following exploration before they can go home, and it suggested to me the possibility of utilizing a new diagnostic procedure, that is, new to this hospital, which Dr. Benedict was capable of performing and I suggested that he see the case with that in view. He did a peritoneoscopy with very satisfactory results.

DR EDWARD B. BENEDICT: It was due to Dr. Allen's trip to the west coast and his interest in the case that we did this peritoneoscopy. Dr. Ruddock of Los Angeles has done four hundred peritoneoscopies in the past few years with

very favorable results. A half inch incision is made, a very small trocar inserted and air blown into the peritoneal cavity. Then a larger trocar is used and a puncture made, after which the bistoury is removed and the observation telescope inserted. This is an instrument very much like the cystoscope except it has direct instead of right angle vision. It is equipped for biopsies. A special attachment can be introduced and a small biopsy taken. There is another part for withdrawing fluid. Thus cage-like affair is to keep the omentum away from the instrument and prevent its getting caught. A rubber tube with a light on the end can be introduced so that you can see the stomach and inflate it at the same time. In this patient I obtained a very good view of the liver in which I saw definite nodules throughout having the characteristic appearance of carcinoma probably metastatic.

CLINICAL DIAGNOSIS

Carcinoma involving the liver and bile ducts

DR. CHESTER M. JONES'S DIAGNOSES

Carcinoma of the bile ducts with metastases to the liver

Acute liver insufficiency

ANATOMIC DIAGNOSES

Carcinoma of the left upper bronchus with metastases to the liver and to the mediastinal, mesenteric and retroperitoneal lymph nodes.

Pleuritis, chronic fibrous left.

Pulmonary congestion

Bronchopneumonia, right lower lobe

Peritonitis, acute fibrinous, localized.

Nephritis, chronic vascular

Operative scar, Partial amputation of the penis with hypospadias.

Operative wound, peritoneoscopy

Icterus.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY. The diagnostic problem in this case was a perfectly impossible one beyond the point of prophesying metastatic cancer in the liver. The only man who could possibly have made the diagnosis of the primary lesion was Dr. Holmes and he has failed us.

We found a primary cancer of the bronchus to the left upper lobe of the lung, with approximately five kilograms of metastases to the liver. It is a very great exception, as Dr. Jones pointed out that metastases to the liver produce jaundice. There were a couple of lymph nodes noted in close contact with the bile ducts which might have pressed on them but we have no particular reason to suppose that this was the case. The metastases were so extensive that he had vir-

tually no liver tissue left so that I feel the jaundice was due to hepatic insufficiency. However, the other general rule as regards metastatic disease of the liver held. He had no evidence of portal obstruction and his spleen weighed only 120 grams, not the slightest degree of enlargement.

DR. HOLMES. May I say a word in retrospect?

I explained the high position of the diaphragm as being due to gas below it. It was probably due to the inability of the lung to expand. I should have considered that. Then this area which probably represents infiltration around the cancer, I thought was due to high diaphragm and partial collapse of the lung. It is perfectly easy to interpret it either way.

CASE 22112

PRESENTATION OF CASE

A fifty six year old colored housewife was admitted complaining of painful micturition and urinary frequency.

For fifteen years before entry the patient had nocturia of two to four times and diurnal frequency of every two to three hours. Two months prior to admission she began to have aching pain across the small of the back, slightly more on the left side and radiating into the left groin. At the same time there was some increase in her urinary frequency and occasional occurrence of pain with the passage of urine. During the succeeding weeks she complained vaguely of having sensations of heaviness of the head and recurrent hammering in the ears. She had spells during which she felt quite cold with occasional rigor and other times when she felt unbearably warm. Three weeks before entry she had a sudden dizzy spell and fell. Since that time she felt rather weak and short of breath but had only been confined to bed for six days prior to entry. Her appetite remained excellent. During the week preceding her admission she rapidly developed complete deafness and the hammering, previously described disappeared abruptly. For five days she appeared to drag her left leg and two days before entering the hospital she began to raise some thick sputum. Her temperature at that time was 101°.

She had been married fifteen years and had no pregnancies. During a previous marriage she had one child who died shortly after birth. The menopause occurred two years before entry. An abdominal operation had been done at the age of twenty. Three or four years before entry she had received injections into her buttock as treatment for a "blood disease". She had had frequent colds and sore throats up to one year before admission.

Physical examination showed an acutely ill

dyspneic colored woman lying flat in bed. The skin was hot and dry and the mucous membranes were pallid. The left ear drum was scarred, the right negative. The heart was slightly enlarged to the left. The sounds had a rough harsh quality and the rhythm was regular. No murmurs were audible. P_2 was accentuated. The blood pressure was 180/110. Dullness was elicited over both lung bases posteriorly and the breath sounds in this region were diminished in intensity. Over the remainder of the chest, except at the apices posteriorly, many constant, coarse and fine moist rales were heard. The liver edge was three fingerbreadths beneath the costal margin. The abdomen was greatly distended but no evidence of fluid was found. Ankle jerks were not obtained. Knee jerks were present and symmetrical. No plantar reflex was obtained on the left side, the right showed hallux deviation downward.

The temperature was 103° , the pulse 130. The respirations were 60.

Examination of the urine showed a specific gravity of 1.012 and a trace of albumin. The sediment contained many white blood cells but was otherwise negative. The blood showed a red cell count of 4,900,000, with a hemoglobin of 70 per cent. The white cell count was 6,600, 78 per cent polymorphonuclears, 15 per cent lymphocytes, and 7 monocytes. Several stool examinations were negative. A lumbar puncture showed an initial pressure of 150 millimeters. No cells were found. The alcohol and ammonium sulphate tests were negative. The nonprotein nitrogen of the blood was 35 milligrams per cent. The plasma protein was 5.4 grams per cent. The chlorides were equivalent to 93 cubic centimeters N/10 sodium chloride.

An x-ray showed fine mottling of both lung fields with an area of homogeneous dullness in the left lower lung field. There were multiple areas of calcification in the left hilus and tracheobronchial angle. The heart was not remarkable.

The patient ran a rapid downhill course with her temperature fluctuating between 102° and 106° . She soon went into coma and died on the fourth hospital day.

DIFFERENTIAL DIAGNOSIS

DR JOHN W. CASS. The history is that of a fifty-six year old colored housewife with the chief complaint of painful micturition and urinary frequency of many years' duration.

The past history consists chiefly of the facts that she had been married fifteen years with no pregnancies, that she had a child by her previous marriage that died shortly after birth and that three or four years prior to admission she had received injections for a blood disease. She had also been subject to chronic colds and sore throats up to one year prior

to admission. There is no mention of hemoptysis or of contact with tuberculosis. The history of injections for blood disease definitely suggests syphilis.

The chief complaint in the present illness is evidently of about fifteen years' duration, consisting chiefly of nocturia and frequency. These symptoms are unchanged until two months before entering the hospital at which time she began to complain of aching and pain across the small of her back which was more marked on the left side with radiation into the left groin. With these symptoms there was an increase in frequency and occasional pain on voiding. These statements suggest that there was a progression in her genitourinary pathology and that there was possibly localization of the process in the left kidney with a suggestion of obstruction to the left ureter.

Shortly before admission she complained of heaviness of the head and recurrent hammering of the ears. Such symptoms are usually on a hypertensive basis but might be due to an intracranial aneurysm or a brain tumor. Next in sequence were episodes of chilliness, rigor and warmth, these probably denoting a general reaction to infection which in this instance seems to be in the genitourinary tract and most likely localized to the left kidney. Finally, three weeks prior to entry, she had a sudden dizzy spell and fell. There is no history of resulting paralysis but the episode certainly suggests a vascular accident. Weakness followed this accident, with shortness of breath, and she was confined to bed for six days before coming to the hospital. It is stated that her appetite remained excellent and that during this period she had developed complete deafness with disappearance of the hammering sensation. This sudden complete deafness with clearing of the hammering is confusing and all one can say is that there must have been a central lesion causing this deafness and that the situation was in some way related to the suggestive vascular accident. It is also stated that she appeared to drag her left leg. This is further evidence in favor of an intracranial hemorrhage.

Just prior to entering the hospital she began to raise thick sputum and the temperature rose to 101° . There is no history of the amount or type of sputum raised and we would like to know if it was foul or contained blood. The history as given does not necessarily suggest a terminal pneumonia and we may be dealing with a long-standing pulmonary process such as bronchiectasis or tuberculosis.

On physical examination the essential points consist of the following. The patient was acutely ill. She was dyspneic, although lying flat in bed which suggests that the dyspnea was on a pulmonary rather than a circulatory basis. The left ear drum was scarred, the right negative. These findings are of no help in trying to ex-

plain the sudden bilateral deafness. The heart was slightly enlarged to the left, the sounds were of harsh quality, the rhythm was regular and there were no murmurs. P was accentuated. The blood pressure was 180/110. I would expect that if this hypertension had been of long duration, we should have a larger heart. The accentuated pulmonic second sound indicates that the intrapulmonary pressure was proportionately greater than that of the general circulation. There is nothing to suggest heart failure in this examination. The chest examination reveals an extensive process with dullness at both bases and many fine moist rales throughout the remainder of the chest. This description could fit a diffuse bronchial pneumonia, diffuse capillary bronchiectasis or tuberculosis alone or combined with a terminal bronchial pneumonia. The liver edge was three fingers below the costal margin. This suggests an enlargement of the liver but we cannot be sure of this because there is no mention of the position of the upper border of the organ. The abdomen was distended. There was no evidence of fluid. The ankle jerks were not obtained. The knee jerks were present with no plantar response on the left but a positive Babinski reflex on the right. I cannot put these findings together and they are ones that are often noted on routine examinations in a person in a stupor and may not in this situation be of great importance although as given they suggest an intracranial lesion. There is no mention of edema or clubbing of the extremities. The absence of edema helps again to rule out congestive failure or chronic kidney disease with renal failure. The absence of clubbing is a help in ruling out chronic nonpulmonary disease as clubbing is more common in diffuse nontuberculous infections of the lung than it is in pulmonary tuberculosis, although of course clubbing does occur in pulmonary tuberculosis.

In the laboratory findings we note that the urine has a specific gravity of 1.012 with a trace of albumin and many white blood cells in the sediment. A specific gravity of 1.012 is low, particularly as it is suggested that the patient was dehydrated. There is no mention of casts in the urine and I should feel that this urine examination was more in favor of infection than chronic nephritis. The red cell count was 4,900,000 with a hemoglobin of 70 per cent. These findings again are against a chronic nephritis. The white cell count is 6,600 with 78 per cent polymorphonuclears. This is a rather low white count for an ordinary bronchopneumonia but it is consistent with tuberculosis or an atypical pneumonia such as might merely be a terminal event in a chronic nontuberculous pulmonary infection. The stools were negative. The spinal fluid findings as given are normal. There is no mention of a Wassermann reaction. The nonprotein nitrogen of the blood is nor-

mal and it seems that we can definitely rule out a chronic nephritis as a cause of the hypertension and genitourinary complaints. The plasma protein of 5.4 is within normal limits. The chlorides are a bit low but are compatible with a febrile disease. There is no mention of a blood Hinton examination or of examination of the sputum.

The x rays of the chest show fine mottling in both lung fields with dullness in the left lower lung field and multiple areas of calcification at the left hilus. The heart is not enlarged. The x ray finding of a heart of normal size bears out the physical examination and the assumption that we are not dealing with a long standing hypertension and congestive failure. The pathology described in the lungs is consistent with miliary tuberculosis for we know that the calcification at the hilus denotes at least an active infection in the past. The x ray description can also denote a diffuse capillary bronchiectasis or a pneumoconiosis.

It is stated that the patient died in coma on the fourth day after hospital admission and that she ran a fluctuant temperature between 102° and 106°. The findings suggest that the patient had had a long standing genitourinary infection and that she had had syphilis and tuberculosis. The hypertension could not have been of many years standing and I am inclined to feel that it did not contribute to her terminal disease. The terminal event was an acute infection which probably included both the lungs and the genitourinary tract. It would be necessary to have an examination of the sputum for definite diagnosis. The suggestive vascular accident I am inclined to put on a syphilitic rather than a hypertensive basis, and she may have an intracranial aneurysm.

CLINICAL DIAGNOSES

Hypertensive and arteriosclerotic heart disease
Bronchopneumonia
Pneumonitis
Cerebral thrombosis

DR. JOHN W. CASS'S DIAGNOSES

Miliary tuberculosis.
Tuberculosis of the genitourinary tract
Syphilis.
Hypertension without marked cardiorenal involvement

ANATOMIC DIAGNOSES

Miliary tuberculosis involving the lungs, pericardium, spleen, kidneys, bladder and meninges.
Pott's disease fifth lumbar vertebra with right psoas abscess
Pleuritis, chronic fibrous, right

Ulcers of the cecum
Tuberculous adenitis, bronchial, healed?
Arteriosclerosis, slight, aortic
Fatty degeneration of the liver
Cholesterosis of the gallbladder
Peritonitis, chronic fibrous, focal
Nephritis, chronic vascular
Cystitis, acute
Leiomyomata uteri
Salpingo-oophoritis, chronic, left
Operative scar Right salpingo-oophorectomy

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY The autopsy on this patient showed a widespread miliary tuberculosis involving nearly every organ of the body. In such cases it is always interesting to attempt to trace the progress of the infection. Evidences of old tuberculosis were found in the form of small calcified areas in the bronchial glands and also of a puckered and slightly fibrous apex of the right lung. There was no sign of activity, however, in either of these lesions and it seemed improbable that an acute miliary tuberculosis could have arisen from them. The clinical history suggested strongly a chronic cystitis and less definitely a renal lesion. A chronic cystitis was demonstrated but there was

very little evidence to suggest that this was tuberculous, and although the kidneys were fairly extensively involved in the acute miliary process no suggestion of a chronic renal lesion could be demonstrated. It was not until the usual routine incision into the psoas muscles, without which no autopsy should be considered complete, that a lead developed. The right psoas and iliacus muscles showed a central fistulous tract containing thick greenish pus which could be traced backward to the anterior surface of the fifth lumbar vertebra. The anterior surface of the body of this vertebra was irregular and showed several small areas of softening. I think it is probable that this was the focus from which the miliary process developed. The only other possible focus was in the cecum, where a few small ulcers were formed. These, however, appeared to be acute terminal lesions only.

Examination of the brain showed a few small but definite tubercles in the pia arachnoid. There was no evidence of a vascular accident, and the shifting character of the symptoms referable to the cranial nerves is a not uncommon finding in tuberculous meningitis. It must be admitted, however, that that diagnosis could not reasonably have been made on the basis of the spinal fluid findings.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
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for all foreign countries belonging to the Postal Union.
Material for early publication should be received at latest
three weeks on Saturday. Orders for reprints must be sent to
the Journal Office 5 Fenway.

The Journal does not hold itself responsible for statements
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Communications should be addressed to The New England
Journal of Medicine 5 Fenway Boston, Mass.

SURGICAL OPERATION FOR HIGH BLOOD PRESSURE

ALL recent therapeutic triumphs both in medicine and in surgery have been with rare exceptions, made possible through painstaking experimental and clinical studies on the nature of the diseases in question. Thus physiological and morphological studies of the autonomic nervous system and of the peripheral vascular system have opened up new possibilities in the therapeutic approach to diseases of these systems.

In recent years vigorous attempts have been made to influence arterial hypertension through surgical measures. The following premises have been or may be, proposed in favor of the surgical treatment of hypertension (1) There is an increased secretion of adrenalin in hypertension (2) Hypertension develops as a result of a primary pathology in the kidney and is precipitated through afferent nervous impulses from this organ (3) In hypertensive patients there is a hyperactivity and an increased tonus of the vasomotor centers with resulting increased

motor nerve impulses and exaggerated pressor responses (4) Even if the vasomotor tonus is not increased, surgical reduction of the normal tonus is desirable in view of the fact that in hypertension the vascular system is hyper sensitive to normal nervous and chemical stimuli (5) The elevated arteriolar pressure represents an effect of wear and tear, hence reduction of pressure is beneficial *per se*.

It should be pointed out, however that (1) Except in rare cases there is no evidence that increased secretion of adrenalin plays an etiological role (2) Similarly evidence is lacking in support of the renal origin of "primary" (essential) hypertension, and surgical renal denervation actually fails to influence hypertension (3) Some recent evidence suggests that the vasomotor tonus is not increased in hypertension (4) If the normal vasomotor tonus could be diminished diffusely without affecting the emergency bodily functions essential for homeostasis, this would be quite beneficial. The decrease of vasomotor impulses within one region of the body on the other hand, may well have a deleterious effect on the function of vital organs in which the constricted state of the arterioles persists unaltered, and in which, as a result of decreased blood pressure, a sub optimal circulation has developed (5) It is also pertinent to recall that in animals even after complete exclusion of sympathetic control of the blood vessels the blood pressure is about normal.

Thus the 'theoretical' indications for surgical interference are not so simple or so obvious as is believed by some. In spite of this, section of the splanchnic nerves, direct denervation of the suprarenal glands, suprarenalec tomy, denervation of the kidney and spinal nerve root resection either alone or in various combinations, have been practiced and advocated by some as beneficial in arterial hypertension. It should be recalled that when these procedures were first introduced it was stated by the proponents that surgery might be justifiably applied in malignant hypertension in view of the fact that the condition is inevitably fatal. In the very clinic where surgery was proposed subsequent experience has shown that surgery does not alter the course of malignant hypertension. Nevertheless, later surgery was applied in benign hypertension a condition often compatible with longevity and characterized by marked, unexpected and irregular fluctuations. Soon thereafter several favorable reports claimed that benefit had been derived by the patients operated on. Can one judge the effects of these operations from relatively few cases, observed for only a relatively short period? Moreover, does the alleged symptomatic improvement justify such drastic surgical interference?

In the case of arterial hypertension, therapeutic proof is at best difficult. The value of these surgical procedures certainly cannot be considered established as yet. One wonders whether more experimental work and less "surgical trial" will not ultimately result in more definite therapeutic progress in this important condition.

AN ELECTRIC STARTER FOR THE HEART

NEWSPAPERS have recently dealt with accounts of a needle designed to carry electric stimuli to hearts that have stopped beating. They tell us it is to be inserted "in the exact spot of the natural pacemaker" and that it will deliver artificial stimuli at the proper rate and voltage to maintain cardiac function until the heart can again take up its work. A Dr. Hyman was reported as having used it in seven cases, with "good results" in two.

The preciousness of human life in times of peace makes such announcements as this of great interest to all. A heart that has stopped beating must carry with it an overwhelming association with death. To start such a heart again, even in only two cases out of seven, is dramatic medicine. We must hopefully wait for further experience and confirmation before we can compare this electric starter with such procedures as the intra-ventricular injection of epinephrin. Even the bottle of smelling-salts has been known to do the same thing—if one is to believe his five senses.

In the meantime we may speculate upon emotions which the announcement of the electric starter might evoke in the various kindred fields of medical science. The anatomist will quickly visualize the precision with which the "exact spot of the natural pacemaker" must be located, the first year student will readily find the voltage of the proper electric stimulus in his physiology notebook, the hospital administrator will expect to be told how many starters will be needed to bring his equipment up to date, the interne will count the lives he might have saved during the past year, the clinician will make a note of another instrument without which he may become hopelessly out of date. The most disinterested and unconcerned observer of them all will be the medical examiner.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

JARVIS, H. G. M.D. Johns Hopkins University School of Medicine 1910. F.A.C.S. Senior Surgeon, Hartford Hospital. His subject is Malignancy of the Breast. Page 501. Address 179 Allyn Street, Hartford, Conn.

WILKINS, GEORGE C. M.D. Harvard University Medical School 1899. F.A.C.S. Surgeon, Elliott Hospital, Manchester. Chairman, N.H. State Board of Health. Member, N.H. Cancer Commission. Address 814 Elm Street, Manchester, New Hampshire. Associated with him is DWINELL, GEORGE F. A.B., M.D. Harvard University Medical School 1915. F.A.C.S. Assistant Surgeon, Elliott Hospital, Manchester. Surgeon, N.H. State Industrial School. Address 814 Elm Street, Manchester, New Hampshire. Their subject is Results in Mammary Carcinoma at the Elliott Hospital. Page 503.

YONKMAN, FREDRICK F. Ph.D. University of Iowa 1928. Associate Professor of Pharmacology, Boston University School of Medicine. Address 80 East Concord Street, Boston, Mass. Associated with him are

HIEBERT, JOHN M. M.D. Boston University School of Medicine 1932. Associated with the Department of Clinical Research, Winthrop Chemical Company. Address Winthrop Chemical Company, New York City. And

SINGH, HARKISHEN M.D. Boston University School of Medicine 1935. Intern in Pathology, Massachusetts General Hospital. Address Massachusetts General Hospital, Boston, Mass. Their subject is Morphine and Intestinal Activity. Page 507.

ALLEN, ANNA M. M.D. Royal College of Physicians and Surgeons, Ireland, 1925. Formerly, Pathologist, Danvers State Hospital and Massachusetts Department of Mental Diseases. Her subject is A Review of the Cardiac Deaths in 1,245 Medical Examiners' Cases That Have Come to Autopsy in the Massachusetts State Hospitals for Mental Diseases. Page 533. Address 328 E. 71st Street, New York City.

DJERF, FREDERICK B.S., M.D. Tufts College Medical School 1929. Junior Visiting Surgeon, Burbank Hospital, Fitchburg. His subject is Report of A Perforation of the Uterus with Protrusion of the Appendix Through the Hiatus. Page 534. Address 717 Main Street, Fitchburg, Mass.

The Massachusetts Medical Society

THE ANNUAL MEETING LADIES' PROGRAM

Chairman—Dr. William A. R. Chapin
Co-Chairman—Mrs. James A. Seaman

Mrs. L. D. Chapin	Mrs. F. K. Dutton
Mrs. J. B. Comins	Mrs. G. B. Corcoran
Mrs. C. F. Lynch	Mrs. M. F. Hosmer
Mrs. F. Hagler	Mrs. T. S. Bacon
Mrs. R. A. Rochford	Mrs. G. DeN. Hough
Mrs. W. J. Mullen	

PROGRAM

June 8—Tea at Storowtown an old New England village
Evening 8 15—Shattuck Lecture Hotel Kimball

a is to be in charge of Mrs L D Chairman, Mrs. J B Conans and Mrs nch

June 9—Morning—Bus ride through the college towns of South Hadley Amherst and Northampton with a luncheon at one of these places

Evening—Dinner at the Hotel Kimball Afterward the ladies are invited to hear the speakers at the Massachusetts Medical Society Annual Dinner

is ride and luncheon will be in charge of Hagler Chairman, Mrs R A Roeh Mrs F K Dutton
inner will be in charge of Mrs G B Chairman Mrs. M F Hosmer and S Bacon

ay, June 10—Morning—A golf tournament at one of the country clubs

will be an information and registration ladies at the Hotel Kimball This will be of Mrs. G DeN Hough, Chairman W J Mullen

OS TO THE COMMITTEE OF ARRANGEMENTS

NORTH

✓ O Hewitt Attleborough, Mass

✓ R Grandell, Taunton, Mass

✓ H. Allen, Mansfield Mass

x EAST

ca W Richardson, Wakefield, Mass

✓ M Halligan, Reading, Mass

✓ Norton Lee, Wakefield Mass

x NORTH

ohn H Lambert, Lowell, Mass.

red P Murphy Lowell Mass

trendan D Leavie, Lowell, Mass.

x SOUTH

arold Q Gallupe Waltham Mass

orman Hunter Hudson Mass

ndley Merrill Cambridge Mass.

II

Alexander S McLean Middleboro Mass

oring B Packard Brockton Mass

amuel W Goddard, Brockton Mass

WORCESTER

Dr Joel M Melick, Worcester Mass

Dr John A. Maroney, Worcester Mass

Dr James T Brosnan, Worcester Mass

WORCESTER NORTH

Dr C B Gay, Fitchburg, Mass

Dr E A Adams, Fitchburg Mass.

Di L M DeCicco Fitchburg, Mass

SECTION OF OBSTETRICS AND GYNECOLOGY*

C. J. KICKHAM M.D.,

Chairman

524 Commonwealth Ave., Boston Mass.

R. S. TITUS M.D.,

Secretary

472 Commonwealth Ave., Boston Mass.

HEART DISEASE WITH PREGNANCY

Though in New England only one out of seventy five or one hundred pregnant women has a chronic, seriously damaged heart, at least 15 per cent of all maternal deaths in pregnancy and puerperium are due to heart disease. The importance of this small group of cardiacs is obscured not only by their rarity, but because they may die of heart failure undelivered or they may be transferred from an obstetrical ward or hospital to a medical ward or hospital following delivery and die later of heart failure and thus may not appear in obstetrical mortality tables. Heart disease, however, is in reality one of the major causes of deaths in pregnancy.

What do we mean by heart disease complicating pregnancy? Many women complain of moderate sensations of breathlessness and show on examination a rapid heart rate and disturbingly loud systolic murmurs. Fortunately we can dismiss these minor complaints and indefinite findings. It is a reassuring fact that with pregnancy no woman develops heart failure or dies of heart disease who does not show one of two definite physical signs of heart disease, namely (1) a diastolic murmur, or (2) a definite enlargement of the heart. All generalities in medicine have some exceptions. Exceptions to the above rule are exceedingly rare.

The converse of the above rule is equally important. Any woman who has, first a diastolic murmur, secondly an enlargement of the heart may develop heart failure in pregnancy at any time and may die. These facts are both reassuring to an obstetrician and at the same time, clearly point to a responsibility. The obstetrician does not need to bother with effort tests, electrocardiograms, roentgenographic studies or elaborate history taking in an attempt to deter-

A series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

ne obscure heart defects. He need not be described by complaints of breathlessness, palpitation, pain in the region of the heart, fainting, sensations of weakness on exertion. But he must be able to auscult accurately and he must be able to detect an enlarged heart.

Any one can learn to hear a diastolic murmur, but it is as difficult to learn to recognize the mitral diastolic murmur accurately as it is to learn to do an adequate pelvic examination and much harder than it is to learn to count the fetal heart. Close to 80 per cent of the women who die because of heart disease with pregnancy have for their only reliable sign of disease before pregnancy a mitral diastolic murmur. Any dramatic histories could be given of women who were considered perfectly sound until they developed heart failure during the last trimester of pregnancy because of an undiscovered mitral stenosis. Among five hundred consecutive women with heart disease complicating pregnancy at the Boston Lying-in Hospital in 14 cases a mitral diastolic murmur was the physical sign that determined the diagnosis. In thirteen cases, an aortic diastolic murmur, in twenty-four cases, both aortic and mitral diastolic murmur. In the majority of the remaining sixty-nine cases, the diagnosis of heart disease depended on determining an enlargement of the heart.

Of these five hundred cases, thirty-two mothers died (the mortality rate was then 6.4 per cent).

Clearly, we should like to be able to tell before pregnancy or early in pregnancy the 93 per cent of cardiacs who will survive from the 7 per cent who will die if they are allowed to go on. The desire to accomplish this is so strong that we are apt to be led to follow more or less haphazard rules for sorting them out easily on a basis of response to effort tests. Such methods are not appropriate. We should always remember the working rule that any cardiac, as described above, may develop heart failure and that no patient who is not a cardiac, as described, will develop heart failure.

Statistics show, however, that (1) cardiacs who have developed auricular fibrillation have approximately a 50 per cent maternal death rate. Only three per cent of the cardiacs have auricular fibrillation, (2) cardiacs who have already developed heart failure when first seen—who have a clear history of congestive heart failure have approximately a 25 per cent death rate. Clearly, it is not advisable for such patients to attempt pregnancy. Analysis of the fatal cases shows that if these two groups of women who obviously should not attempt to bear children had not become pregnant, the remainder would face only a small death rate.

Further refinements in determining the risk in individual cases can be made. But they are

too long to be described here. One rule can readily be remembered: heart failure occurs twice as often in women over thirty-five as in women under thirty-five. Women with heart disease then would do well to have their pregnancies before they are thirty-five.

The most important factor in the prognosis of women with heart disease complicating pregnancy is suggested by the following facts: in the first two hundred and fifty consecutive cardiacs delivered at the Boston Lying-in Hospital, the maternal death rate was 7.6 per cent. In the third and last two hundred and fifty consecutive cardiacs, the death rate was 2.8 per cent. (It is also impressive to note that approximately one-half the fatal cases were not followed carefully through pregnancy at the hospital, but came to the hospital already in a dangerously sick condition because of their hearts.) Proper treatment of a cardiac patient improves the chances of avoiding death at least four times.

Analysis of fatal cases shows that three quarters of the maternal deaths among cardiacs are due to heart failure and that such heart failure should be regarded as preventable by (1) proper advice to cardiacs who are unfit to stand pregnancy, (2) proper control of those who are fit. The majority of the remaining approximately 25 per cent of the maternal deaths among cardiacs are due to embolism or to bacterial endocarditis. We cannot hope that these fatalities can be effectively controlled.

An outline of the treatment of heart disease in pregnancy will appear in a later issue of this Journal.

MISCELLANY

MISBRANDED "RUBBING ALCOHOL"

The campaign against misbranded "rubbing alcohol", reported previously, was continued, netting 8,500 bottles during January. Despite the earlier actions against such mixtures, which proved to be water with varying proportions of isopropyl alcohol, a relatively new alcohol of doubtful safety, numerous lots were still found labeled with inferences that the "rubs" were none other than those made with grain alcohol as the principal ingredient.—*U S Dept of Agriculture*

DO CHILDREN HAVE TUBERCULOSIS?

Under the above title a pamphlet was prepared by the National Tuberculosis Association which has been reprinted by the Massachusetts Tuberculosis League.

This brochure contains accepted facts about tuberculosis which should be known by the laity.

Copies may be obtained on application to the Massachusetts Tuberculosis League, 1148 Little Building, Boston, Massachusetts.

HEALTH OFFICERS MONTHLY STATEMENT OF
VENEREAL DISEASES REPORTED IN THE
NEW ENGLAND STATES

DECEMBER, 1935

This statement is issued monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The following reports were received from State Health Officers. The figures are preliminary and subject to correction. It is hoped that this will stimulate more complete reporting of these diseases.

State	Syphilis		Gonorrhea	
	Cases Monthly reported during month	re-case rates per 10 000 population	Cases Monthly reported during month	re-case rates per 10 000 population
Connecticut	189	1.14	105	63
Maine	37	46	41	51
Massachusetts	437	1.01	530	1.22
New Hampshire	11	.23	3	.06
Rhode Island	126	1.79	38	54
Vermont	16	44	27	70

Only cases of syphilis in the infectious stage are reported.

Treasury Department—Public Health Service

EPIGRAMS FROM BULLETIN OF THE NEW
YORK STATE MEDICAL SOCIETY

Arifhron said Without health life is not life. Life is lifeless.

Charles H. Mayo said The public knows less of medicine than of any other science.

Automobile accident cases are frequently fracture conditions in which unskillful moving of the injured person is extremely hazardous. Doctors consider most operations on automobile accident cases as "postoperative" the automobile having been the first to operate.

There are more than two hundred recognized means with which human life is terminated. Heart disease today leads all of them in the toll it takes.

That there is no actual decline of mental power with increasing age is the announcement made by Dr Irving Lorge of Columbia University. Dimming sight, slowing movements dulled hearing is not a loss of mental power but merely a decrease in speed according to Dr Lorge.

Cures for obesity are prohibited by law to be advertised in Canada.

Don't eat fruit that has not been washed.

RESUME OF COMMUNICABLE DISEASES IN
MASSACHUSETTS FOR JANUARY 1936

Disease	Jan., 1936	Jan. 1935	5 Yr Aver age*
Anterior Poliomyelitis	1	2	4
Chickenpox	1893	1899	1680
Diphtheria	55	35	165
Dog Bite	588	450	303
Epidemic Cerebrospinal Meningitis	17	4	7
German Measles	245	810	217
Gonorrhea	557	468	552
Lobar Pneumonia	1012	691	698
Measles	1629	1248	2400
Mumps	2101	302	604
Scarlet Fever	1303	774	1378
Syphilis	443	410	424
Tuberculosis, Pulmonary	331	281	310
Tuberculosis O F	42	27	36
Typhoid Fever	7	6	11
Undulant Fever	5	1	—
Whooping Cough	357	839	852

Based on the figures for the preceding 5 years

RARE DISEASES

Anterior poliomyelitis was reported from Attleboro 1

Diphtheria was reported from Boston 12 Bourne 1 Brockton 1 Chicopee 16 Fall River 3 Framingham 1 Gloucester 1 Lowell 8 Lynn 3 Malden, 1 New Bedford 2 Pittsfield 1 Salem 1 Tewksbury 3 West Springfield 1 total 55

Dysentery (bacillary) was reported from Danvers 5

Epidemic cerebrospinal meningitis was reported from Boston, 2 Bridgewater 8 Fitchburg, 1 Malden, 1 Northbridge 1 Springfield, 1 Spencer 1 Webster 1 Worcester 1 total 17

Paratyphoid was reported from Haverhill 1

Pellagra was reported from Medford, 1.

Septic sore throat was reported from Amesbury 1 Belmont, 1 Boston 3 Chicopee 5 Easton, 2 Gardner 3 Lowell 1 Middleboro 1 Worcester 1 total 17

Tetanus was reported from Stoughton 1

Trachoma was reported from Haverhill 1 Malden 1 total 2

Trichinosis was reported from Arlington 1 Boston, 1 total 2.

Typhus fever was reported from Boston 1.

Undulant fever was reported from Brockton 1 Milford, 1 Milton 1 North Adams 1 Westfield 1 total 5

Diphtheria. The increase for the month over the 1935 record low level is explained by the reporting of 16 cases from Chicopee as against none the year previous and 12 from Boston as compared with 6 in 1935

Epidemic cerebrospinal meningitis The increase

in reported epidemic cerebrospinal meningitis over last January is due for the most part to an outbreak of 8 cases to date at the Bridgewater State Farm

Dog Bite The reporting of dog bite continues high. There were, however, but 6 cases of canine rabies for the month as compared with 28 for last January.

Lobar pneumonia had its highest reported January incidence since 1929. This increase over last year's figure first became apparent in the spring of 1935.

Scarlet fever has maintained a level higher than the previous year since the fall of 1935.

Mumps has its highest reported January incidence in the history of the State.

The reported incidence of the anterior poliomyelitis, chickenpox, German measles, measles, and tuberculosis other forms, was not remarkable.

Pulmonary tuberculosis was somewhat higher than January of 1935, probably due in the most part to better case finding and reporting.

Typhoid fever was reported well within the five-year average. Three typhoid carriers have been discovered to date in connection with the investigation of these cases.

Undulant fever continues to be reported higher than last year with practically every case giving a history of using raw milk.

Whooping cough had its lowest reported January incidence since 1922.

AFFAIRS IN CONNECTICUT

John Bucciarelli, M.D., has been appointed health officer of New Canaan in place of M. J. Brooks, M.D., retired.

Michael D. Riordan, M.D., has been appointed health officer of Windham for a term of four years.

Reuben Rothblatt, M.D., has been appointed acting health officer of Willimantic during the absence of Nathan N. Spector, M.D.

Following the resignation of Leonard C. Greenburg, M.D., as health officer of New Haven, Clement F. Batelli, M.D., was appointed acting health officer. He in turn was replaced on December 16, 1935, by Joseph I. Linde, M.D., as health officer.

Clifford S. Pine, M.D., of Naugatuck has been appointed health officer of Beacon Falls for the unexpired term which ends in October, 1938.

At the last session of the State Legislature of Connecticut the following act was passed: "The state department of health is authorized to make investigations concerning cancer, the prevention and treatment thereof, and the mortality therefrom, and to take such action as it may deem will assist in bringing about a reduction in the mortality due thereto." This act was recommended to the legislature by the State Medical Society and the work of carrying on this study has been assigned to the Bureau of Preventable Diseases of the State Department of Health. Mr. Herbert F. Hirsche, C.P.H.

has been appointed as research statistician to aid in the study of the cancer problem in Connecticut.

At this same session of the State Legislature a law was passed known as the Uniform Narcotic Act. Under this act the regulation of narcotics in Connecticut becomes uniform with Federal government control and with control in many other States. The State Department of Health is delegated certain responsibilities of enforcement under this act, these being placed under the Bureau of Preventable Diseases.

Dr. Stanley H. Osborn, Health Commissioner of Connecticut, has predicted that over \$150,000 of Federal funds for public health work, maternal and child health service, and aid for crippled children will be made available for Connecticut in the immediate future. It is expected that the total will include \$79,000 for public health work and about \$38,000 each for crippled children and for maternal and child health services.

With this money Dr. Osborn will be obliged to secure fifteen to twenty additional employees, and thus will increase the number of city and town health departments with a fulltime medical officer in charge of each. It is hoped that this will permit studies of occupational disease control and a broad study of cancer control.

Dr. Benjamin G. Horning, a member of the State Department of Health, will be placed in charge of the drive for so-called fulltime health departments in cities and towns. Not more than eight towns and cities in the State have health departments with fulltime health officers in charge. The Federal allotments for this purpose will decrease at the rate of five per cent a year, thus permitting a gradual assumption of the financial burden by the cities and towns. Under the Social Security Law no state can secure Federal money under any of the titles of the act until it has submitted an approved plan for the particular project. This state has already submitted its maternal and child health plan to the Children's Bureau of the Labor Department.

FLAT RATE FOR HOSPITAL AND PHYSICIAN IN OBSTETRICAL CASES

Out of 199 births at Windham Community Hospital, Willimantic, during 1935, 150 were under the hospital's so-called "middle rate maternity plan." This plan provided both hospitalization and physician's care for a total sum of \$65. The only requirement made is that the attending obstetrician shall be a member of the hospital staff. In such a case \$30 is paid when the patient enters the hospital and \$35 on discharge of mother and baby. This flat rate includes prenatal care, hospital care, and postpartum care even for a short period after mother and baby have gone home.

The maternal mortality for this hospital for 1935 was zero, a record the hospital has maintained since its opening in 1933. The hospital collected 100

per cent of its bills for private room care in obstetrical cases and 93.1 per cent of its bills for middle rate care.

HARTFORD HAS NEW HIGH MORTALITY RATE IN HEART DISEASE AND CANCER

Five hundred and thirteen deaths from heart disease in Hartford for 1935 is the highest ever recorded in the history of the city. This gives a rate of 238 per 100,000 population. The previous year there were 497 such deaths. Cancer claimed 235 deaths in Hartford during 1935 a rate of 1.6 per 100,000. The previous peak was reached in 1931 with 119 deaths. The total number of deaths from all causes was 1877.

During January 1936 there were 319 deaths in Hartford a reduction of two over the previous January. Births increased during this month from 302 to 320 and marriages declined from fifty-six to nineteen as compared with the same month last year. Heart disease leads for January 1936 as a cause of death, there being a total of fifty-three as compared with fifty one year ago.

The Hartford Board of Health has resumed its monthly bulletins discontinued in 1923. The reports are to be sent to physicians and other interested persons, and to public health organizations here and throughout the country in accordance with the practice of health boards of exchanging reports for purposes of comparing methods of public health procedure and results obtained.

MODERN HEALTH SERVICE FOR A CITY OF 200,000 POPULATION*

A health program of modern health service for a city of 200,000 population was presented to the Hartford Medical Society on February 17, 1936 by Dr. Wilson G. Smillie, Professor of Public Health Administration of Harvard University School of Public Health.

In his opening remarks Dr. Smillie emphasized in how many ways the modern municipal health department departed from the plan of our forefathers in which the health board settled the disputes engendered by one's neighbor's chickens, waged war against rats, supervised garbage disposal, inspected plumbing, and in general acted as a court of last resort in many controversial matters now considered far afield from public health administration. Dr. Smillie went on to say that the state is the sovereign power in our government and the municipality has only such powers as are granted by the state. No exact criteria for public health administration may be determined for all types of cities in the United States because there exists such a diversity of population as well as of problems. Thus it is not possible to promulgate a uniform standard plan which would be suitable for all cities.

Dr. Smillie then explained that the State De-

partment of Health acts as a supervisor and an advisor and in addition does carry on certain direct activities which can be accomplished much better if administered on a large scale. The manufacture and distribution of standard biological products and the hospitalization of the tuberculous are examples of direct state service.

In outlining the functions of a health department for a city of 200,000 population the speaker developed the municipal health department as a primary unit with the following functions:

1. Recording and analysis of vital statistics
2. Control of communicable disease.
3. Providing epidemiological service, especially in tuberculosis and the venereal diseases.
4. Stimulating community immunization such as smallpox vaccination and diphtheria immunization
5. Providing readily available to all physicians, biological products for the prevention and cure of communicable diseases.
6. Providing an expert consultation service to all physicians in case of communicable disease including the less common and the more difficult of differential diagnoses.
7. Controlling tuberculosis by case finding, clinic service, field nursing and institutional care.
8. Providing for venereal disease control by clinic service and case finding.
9. Developing child hygiene by prenatal and maternity service and postnatal care with special attention to infant hygiene, preschool hygiene and school hygiene.
10. Control of sanitation.
11. Health education.

The problem concerning proper administration of the health department immunization service was discussed. Should the health department provide free immunization against diphtheria, smallpox and typhoid fever to all who request this service or should this service be given only to those who are too poor to pay for the services of a private physician?

The answer is a simple one. We may use diphtheria immunization as an example. The private physician is under obligation to protect the health of the children of those families under his care, but has no direct community responsibility. The health officer is obligated to protect his community from invasion by communicable disease. If 35 per cent to 50 per cent of preschool children of the community are continuously immunized against diphtheria, the community is protected against the spread of diphtheria. Thus the health officer must carry out a continuous immunization program so that at least 35 per cent of all babies are immunized before they reach school age in order to accomplish this purpose. The children of those parents who are too poor to pay for immunization service must be protected free of charge. Those children whose parents can pay for the service should be im-

* Original report edited by Dr. Smillie.

munized by private physicians. The health department nurses and other personnel should urge all persons to go to their own physicians for immunization. If this method does not secure an immunization of at least 35 per cent of the children before the age of two years, the health department has no other recourse than protection of the community by free public clinics.

In discussing the function of child hygiene it is emphasized that in this country, up to the present time, prenatal, maternity and postnatal services have not been considered as governmental functions. Rather, the physician delivering the mother or the hospital providing this service have been responsible, in great part, for this activity. Private nursing agencies have carried a part of this particular burden in some cities.

Infant hygiene is a development of recent years and has met a very real need. The clinical phases of infant hygiene are not a basic health department function, but rest with the private physician. Infant hygiene clinics should, however, be carried on for the indigent under health department auspices and staffed by local physicians who are paid for their services by the municipality.

School hygiene has been found to work out best if administered as a health department function. This work should include school medical examinations, nursing service, health education, nutritional service and dental hygiene. In general, the correction of defects is not a health department function. Each physical defect should be called to the attention of the parent, who should be advised to consult the family physician or dentist concerning the matter. It should be emphasized that school health service belongs in a well rounded health department and not to the department of education.

An example of local New England color was introduced by Dr. Smillie when he reminded his audience that the first health department in our country was established in Boston in 1799 and the first chairman of this board was the renowned Paul Revere.

There are several other functions in which a municipal health department should be directly interested, viz.,

- 1 Control of smoke
- 2 Prevention of accidents
- 3 Housing supervision to prevent overcrowding (The incidence of tuberculosis and cerebrospinal meningitis is directly influenced by overcrowding.)
- 4 Supervision of water supplies as to adequacy, safety and purity
- 5 Supervision of milk supply, giving due consideration to the adequacy, purity and safety of the municipal milk supply
- 6 A public health laboratory

Dr. Smillie then outlined the organization of a successful health department as follows:

I A Board of Health comprising three to five members and no more. This Board should be appointed by the Mayor, approved by the City Council, the terms of office to be rotating, and the functions to be advisory, not executive. In some cities by special provisions of the charter, this Board has quasi-judicial functions.

II A Health Officer, full time, and chosen by the Board of Health. He should be preferably a physician and should be trained and experienced in the special field of public health. Medical school training is not sufficient to fit the applicant for an administrative position in public health. The minimum requirements of a Health Officer for a community of 50,000 or over, as set forth by the State Health Officers' Association are as follows:

- 1 Proper training in vital statistics
- 2 Some knowledge of general and theoretical epidemiology
- 3 Familiarity with the historical background of public health administration
- 4 Sufficient knowledge of public health bacteriology to carry out customary procedures
- 5 General knowledge of water purification and sewage disposal
- 6 General knowledge of the spread of disease through food
- 7 Detailed knowledge concerning immunization against communicable diseases
- 8 Epidemiology and clinical knowledge, including therapeutic, of tuberculosis
- 9 Epidemiology and clinical knowledge, with special training in the therapy of venereal diseases
- 10 Familiarity with the whole field of nutrition
- 11 Training in health education
- 12 Training in mental hygiene.
- 13 General knowledge of government organization and a special knowledge of public health laws
- 14 Knowledge of social problems

The key person of the whole personnel is the health officer. He must be especially well trained and well qualified for his work.

III A Public Health Nurse as supervisor with assistants are required, usually twenty to thirty.

IV A Director of Child Hygiene, who should be a physician.

V Director of Sanitation and his assistants.

VI A Director of the Laboratory and his assistants.

VII Medical, Dental and Clinical Aides on a part-time basis.

In closing Dr. Smillie referred to the per capita cost for an adequate public health service for a community of 200,000 people. He said that \$1.00 per capita was the approximate sum now being spent by efficient municipal health departments, exclusive of hospitalization costs for tuberculosis.

and communicable disease Based on a population of 175 000 a city such as Hartford would anticipate that the required public health budget for one year would be about \$175 000 Exact budgets cannot be recommended for any given city of course, since part of the burden may be carried quite effectively by voluntary agencies at no direct cost to the public

CORRESPONDENCE

THE DANGER INHERENT IN SENATE BILL 394

Editor *New England Journal of Medicine*

In your *Journal* of February 27 there appeared a letter voicing opposition to Senate Bill 323 of the Massachusetts Legislature May I call the attention of every member of the medical profession, especially the Oculists to the fact that this bill has been with drawn and a more vicious and insulting bill Senate 394 has been substituted. (Hearing on this new bill March 19)

Senate 394 proposes that all Oculists come under the rules and regulations of the Board of Optometry As such they will have to follow the method (optometric) of examination prescribed by the Board—they will have to keep certain records—they will be prohibited to perform free examinations—they will be forced to charge a uniform fee If examination is made at the patient's bedside, reports of the prescribed glasses will have to be forwarded to the Board—and oculists will be prevented from dispensing glasses until they first pass an examination which licenses them as opticians (an examination from which optometrists are exempt)

There is no more relation between the Optometrist and the Optician than between Physician and Pharmacist. The former is a profession the latter a business. If the board actually wins control over the trade of dispensing glasses the oculist is directly affected In a small community for example where an oculist, an optometrist and optician are located the action of the Board of Optometry would mean the elimination of the optician forcing the patient of the oculist to take his prescription to the optometrist—a situation which would eventually not be relished by the physician.

This bill should be defeated.

Very truly yours,

B EDWARD SACHS M D

OFFICIAL ACTIONS OF THE BOARD OF REGISTRATION IN MEDICINE

State House, Boston

February 29 1936

Editor *New England Journal of Medicine*,

This is to inform you that at a meeting of the Board of Registration in Medicine held February 27 1936 it was voted to revoke the registration of Dr Russell B. Street, Conway Massachusetts, following Dr Street's admission to the Northampton State Hospital.

STEPHEN RUSHMORE, M.D., Secretary

AN INTERESTING ITEM OF MEDICAL HISTORY

March 2 1936

Editor *New England Journal of Medicine*,

The enclosed announcement, yellow and were with age was found by a patient of mine among some old records The quaintness of its style and the importance of its message would doubtless interest *Journal* readers

It is noteworthy that, then as now a spirit of self sacrifice and an absence of hope of pecuniary compensation prevailed in medical teaching

ROR J HERRMANN MD

Boston June 1 1811

Sir

In conformity with the opinion of the publick and especially of the fellows of the MASSACHUSETTS MEDICAL SOCIETY a medical school is now established in the town of Boston and has commenced its operations The general approbation of this new arrangement has surpassed the hopes of its most sanguine advocates the number of students attending the lectures having been about double that of any former period while the interest displayed in the prosecution of their studies and the satisfaction expressed on a review of them at their opportunities and acquisitions have been highly flattering and animating to the professors.

The courses will be continued the ensuing winter on the following plan

ANATOMY AND PHYSIOLOGY	}	\$20
SURGERY AND MIDWIFERY		
CHEMISTRY AND MATERIA MEDICA		\$15
THEORY AND PRACTICE OF MEDICINE		\$15
CLINICAL MEDICINE		\$15

The lectures will commence on the first Wednesday in November and terminate on the first Wednesday in February

The students who attend the professor of Clinical Medicine will have an opportunity of seeing diseases and medical treatment in the hospital department of the Alms House

Those who attend the lectures on Anatomy may see the surgical practice of the same place, and such private operations, as circumstances will admit.

The valuable library founded by WARD NICHOLAS BOSTON ESQ will be open to the students. This library contains about seven hundred volumes, selected with great care relating to all the branches of medical science.

Other arrangements for the advantage of students which cannot with propriety be published will be made before the opening of the lectures.

The fee for attendance on the anatomical lectures has been reduced, in order that it might not exceed that established in other places. The professors avail themselves of this opportunity to remark, that in their arrangements for the medical school they have never been guided by the hope of pecuniary compensation. On the contrary they do not expect to receive any reward of this nature,

which will compensate for the sacrifice of private practice to their official duties. In the anatomical branch, which, as is usual, is more fully attended than the others, the expenditures have actually exceeded the receipts, even independently of the cost of a valuable collection of preparations, and without estimating the labour of the professors. They are not discouraged under this state of things. They feel that circumstances have placed them, however unmeritedly, in a situation important to the interests of medical science in this part of the country and they are determined to fulfil the duties of it to the utmost of their ability so long as they receive the approbation of the respectable portion of the medical community of this state for the support of the faculty, and the exertions of the professors are equally necessary to the existence and success of an ample and efficient school of medicine in this section of the United States.

JOHN WARREN,
AARON DEXTER
JAMES JACKSON,
JOHN C WARREN,
JOHN GORHAM

The government of the University have determined that in future the degree of Doctor in Medicine shall be conferred on the same conditions that the degree of Bachelor of Medicine has hitherto been given. Candidates are required to have studied two years with some respectable practitioner, to have attended two of each of the courses of medical lectures, and then, at the end of the third year, they may present themselves for examination. The examination will be held in Boston, fourteen days subsequent to the termination of the winter courses.

Bachelors in Medicine of this University will be entitled to the degree of Doctor in Medicine.

TOTAL THYROIDECTOMY FOR HEART DISEASE

Editor, *New England Journal of Medicine*,

In the issue of your *Journal* of February 13 1936, appeared a summary of the investigations performed by Drs Clark, Means and Sprague on Total Thyroidectomy for Heart Disease.

Already two years ago, when the enthusiasm for the operation soared high, I could see that the rationale for the operation was irrational. In my paper published in the November 1934 issue of the *Canadian M A J* I said "the theory based on lowering the demands and keeping the function of the heart at its previous level is untenable." Therefore, in regard to the authors' sentence "The theory underlying this new practice was elemental in its simplicity", let me be permitted to say that it was simple but wrong.

Perusing the authors' paper I can see that my misgivings have proved well founded. In my letter published in the *J A M A* more than a year ago I said "When one speaks of selection of cases in a general way, it does not mean much. As I pointed out in my paper so far there is no scientific way of defining such a group of patients. The investiga-

tors must work out a strict definition of such a group before offering the operation for general use. Cachexia strumipriva which cripples the patient for the rest of his life must be the lesser evil in such cases. The selection of proper cardiac patients will be a difficult, if not an impossible, task."

In their paper the authors pointed out that all the twenty-one patients were very carefully studied and examined by many specialists, that the operations were performed by excellent surgeons. The authors used the frequent advice of Dr Blumgart. In spite of it, fifteen patients are already dead. In all fairness these fifteen cases should be thought of as wrongly chosen. In two out of the living six patients (cases 15, 18) the operation is considered by the authors not worthwhile, and in one (case 3) thyroid regeneration occurred. Therefore, the results may seem worthwhile in only three cases out of twenty-one (cases 13, 14, 16). However, in my opinion, these results are also meagre. For instance, in case 16, an old physician six months before entering the hospital suffered very severe precordial pains on walking or any marked exertion and was always promptly relieved by nitroglycerine. The physical examination was negative. There were never any symptoms of congestive failure. The metabolic rate was —17. After the operation he did not work for five months (June-November). Ten months later (the following September) he was seen and appeared to be very well, reporting only a little substernal aching on smoking or on walking any distance which was promptly relieved by nitroglycerine. He had been able to "carry on with his office practice steadily except for a three weeks' vacation." The history does not mention that he could not carry on with the office practice before operation, sometimes such work does not require great exertion. Why operate on such a person? Many such cases get along pretty well for years with nitroglycerine. Now he uses nitroglycerine and thyroid. He is myxedematous. One should not forget that, according to Kocher, the deterioration from myxedema progresses with the passing of time. In case 13 the patient after fifteen months showed a state of recurrence and after eighteen months a state of gross congestive failure. In case 14 the patient is myxedematous, uses thyroid, complains of easy fatigability. "He is looking for a job but has not yet found one." If these three patients that are still alive die in the near future, which is a probable possibility, no worthwhile cases would be left.

The authors give eleven well defined contraindications for the operation. Their only indication in favor presents, in my opinion, a generality. The authors also write, "It is significant that while we have not abandoned this procedure, with the large number of cardiac patients seen on the wards in the past six months, in no case have we felt sufficiently confident to recommend the operation." Of course, it is most significant. If the authors who are known specialists and authorities cannot select a suitable case among many who can? Why not face the facts? Why not discourage a procedure which for

three years has not met the expectations and involves tremendous risks and misery?

O. R. LOUEN, M.D.

485 Commonwealth Avenue
Boston, Mass.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Illinois

March 4, 1936

Editor *New England Journal of Medicine*

In addition to the articles enumerated in our letter of January 31 the following have been accepted

Arlington Chemical Company

Arlco Protein Extracts

Mead Johnson & Co

Mead's Oleum Percomorphum 50% (Percomorph Liver Oil 50% in Cod Liver Oil)

Mead's Oleum Percomorphum 50% (Percomorph Liver Oil 50% in Cod Liver Oil) in 10-drop (222 Gm.) Capsules

Mead's Cod Liver Oil Fortified with Percomorph Liver Oil

United States Standard Products Co

Ampule Solution Procaine with Epinephrine 1 cc

The Valentine Company

Solution Liver Extract—Valentine

Your sincerely

PAUL NICHOLAS LEECH, Secretary
Council on Pharmacy and Chemistry

RECENT DEATHS

PACKER—GEORGE WILLIAM PACKER, M.D., of 576 New Boston Road, with an office at 90 Queequeh Street, Fall River, Massachusetts, died suddenly at his home March 4, 1936.

Dr. Packer was born in Fall River and graduated from the College of Physicians and Surgeons of Boston, Massachusetts, in 1903. He joined the Massachusetts Medical Society in 1928 and in addition was a Fellow of the American Medical Association.

Dr. Packer was a member of the Elks and Order of St. George.

ELLIS—RALPH WARNER ELLIS, M.D., of 22 Howland Terrace with an office at 574 Main Street, Worcester, Massachusetts, died at his home March 3, 1936.

Dr. Ellis was born in Worcester in 1891 the son of the late Dr. Dean S. Ellis and Mrs. Isabelle (Warner) Ellis. He was educated in the Worcester public schools, graduating therefrom in 1911 from Clark University in 1914 and the Harvard Medical School in 1918. Fellowships in the Massachusetts Medical Society and the American Medical Association were acquired in 1919 after interne service at

the Worcester City Hospital where Dr. Ellis subsequently became a member of the staff.

Recognition of his standing is shown by his record of activities in the local medical societies and election to the position of Secretary of the Medical Section of the State Society in 1932.

He was a member of the Wesley Methodist Episcopal Church, the Quinsigamond Boat Club, the Y. M. C. A. and the Appalachian Mountain Club.

Dr. Ellis is survived by his mother, his widow Mrs. Mary (Howard) Ellis, a son, Ralph W. Ellis, a daughter, Miss Virginia H. Ellis, a brother, Deau E. Ellis of Bloomfield, N. J., and two sisters, Mrs. Leon E. Felton of Worcester and Mrs. Clifford A. Foster of Weymouth.

BALDWIN—FREDERICK WILLIAM BALDWIN, M.D., of Danvers, Massachusetts, died at the Beverly Hospital March 7, 1936.

Born in Birmingham, Alabama, December 14, 1861, he graduated from the Harvard Medical School in 1886 and joined the Massachusetts Medical Society in 1888, serving for a time on the Council. Dr. Baldwin was a Fellow of the American Medical Association, held membership on the staff of the Beverly Hospital and was one of the founders of the Hunt Memorial Hospital of Danvers. He was formerly chairman of the Board of Health of his home town.

A sister, Mrs. Walter Page Weston of Danvers, three nieces, Elizabeth Louise and Constance Weston and a nephew, Stephen Weston, survive him.

OBITUARY

DR. CLARA E. GARY

FIRST VERMONT WOMAN TO ENTER MEDICAL PROFESSION

Dr. Clara Emerette Gary, for fifty years a practicing physician in Boston, died at her home, 416 Marlborough Street, on Saturday, February 15, after a year of failing health. She was born in Middlesex, Vermont, the daughter of Ephraim and Sarah (Robinson) Gary. When she was five years of age the family moved to Montpelier where she graduated from the High School. After a year as a special student at Montpelier Seminary she entered Boston University School of Medicine in October, 1882, being the first Vermont woman to take up medicine as a profession. She received the degree of Doctor of Medicine in June, 1885, and was appointed Woman House Surgeon at the Boston Homoeopathic Hospital, the first woman to receive such an appointment in that hospital.

Dr. Gary was later House Surgeon at Boothby Private Hospital, Pharmacist in the Out Patient Department at Boston Homoeopathic Hospital and Lecturer in the School of Medicine at Boston University, 1888-1898. She was a pioneer in electrotherapy and took a special course at the Massachusetts Institute of Technology in 1896, she with Professor Norton, gave a demonstration lecture on x-ray in Boston, the proceeds from it being donated to the Endowment Fund of Boston University School

of Medicine After further study in electrotherapeutics in this country she went to Europe for advanced courses, receiving a diploma in 1902, then visiting Vienna and London hospitals as observer Since 1900 her home and office had been at 416 Marlborough Street, Boston, her specialties being physiotherapy and the treatment of nervous diseases

In 1927 the University of Vermont conferred upon her the honorary degree of Doctor of Science

During the World War Dr Gary gave free medical aid to families of men in service, was a member of the War Service Committee of the Massachusetts Daughters of the American Revolution, and was New England Chairman of the Woman's Homoeopathic Base Hospital Unit She was a member of the Volunteer Medical Service Corps

She was formerly Vice-President of the American Institute of Homoeopathy and one of the organizers of the Institute Fraternity She held various offices in the National Society of Physical Therapeutics and the Massachusetts Surgical and Gynecological Society, and was a member of the Massachusetts Homoeopathic and Boston Homoeopathic Hospital Medical Societies and of the Alumni Association of Boston University School of Medicine

She was a member of the Daughters of Vermont and of the National Society Daughters of the American Revolution, Honorary Member and formerly Regent of Old Boston Chapter, D. A. R., and a member of various other organizations

She was the author of many medical papers and occasional poems

The late Frank E. H. Gary, a prominent Boston lawyer, was a brother

Burial, with a brief service, was in the family lot in Montpelier, Vermont

NOTICES

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 on Thursday, March 19, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr Henry A. Christian, Physician in Chief, Hersey Professor of the Theory and Practice of Physics in the Harvard Medical School, will give a medical clinic To it are cordially invited practitioners and medical students

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr. Christian

UNITED STATES CIVIL SERVICE EXAMINATION

Associate Research Physiologist, \$3,200 a Year

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than March 30, 1936

The United States Civil Service Commission announces an open competitive examination for the

position named above Vacancies in this position in the field and in positions requiring similar qualifications will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion The salary named above is subject to a deduction of 3½ per cent toward a retirement annuity

Present Vacancy—A vacancy exists at the present time in the Air Corps, Material Division, Wright Field, Dayton, Ohio

Duties—To establish, equip and operate a physiological and biochemical research laboratory to investigate all phases of the effects of flying on the human organism

Basis of Ratings — Competitors will not be required to report for examination at any place, but will be rated on their education and experience on a scale of 100, such ratings being based upon competitors' sworn statements in their applications and upon corroborative evidence

ANNOUNCEMENT OF EXAMINATION FOR APPOINTMENT AS ASSISTANT SURGEON (MEDICAL ONLY) IN THE REGULAR CORPS OF THE U. S. PUBLIC HEALTH SERVICE

An examination for entrance into the Regular Corps of the United States Public Health Service in the grade of Assistant Surgeon (medical only) is hereby announced to be held April 13, 1936 Applicants must not have passed their thirty-second birthday

The compensation of officers in the grade of Assistant Surgeon is \$3,158 per annum with dependents and \$2,699 per annum without dependents

Persons desiring permission to take this examination should make request to the Surgeon General, U. S. Public Health Service, Washington, D. C., for the necessary blanks and other information

W. F. DRAPER, Acting Surgeon General

INTERNATIONAL UNION AGAINST TUBERCULOSIS

PRESS NOTICE

The Xth Conference of the International Union against Tuberculosis (Secretary General Professor Fernand Bezançon) will meet in Lisbon, from September 7 to 10, 1936, under the chairmanship of Professor Lopo de Carvalho, President-Elect of the International Union The discussion will be limited to three main subjects Biological subject "Radiological aspects of the pulmonary hilum and their interpretation", opening report by Professor Lopo de Carvalho (Portugal), Clinical subject "Primary tuberculous infection in the adolescent and the adult", opening report by Dr. Olaf Scheel (Norway), Social subject "The open case of tuberculosis in relation to family and domestic associates", opening report by Drs. Ch. J. Chatfield (United States) and D. A. Powell (Great Britain) Ten speakers selected in advance from a list presented by the forty-four countries belonging to the Union have been designated

to open the discussion on each of the questions on the agenda¹

The Organization Committee of the Conference has prepared a very attractive program of receptions and excursions the latter will enable members of the Congress to visit the chief antituberculosis institutions as well as the most picturesque scenery in various parts of Portugal.

Members of the International Union are invited to take part in the Conference free of any contribution fee. They may forward their application either through the medium of their Government or their National Organization against Tuberculosis or directly to the Organizing Committee in Lisbon at the following address:

Organizing Committee of the Xth Conference
of the International Union against Tuberculosis
Asistencia Nacional aos Tuberculosos
Avenida 24 de Julho Lisbon (Portugal)

Names may also be sent to the Headquarters of the Secretariate of the International Union against Tuberculosis, 66 Boulevard Saint Michel Paris (6ème)

Persons who are not members of the Union and who wish to take part as 'Members of the Conference' must forward their applications, together with a contribution of 200 escudos (approximately 125 French francs) exclusively through the medium of

The National Tuberculosis Association
50 West 50th Street
New York City

Reductions on hotel prices and railway fares will be granted to Members of the Congress.

All supplementary information may be obtained by applying to the International Union against Tuberculosis 66 Boulevard Saint Michel, Paris (6)

¹Co-Rapporteurs
Biological subject Austia—Dr. Ludwig Hoffbauer, Czechoslovakia—Dr. A. Hoffmann, France—Professor Emile Sergent, Drs. L. Delherm and P. Cottenot, Germany—Professor Dr. H. Kleinwachmidt, Great Britain—Dr. W. T. Munro, Italy—Professor Aristide Buzi, Lithuania—Dr. L. Koganas, Poland—Professor W. Zawadowski, United States—Dr. H. C. Sweeney
Clinical subject France—Dr. J. Trollet, Germany—Dr. H. H. Müller, Great Britain—Dr. L. S. T. Burrell, Hungary—Dr. Géza Gell, Roumania—Drs. S. Irimescu and M. Naata, Spain—Professor L. Saye and Dr. Tapia, Sweden—Dr. H. Ernberg, United States—Dr. Robert E. Plunkett, Yugoslavia—Dr. Tereza Nedelkovic
Social subject Belgium—Dr. Willems, Finland—Dr. Severi Savonen, France—Drs. P. Braun and Albert Besançon, Germany—Dr. Braunsing, Italy—Professor Gioacchino Breccia, Netherlands—Dr. H. R. Gerbrands, Norway—Dr. Nils Holtmann, Poland—Dr. Jolna Misiwick, Portugal—Dr. Ladislau Patriko, Switzerland—Dr. J. Morin.

REPORTS AND NOTICES OF MEETINGS

CONGRESS ON MEDICAL EDUCATION MEDICAL LICENSURE AND HOSPITALS

The Thirty-Second Annual Congress on Medical Education, Medical Licensure and Hospitals was held at the Palmer House, Chicago on February 17 and 18 1936. It was well attended in spite of weather conditions unfavorable for travel in the northern part of the United States, and interest was maintained throughout the session. While it is

impossible in the two days to present a comprehensive review of medical education each year an effort is made to focus attention on some limited aspect of especial interest and to note and evaluate certain trends.

A shift in emphasis was obvious. Standardization and "Raising of standards" have been slogans in the past, but there is now a much more widespread recognition, than a few years ago that the student is of more importance than the curriculum and the objective is of more importance than the means thereto. It was repeatedly emphasized that the intangibles of education should receive more thought and that the evaluation of education should be qualitative rather than quantitative. These rather inaccurate phrasings were both used freely and criticized freely for in science one cannot escape from the idea of quantity. There is no less need for standards and for quantitative determinations but there is increased awareness of the defects of a mechanical and unintelligent application of quantitative tests. A strong tendency for medical education to become mechanical has been evident.

The resurvey of medical schools made considerable progress in 1935 and will probably be completed by June 1936. Considerable variation has been found in the approved schools, due in part to the increased freedom for experiment in the past ten years and to the stimulation of initiative evident because of the freedom and in part to the development of a certain complacency on the part of schools which were satisfied with having met the generally accepted standards of some years ago. It will be necessary to wait until the completion of the survey for a just résumé of the findings.

The incomplete study suggests however that surveys should be made more often than once in twenty-five years, the first having been the Flexner report to the Carnegie Foundation in 1910. It also confirms what had been generally suspected that clinical teaching has not advanced so rapidly nor so far as has teaching in the preclinical and laboratory branches. It was on this account that the so-called "full time" system in the clinical departments was introduced. It is to be hoped that the survey will include some comments on the successes and failures of the various methods which have been introduced in the past twenty-five years to improve clinical teaching.

In the survey there has also been an effort to evaluate the schools more by qualitative than by quantitative standards and the character of the student body has received special attention. No public announcement has been made in regard to change in status of any hitherto approved institution but the emphasis on the need for more frequent surveys and the rumors as to unsatisfactory conditions in some of the approved schools indicate that complacency is not now the order of the day. Under stress of curtailment of financial resources in recent years, some institutions have lowered their standards.

Some of the critics of the survey have stated that one of its purposes is to limit the number of medical students and thus ultimately to limit the number of physicians. The survey has no such purpose, regarding these questions as outside of its scope. A possible misunderstanding has arisen however, as the survey has shown that, perhaps for financial reasons, the number of students admitted to certain schools has gravely exceeded the capacity of the material equipment. No limit to the size of the school has been suggested by the survey but it has stated that there is a definite limit to the number of students set by the material equipment, and that increases in the number of students without corresponding increase in equipment impairs the adequacy of the medical education to which the student is entitled. Such inadequacy is intolerable and will not be approved.

The accrediting of educational institutions must continue but better methods for evaluating the end product, the graduate, must be devised. The difficulty in evaluating the intangibles such as character, temperament, and fitness for practice should be regarded as challenges to continued experiment and more intelligent testing.

Who shall do the accrediting? The self-criticism of intelligent and honest teachers may be one of the best methods, but complacency often invades educational institutions. Accrediting by the medical profession, if a practicable scheme be devised ought to be the central core in any comprehensive procedure. Yet this must be supplemented on one side by the contributions of the schools themselves and on the other side by the power of the state exercised through licensing boards. The combination of these three factors probably gives the most just and most penetrating criticism. It is to be remembered that the state cannot give up its police power to be exercised for the protection of the citizens although it may not need to flourish the policeman's stick on every occasion.

Inspection preliminary to accrediting may have an unexpected value. If it is carried on by persons from outside the institution with sympathetic understanding of the problems of medical education in general and those of the institution in particular, it may have a stimulating effect which far more than overbalances the depressing effect of the thought of exercise of the police power.

The problem of the specialist continues to trouble the medical profession and medical schools and boards of registration. Perhaps a peak in the proportion of medical specialists to the whole medical profession was reached in 1930. But some sort of solution is being worked out and within the next year there will be launched additional boards of certification, similar to those for ophthalmology and otolaryngology thus bringing the number of these boards for the specialties up to twelve.

The educational procedure has at least two aspects selective and developing. In the past the selecting

process has been limited to acceptance of students for the school. It is but fair to the candidates to give them opportunities to select by making available to them information about the profession, the requirements, the scope, the opportunities, the limitations, the difficulties, and full and detailed information about medical schools, so that when they choose, it will be with abundant information.

It is well known that occasionally the most fertilizing influences come from the introduction of ideas from another field. It was, therefore, especially interesting to note that more than half of the contributions to the discussions of the first day of the congress were, with the exception of the symposium on obstetrics, by non-medical educators. It may not be quite true that medical education is nine parts education and one part medicine, but a more general recognition by physicians of the ideas and principles of education in other fields might have a powerful leavening effect if given an opportunity to work in the medical school. It is a moot question, things being as they are how education should be carried on at the medical school level. The responsibility of a university in medical education was discussed, the difference between university and professional education was emphasized and it was pointed out that if the university fulfilled its function properly in training the student in the pre-medical course he would be prepared for the medical school. The content of the premedical course is by no means unimportant, but if the student has become educated in the university he may be trusted to learn largely by himself in the medical school. Again the intangibles of medical education are more important than the tangibles.

Standardization and the raising of standards are often accompanied by the idea of restriction of numbers. It is often said, "There are too many physicians." But this scarcity economy is not justified for the capacity of the social organism to absorb and to use well-trained physicians is not known. Such experience as we have indicates that the limit is not fixed. Theoretically there may be an upper limit but for practical purposes it does not yet need to be considered. Here also arbitrary interference with the working of the law of supply and demand is certain to result in deep-seated resentment because of arbitrary discrimination in excluding some persons from privileges which all qualified persons are entitled to enjoy. A clear defect in the education of the physician is that he is not informed as to the social implications of his profession. This is in part due to the medical school, but in no small part to a lack in the pre-medical education which the university or college should contribute through its so-called cultural courses. They should give a background against which reference to the social implications of medicine has some meaning.

One medical specialty was the subject of a symposium. Obstetrics in the undergraduate curriculum. Although there was repeated the charge

that there is a relatively high maternal and infant mortality in the United States, and the statistical basis for the charge was again challenged there was agreement that the rates are inexcusably high. The failure to improve the total rate in spite of the alleged benefits of prenatal care known to have given improvement in some cases, was attributed to increased mortality due to increased interference at delivery. Undergraduate education in obstetrics should be increased so that the proportion of the time of the student given to this subject will more nearly approximate the proportion of the time of the practicing physician devoted to obstetrics. Such increased emphasis will have two important effects. It will give the physician better training for such obstetrics as he may be called upon to practice and it will make him hesitate longer in carrying out so casually interfering procedures at delivery which are actually not so free from danger as his inexperience may have led him to believe.

The decision by the Council on Medical Education in the past year to decline to recognize indefinitely the two-year medical schools met with strong protest from these schools so strong in fact that the council changed its decision. These schools present a deficiency which with the swinging of the pendulum toward emphasis on clinical teaching threatens to become serious. Agreement as to just when contact between student and patient should begin is by no means universal and the advocates of the two-year schools claim that the deficiency in their curriculum if any is greatly overbalanced by other considerations. These schools are small are connected with colleges or universities from which most of their students come and are distant from large centers of population. The students are therefore selected on the basis of far more intimate knowledge than is possible in the large urban medical school with five hundred to a thousand applicants and on the average come from better stock. Their actual records when they finish their course after admission to the four-year schools completely justify their training. As the students often come from homes near the two-year school the financial burden is less heavy for this period of time. There was noticeable among the advocates of the two year schools a tendency to emphasize the value to any state in their opinion of having a large proportion of its physicians of stock native to that state.

In the discussion of the National Board of Medical Examiners it was brought out that the influence of the Board had extended far beyond the original intent which had been merely to facilitate by its certification the fluidity of movement of physicians throughout the United States from one state to another. This is important and the Board has been successful in this respect, but the part which the Board has come to play directly and indirectly in medical education has been an un-

expected and gratifying byproduct. Although it does not of course claim credit for originating the comprehensive examination its advocacy and use of this procedure have had a widespread influence, and today the work of the Board is far more intimately a part of medical education than ten years ago and its examinations are a far better test of qualifications than twenty years ago when the Board began its work.

At the present time there is a deplorable lack of cooperation on the part of State Boards of Registration in Medicine with the Federal Narcotic Bureau. Perhaps this is just the result of former lack of cooperation on the part of the Federal Bureau but a change in their regulations has made their cooperation possible and a sufficient number of years has elapsed since the change was made to permit cooperation to be widespread. Approximately 80 per cent of the drug addictions and about the same number of violations of the Harrison Narcotic Law in 1933 and 1934 reported to State Boards remain without Board action.

The position of psychiatry in medical education is slowly changing so that it receives more attention but it is not clear that the increased emphasis on the intangible factors in medicine as in the personality of the teacher the student and the patient is in a major degree due to the efforts of the psychiatrist. Yet he has a great opportunity here and it would seem to be essential that all physicians should have some knowledge of psychiatry for competence in the practice of medicine. State Boards are in a peculiar position. In Massachusetts alone is an examination in psychiatry required by statute and here it is combined with other subjects. In some states psychiatry is introduced under general medicine but in most states it is ignored.

FAULKNER HOSPITAL CLINICAL MEETING

The regular monthly clinical meeting was held at The Faulkner Hospital on Thursday afternoon February 6 at 5 00 P.M.

The first of the two cases for discussion was that of a young girl of seventeen who was well until two months before admission to the hospital and who died two months after. Her symptoms consisted of a lame left foot which she thought was the result of a fall, a hard swelling in the vulvar region on the left and a numbness and soreness in the left hand and left arm. On physical examination there was obviously an anemia a Horner's syndrome suggesting an injury to the left cervical sympathetic nerves and a hard mass about the size of a small egg in the region of the left labia which seemed to be attached to the pelvic bones. X-ray studies showed a thinning of the rim of the acetabulum on the left and rarefaction of the pelvic bone in this area. Otherwise the bony framework was normal and the chest was negative. From the x-ray pictures a definite diagnosis was not possible. It suggested several possibilities including atrophy from disease infectious arthritis and neo-

plasm A biopsy was done on the tumor mass which was found to be not adherent to the bone. It was reported by the pathologist as a rhabdomyosarcoma. The patient continued to go downhill very rapidly with vomiting and progressive anemia. At the autopsy this unusual striated muscle tumor was found to have replaced most of the bone marrow in the body. Histological preparations of the various organs were thrown upon the screen so that the actual microscopic lesions were demonstrated. About the only place in which blood was being formed was in the spleen which had taken on extra function in this regard.

A second case was of special interest because it upsets the generally accepted idea that the end result of acute glomerular nephritis with uremia usually occurs in individuals under forty and is usually preceded with a history of acute nephritis. This patient was sixty-two years of age and had a family history suggesting vascular disease. The past history was negative so far as any disturbance in the kidneys was concerned. The patient was well up until four months before admission and died three weeks after admission. The picture was typical of uremia with shortness of breath, vomiting, eye-ground changes and hypertension but there was no edema. The urine showed albumin, red blood cells, leukocytes and casts and the specific gravity was fixed between 1.013 and 1.017. There was a secondary anemia and a steadily rising nonprotein nitrogen in the blood starting at 108 mgm per 100 cc and eventually reaching 400 mgm. The patient showed pronounced sepsis about the teeth. At postmortem examination the kidneys were found to be small and pale and the histological sections of the kidneys thrown upon the screen showed the microscopic changes clearly of healed acute glomerular nephritis without the vascular disease that was expected as seen in benign or malignant nephrosclerosis. A careful check with the relatives failed to give any indication of when the acute glomerular nephritis occurred. The question was raised as to whether absorption from the very bad teeth could cause an acute glomerular nephritis which was overlooked. The age of the patient and the absence of any history of acute nephritis make this case quite unusual.

Dr Harry C. Solomon then discussed the value of fever therapy in various conditions. He first reviewed the methods of producing fever as a therapeutic procedure. The start in this form of therapy began about 1918. The injection of typhoid vaccines intravenously was one of the earlier methods. The fever produced by the typhoid inoculations is unreliable. This was followed by the production of malaria in patients. Although the fever produced by malaria is satisfactory, there is a certain amount of danger with this procedure. A hot bath with temperature around 107° will produce fever up to 105° or 106° in half an hour, but patients are apt to collapse under this form of therapy. Diathermy was next introduced with the patient insulated to prevent the radiation of heat from the

body. This method is satisfactory with the exception of the danger of burns from poor contacts. Radiotherapy was next introduced which is the passage of short wave current through an individual in a radio box which is insulated to prevent the heat from being dissipated. Sometimes burns occur from the sparks. A large heating electric pad to surround the body is another form. Recently boxes with heated air and high humidity have been devised which are the most satisfactory. Dr Solomon pointed out that this form of treatment is not without danger. There is a considerable strain upon the individual who is subjected to this rise of temperature. There is marked loss of fluid and salt from the body which has to be controlled. The blood pressure becomes elevated at the start but soon drops and the diastolic may fall to 0 with threatened vasomotor collapse. The pulse rate becomes rapid. The blood flow becomes accelerated but often is not sufficient to maintain proper circulation as is noted by mental changes during the treatment. The temperature can be elevated to 105°-106° in about one hour and the cooling off process varies with the procedures used but usually takes about two hours. These patients usually have the temperature elevated for several hours. Occasionally the cerebral control of body temperature disappears and the temperature will not stop rising.

Having created a wholesome respect for the dangers and difficulties attendant upon this form of therapy Dr Solomon then took up the conditions in which it has been tried and discussed its value. The spirochetes of syphilis are killed in vitro at approximately 103° and fever treatment will kill the spirochetes in the brain tissue in general paresis. It is also successful in patients who have a sensitiveness to arsenic and certain gummatous conditions which will not respond to arsenic and mercury. He has noted a striking result in interstitial keratitis, syphilitic iritis and uveitis. He does not recommend the treatment for the early stages of syphilis. The gonococcus is reported to be killed in vitro at a temperature between 105°-106° and favorable results have been reported clinically with fever therapy after a half dozen to a dozen treatments. Orchitis and gonococcal arthritis are the conditions most favorably influenced. The results in salpingitis have not been so affected although recently good results are reported by a combination of fever therapy and diathermy locally. Conditions in which fever therapy has been tried with questionable results are rheumatoid arthritis, streptococcus viridans, endocarditis, peripheral vascular disease, multiple sclerosis and other degenerative diseases of the central nervous system. Good results seem to have been accomplished in Sydenham's chorea.

HARVARD MEDICAL SOCIETY

The Harvard Medical Society met January 14, 1936, at the Peter Bent Brigham Hospital, Dr John Homans presiding. The medical case was presented by Dr L. E. Putnam. A forty-five year old male

Italian laborer entered the house nineteen days previously complaining of swelling of the face and neck of six days duration. His past history was negative except for a short period three months previously when he suffered with a stiff neck and "rheumatic" pains in his extremities unaccompanied by either swelling or stiffness. Physical examination on entry showed marked swelling of the face and neck and a dilatation of the veins of the face, neck, and chest. There was a slight peripheral arteriosclerosis. D'Esplines sign was positive and there was dullness over the spines of the upper thoracic vertebrae. The white blood count on admission was 13,000 but immediately subsided to a normal level. X-ray studies revealed increased density of the posterior superior mediastinum. Thrombosis of the superior vena cava, and lymphoma with enlargement of lymph nodes in the superior mediastinum and compression of the superior vena cava were suggested as diagnoses. Therapeutic x-radiation was given, with subsequent slight clearing of the mediastinal shadow, decrease in venous engorgement, and lowering of the venous pressure in the right arm from 300 mm. to 250 mm. of water.

Dr. Sosman commented that the clearing of the mediastinum was not necessarily due to response to the radiation, since development of collateral circulation would produce a similar decrease in the size of the shadow.

Dr. Fulton pointed out that thrombosis of the superior vena cava except from external pressure is extremely rare in occurrence and that pressure from enlarged mediastinal lymph glands alone could easily produce all the signs and symptoms observed in this case.

The surgical case was presented by Dr. Donald B. Hall. A sixty-year-old Jewish male entered the hospital eleven days previously with a history of recurrent attacks of epigastric pain which radiated to the right subscapular region and which were occasionally accompanied by jaundice. Three days before entry he experienced an extremely severe attack. Examination on admission to the hospital showed a marked degree of jaundice, and slight tenderness in the region of the right hypochondrium. The icteric index was 80 and the white blood count 16,000. On the seventh day after entry the jaundice had subsided, and cholecystectomy and exploration of the common duct were performed. Culture of the gallbladder after removal was positive for *B. Welchii*. On the first postoperative day his temperature rose to 105 degrees and the white count was 56,000. Examination of the chest was negative except for a few rales at both lung bases. Culture of the wound was positive for *B. Welchii* and the rabbit inoculation test proved the presence of this organism. After forty-eight hours his temperature rapidly subsided and had remained normal for the past two days. There was no crepitus of the wound at any time.

Dr. Cutler stated that bilateral pulmonary atelectasis probably accounted for fever and that the

B. Welchii in the wound probably played no part in the reaction. The finding of *B. Welchii* in the liver and gallbladder is not uncommon but such organisms seem to be avirulent. He believes that they reach the liver by being carried through the portal system, and not by an ascending infection of the biliary tract.

Dr. Francis G. Benedict delivered the paper of the evening on "The Physiology of the Elephant." The physiology and anatomy of the elephant are little known because of the difficulty in procuring animals suitable for study and because of the technical problems presented by the enormous size of these animals. Dr. Benedict's studies were performed on an 8,000-pound female Indian elephant, and sixty-three animals in three circus herds.

Several time-honored myths and fables relative to elephants and their behavior were disproved. The belief that the animals can breathe only through their trunks is false and determinations of metabolic rates by trunk breathing experiments are some forty per cent lower than those determined by means of a respiratory chamber in which the whole animal could be placed. The respiratory exchange of the animal is large amounting to some ten liters of oxygen per minute. Approximately 681 liters of methane gas are given off during the course of twenty-four hours, one-third of which is excreted in the expired air.

Elephants give only very slight indications of their periods of estrus and Dr. Benedict was unable to find the flow of the temporal gland which is supposedly characteristic of the period of sexual activity. The period of gestation varies between eighteen and twenty-two months and the newborn animals stand three feet high at the shoulder and weigh approximately 300 pounds.

Elephants do not reach the great ages recounted in fiction and an eighty-year-old animal is to be considered quite old. The average age of the circus animals is about thirty years. The average animal weighs approximately 6,000 pounds and its shoulder height is about seven feet, four inches. Exceptionally large animals may weigh 8,000 pounds and stand eight feet at the shoulder.

The respiratory rate while standing varies between five and ten per minute and is only four or five per minute when the animal is lying quietly. The heart rate could not be determined directly but was obtained by means of electric leads and a galvanometer in a manner similar to that used in electrocardiography. It was discovered that the heart rate of the animal while lying was about seven beats per minute higher than when it was standing, the rates being thirty-five and twenty-eight beats per minute respectively.

The body temperature of the elephant was ascertained indirectly by determining the temperature of recently excreted urine and feces and was found to be approximately 35.9 degrees centigrade. (98.6 degrees Fahrenheit.)

The food intake amounts to about 150 pounds of

hay each day, and some fifty gallons of water are consumed during a twenty-four hour period

Studies of urinary constituents, and of intake and output, have shown a low endogenous metabolism. The approximate basal metabolic rates of the 8,000-pound animal studied by Dr Benedict was 49,000 calories per twenty-four hours, or thirteen calories per kilogram, and 2,060 calories per square meter of body surface. One large animal produces as much heat as thirty men.

The elephant's legendary fear of mice does not exist, and they are not in the least perturbed by either rats or mice running over their bodies.

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The regular meeting of the New England Physical Therapy Society will be held at the Hotel Kenmore, Boston, on Wednesday evening, March 18, 1936, at 8 P M

PROGRAM

Static Foot Conditions and Their Treatment—

Howard Moore, M D, Boston

The Discussion will be opened by George E Deering, M D, Worcester

The Council will meet at six

Dinner will be served to members and their guests in the main dining room at six thirty

Physicians and medical students are cordially invited to attend

WILLIAM D McFEE, M D, *Secretary*

41 Bay State Road, Boston

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The 309th meeting of the New-England Ophthalmological Society will be held on Tuesday, March 17, 1936, at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston

9 00 A M Clinic and Operating Room

11 30 A M Neuro-Ophthalmological Conference

8 00 P M

CASES

Corneal Dystrophy—Dr Trygve Gundersen

Sarcoma of Iris—Dr William P Beetham

Choroideremia—Dr J Herbert Waite

PAPER

Experimental Exophthalmos—Dr Harry B Friedgood

DR. WILLIAM P BEETHAM,

Secretary-Treasurer

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, March 24, at 8 15 P M

PROGRAM

Presentation of Cases

The Genesis of Thyroid Proteins By Dr William T Salter

Magnesium Metabolism in Health and Disease By Dr Joseph C Aub

Medical students and physicians are cordially invited to attend

MARSHALL N FULTON, M D, *Secretary*

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

A meeting will be held at St Elizabeth's Hospital, Brighton, on Wednesday, March 18, at 8 P M

PROGRAM

1 Report of a Case of Abdominal Pregnancy Demonstration of specimen—George F Keenan, M D

2 Report of a Case of Bilateral Pyelonephrosis with Giant Calculi Demonstration of x rays.—Edward J O'Brien, M D

3 Bronchoscopy as an Aid in Diagnosis, with X Rays—John E Burns, M D

4 Industrial Dermatitis, with Lantern Slides—John G Downing, M D

5 Use of Living Sutures in Repair of Recurrent Inguinal Hernia. Lantern Slides—Edward M. Hodgkins, M D

6 Peripheral Vascular Disease, and Demonstration of Pavaex Machine—John F Casey, M D

7 Demonstration of Pathological Specimens—Francis P McCarthy, M D

The meeting will begin promptly at 8 P M and it is expected that no paper will take more than fifteen minutes

Members of the Society are urged to bring guests. Internes and medical students as well as any physician not resident in this District are cordially invited

A buffet supper will be served after the meeting

SUMNER H REMICK, M D, *President*,

ALEXANDER A LEVI, M D, *Secretary*

THE BOSTON MEDICAL HISTORY CLUB AND THE BOSTON MEDICAL LIBRARY

The Boston Medical History Club and The Boston Medical Library will hold a joint meeting on Monday, March 16, at 8 15 P M in John Ware Hall, 8 Fenway, Boston

"The History of the Lymphatics"—By Professor John F Fulton, M D, Sterling Professor of Physiology, Yale University

BENJAMIN SPECTOR, M D,

Secretary, Boston Medical History Club

In connection with the address, there will be an exhibition of books from the collection of the Boston Medical Library

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at the Boston Lying in Hospital, Monday, March 23, at 8 15 P M. The program will be announced later. All members of the New England Heart Association and interested physicians are invited to attend

JAMES M FAULKNER, M D, *Secretary*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY MARCH 16 1936

Monday March 16—

- 8 15 P.M. Joint Meeting of the Boston Medical History Club and the Boston Medical Library 8 Fenway Boston

Tuesday March 17—

- 9 10 A.M. Boston Dispensary 5 Bennet Street Boston. Analysis of Case of Poliomyelitis seen on the District Service During the 1935 Epidemic Dr. Edith Robinson.
- 9 A.M. 11 30 A.M. 8 P.M. New England Ophthalmological Society Massachusetts Eye and Ear Infirmary 43 Charles Street, Boston
- 12 M. South End Medical Club at the office of the Boston Tuberculosis Association 554 Columbus Avenue Boston.
- 30 P.M. Pediatric Ward Visit Massachusetts Eye and Ear Infirmary

Wednesday March 18—

- 9 10 A.M. Boston Dispensary 5 Bennet Street Boston. Quantitative Studies in Nasal Pollution. Dr. H. J. Sternstein
- 11 M. Clinico Pathological Conference Children's Hospital
- 8 P.M. New England Physical Therapy Society Kenmore Boston
- 30 P.M. Greater Boston Bikur Cholim Hospital 48 Townsend Street, Roxbury

Thursday March 19—

- 30-9 30 A.M. Clinic Surgical Staff of the Peter Bent Brigham Hospital at the Peter Bent Brigham Hospital
- 9 10 A.M. Boston Dispensary 5 Bennet Street Boston. Social Service Case Presentation Miss Edith R. Canterbury
- 30 P.M. Medical Clinic at the Peter Bent Brigham Hospital

Friday March 20—

- 9 10 A.M. Boston Dispensary 5 Bennet Street Boston. Studies in the Interrelation of the Thyroid and Adrenal Glands Dr. Elliott C. Cutler

Saturday March 21—

- 9 10 A.M. Boston Dispensary 5 Bennet Street Boston. Hospital Case Presentation. Dr. S. J. Thannhauser
- 10 1 Staff rounds at the Peter Bent Brigham Hospital

Sunday March 22—

- 4 P.M. Free Public Lecture, Harvard Medical School Building D Longwood Avenue Chronic Disease at the Crossroads. Dr. H. L. Lombard

Open to the medical profession
Open to Fellows of the Massachusetts Medical Society

March 13—William Harvey Society will meet at 8 P.M. in the Auditorium of the Beth Israel Hospital, Boston

March 16—Joint meeting of the Boston Medical History Club and the Boston Medical Library See page 560

March 17—New England Ophthalmological Society See page 560

March 17—South End Medical Club will meet at the office of the Boston Tuberculosis Association 554 Columbus Avenue Boston

March 17—Lawrence Cancer Clinic at the Lawrence General Hospital 1 Garden Street at 10 A.M.

March 18—New England Physical Therapy Society See page 560

March 18—Greater Boston Bikur Cholim Hospital will hold a medical meeting at 8 30 P.M. 48 Townsend Street, Roxbury

March 19—Medical Clinic, Peter Bent Brigham Hospital See page 561

March 23—New England Heart Association See page 560

March 24—Harvard Medical Society See page 560

March 30—Springfield Medical Association 8 30 P.M. at the rooms of the Springfield Academy of Medicine, 70 Maple Street The Development of Surgical Practice in Springfield. Dr. John M. Birnie.

April 8—Joint Meeting of the Massachusetts Tuberculosis League and the Hampden County Tuberculosis and Health Association. See "An address by Dr. Kendall Emerson." Page 493 issue of March 5

April 20-24—A Postgraduate Institute in Philadelphia. See page 499. Issue of March 5

May 12-16—The International Congress of Physical Medicine. See page 443 issue of February 7

June 15-19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore Md

June 16-July 28—Summer Course in Bacteriology See page 355 issue of February 7

September 1936—First International Conference on Fever Therapy See page 135 issue of December 6 1935.

September 7-10—International Union against Tuberculosis See page 554

October 19-23—Clinical Congress of the American College of Surgeons. See page 180 issue of January 23.

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

April 1—Wednesday Essex Sanatorium Middleton. Clinic 5 P.M. Dinner 7 P.M. Speaker Dr. Richard H. Overholt of the Lahey Clinic. Subject Chest Surgery

May 7—Thursday Censors' Meeting

May 13—Wednesday Annual Meeting Salem Country Club Dinner at 7 P.M. Speaker Dr. Paul White. Subject to be announced later

R. E. STONE M.D. Secretary

85 Lothrop Boulevard Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

May 12—Weldon Hotel Greenfield at 11 A.M.

CHARLES MOLINE, M.D. Secretary

Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 6—Bear Hill Golf Club Stoneham at 12 15 P.M.

H. L. MACLACHLAN M.D. Secretary

1 Bellevue Avenue Melrose.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

March 18—See page 560

NORFOLK DISTRICT MEDICAL SOCIETY

March 31—Hotel Kenmore at 8 P.M. Dr. Benedict F. Boland—Cauterization of the Cervix Uteri Using Various Electrical Methods. Illustrated with lantern slides.

May—Annual Meeting. (Place date and subject to be announced.)

The censors meet for the examination of candidates May 7 1936 November 5 1936

FRANK B. CRUICKSHANK, M.D. Secretary

1238 Beacon Street, Brookline.

PLYMOUTH DISTRICT MEDICAL SOCIETY

March 18—Plymouth County Sanatorium, South Hamsdon.

April 16—Brockton Hospital.

May 21—Lakeville State Sanatorium.

G. A. MOORE M.D. Secretary

161 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

March 12—Meeting at the Boston Medical Library The Laboratory and Clinical Study of Fatigue Dr. Arlie V. Boek and Dr. David B. Hill. Discussion Dr. Donald J. MacPherson and Dr. Augustus Thorndike Jr.

April 29—Annual Meeting at the Boston Medical Library The Treatment of Septicemia. Dr. Champ Lyons. The Pleurisy of Scarlatinal Streptococcus Toxin Dr. Sanford B. Hooker. Discussion: Dr. Hans Zinsser

The medical profession is cordially invited to attend these meetings.

ROBERT L. DENORMANDIE, M.D. President.

CHARLES C. LUND M.D., Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

April 8—Wednesday evening. Hahnemann Hospital, Worcester, Mass. Dinner and scientific program. Subject of program to be announced later

May 13—Wednesday afternoon and evening Annual Meeting of Society. Time, place and details of program to be announced in an April issue of the Journal.

ERWIN C. MILLER, M.D. Secretary

27 Elm Street, Worcester

BOOK REVIEWS

Public Health Administration in the United States
Wilson G Smillie 458 pp New York The Macmillan Company \$3.50

This book is a summary of the ways and devices employed by the various public health administrators of today, and it suggests their trends and goals for tomorrow. As one reads it he feels that public health administration must be an individual application of more or less arbitrarily conferred powers.

The section on the control of communicable disease contains 120 pages. It is a little too conventional to be instructive from the clinician's point of view, for example, the active immunization of dogs against rabies by a single injection "has been applied successfully", and typhoid vaccination "has proved very popular". One would rather have a statement of evidence for the value of such widely practiced procedures. Amebiasis and trichinosis are not discussed, although meningococcus meningitis and poliomyelitis are each given five pages.

About 130 pages are devoted to chapters on the basic activities of health administrators. Many of these are very well done—particularly the chapter on public health nursing—and it is in this section that the most informative reading will be found.

The remaining pages describe the formulation of basic activities into public health programs by rural, municipal, state and federal government departments. For the casual reader the continued discussion of these basic activities becomes somewhat repetitious toward the end of the book. Repetition, however, is good pedagogy—and this is essentially a textbook for students of Public Health Administration. There are other chapters on disaster relief, budgets, etc., to round out the whole subject of community health organization. Of these the chapter on voluntary health organizations is perhaps most worthy of a wider circulation than it will attain in this book.

The book itself should be read by every public health administrator and by many others. Indeed, it would be well if it were read by each member of the great army that flavors its social vanity with charity.

Thermal Processes for Canned Marine Products
Volume 2 O W Lang 182 pp California University of California Press

This publication gives the results of a bacteriological inquiry into the canning of marine products on the Pacific Coast. The investigation was inspired by the occurrence of two fatal cases of botulism following the ingestion of sardines canned in tomato sauce and originating in California.

The monograph sets forth the results of the subsequent investigation of canning procedures in the case of the following marine products: Abalone, kamaboko (Japanese style preparation from barracuda), mackerel in brine, sardines, shad, shad roe, squid, tempura (Japanese style barracuda fish cakes), tuna, mackerel in oil, bonito and yellow tail. The general phases are covered by the investigation of

(1) the bacterial flora of canning plants, (2) the heat resistance of botulinus spores, (3) the heat penetration rates in canned marine products in various types of pack, and cans of different dimensions and styles, and finally a study of processing times required to secure certain sterilization in canned products previously infected with spores having a greater heat resistance than botulinus spores.

The results obtained in this comprehensive investigation which was both well conceived and well carried out result in recommendations of great practical utility to the canning industry.

National Medical Monographs Commoner Diseases of the Skin. S William Becker 283 pp New York National Medical Book Company, Inc

This little volume should be of special interest to the general practitioner. The common skin diseases are considered from a somewhat different viewpoint in many instances as compared with the average textbook. There is no introduction containing anatomy, physiology, etc., and one is plunged immediately into the discussion of diagnosis and treatment. Much stress is placed on the functional dermatoses, especially the "neurodermatoses" and the need for considering the background of the individual patient as well as the manifestations on the skin. A limited formulary is given but the directions for its use are detailed. The photographs are excellent.

Modern Home Medical Adviser Your Health and How to Preserve It Edited by Morris Fishbein 905 pp New York Doubleday, Doran & Company, Inc

The reviewer had supposed that Modern Home Medical Advisers disappeared with the high wheel bicycle. But human nature being what it is, here is an old friend, brought up to date with photographs of blood transfusions, children's clinics, rescue of the drowning and discussions of allergy and contraception.

There are twenty-three collaborators, seven of whom hail from Chicago, three each from Rochester and New York and one each from Kansas City, Ann Arbor, Iowa City, Winston Salem, Boston, Cleveland, Cincinnati, Philadelphia, Indianapolis and Toronto.

Were a medical reviewer inclined to be critical he could find much to comment upon in these nine hundred pages. It is the sort of material which appears monthly in *Hygeia* and those who enjoy reading the one will enjoy reading the other. Not trusting himself for a true appraisal, the reviewer lent the volume to two of his lady patients. Their reactions may be summed up by stating that one considered the work "splendid", the other considered it "valuable". It is probably indispensable to the sort of person who must be up to date in his medical lingo. It is beautifully printed and bound and will thus be appreciated on the library shelves of the Intelligentsia.

The New England Journal of Medicine

VOLUME 214

MARCH 19, 1936

NUMBER 12

GASTROSCOPIC OBSERVATIONS IN NEOPLASM*

BY EDWARD B. BENEDICT, M.D.†

GASTROSCOPY has been practiced for many years with rigid instruments but since the invention in 1932 of the Wolf Schindler¹ flexible gastroscope its practice has increased rapidly. The flexible gastroscope was first used in this country in 1933 at the Massachusetts General Hospital², and is now used in a number of the larger clinics in the United States.

With regard to gastroscopy in ulcer and cancer Schindler⁴ concludes in a recent article "Gastroscopy not only supplements the roentgen examination in the direct diagnosis of gastric ulcer and gastric neoplasm, but it aids greatly in their differential diagnosis. It also furnishes direct evidence of the progress of the benign lesions and of the degree of involvement in cases of neoplasm."

A brief review of the x ray and gastroscopic findings in the following cases shows the importance of gastroscopy as an aid to the x ray in the diagnosis and localization of neoplasm.

1 M M M G H. No 333930 male aged fifty three

X Ray 5/23/34 There was a large crater in the region of the incisura of the stomach with very marked infiltrative changes around the crater. Re-examination was requested.

Gastroscopy 5/24/34 There were numerous areas of bright red submucous hemorrhage. On the lesser curvature one small rounded dark area $\frac{1}{2}$ cm. in diameter and a larger similar area about $1\frac{1}{2}$ cm. in diameter were seen and were thought to represent benign ulceration. There was no evidence of carcinoma.

X Ray 5/26/34 There was a large crater with extreme infiltration around it extending nearly to the greater curvature. The degree and type of infiltration were much more suspicious of malignant degeneration than of simple inflammatory changes around a benign ulcer.

Operation, 8/4/34 A definite ulcer of the posterior wall and lesser curvature of the stomach was felt to superimpose upon the pancreas. The ulcer margins were hard, irregular and the crater admitted the tip of the finger. The hardness resembled malignant disease. It was thought wise to resect the stomach as it was felt that the lesion might be malignant.

Pathological Report Gastric ulcer. No evidence of malignancy.

Comment Pathological report confirmed the gastroscopic diagnosis of a benign lesion. By gastroscopy a ragged nodular lesion with a dirty

base usually means carcinoma. In this case the lesion appeared clean with smooth margins and was therefore thought to be benign.

3. M M M G H. No 318232 female aged forty nine.

X Ray 10/13/34 There was a large ulcerating lesion involving the greater curvature of the upper third of the stomach. The ulcer niche was 2 cm. in depth but the greater bulk of the lesion was above the ulceration. Findings were those of carcinoma involving the greater curvature.

Gastroscopy 10/16/34 There was some irregularity of the greater curvature in the upper part of the body of the stomach. The folds in the cardiac portion ran somewhat irregularly and were large and tortuous, sometimes ending abruptly. No niche or definite tumor was seen. The findings are consistent with a marked hypertrophic gastritis. Early carcinoma is a possibility.

Operation, 10/17/34 The most careful examination of the stomach failed to reveal the slightest evidence of carcinoma. In view of a very suggestive history of gallbladder disease and a thick, obviously inflamed gallbladder a cholecystectomy was done.

Comment It was impossible here to reconcile the x ray and gastroscopic findings. Certainly by gastroscopy no large carcinoma was seen and it seemed unlikely that a large neoplasm had been overlooked. Marked hypertrophic gastritis may however simulate an early infiltrating carcinoma.

3. E. V. T. M G H. No 341863 female aged thirty-seven.

X Ray 11/8/34 There was an obstructing lesion at the pylorus with sixty per cent retention of barium. Re-examination after gastric lavage was requested.

Gastroscopy 12/12/34 The pylorus was well seen. On the anterior margin of the pylorus toward the lesser curvature there was a small nodular nipple-like excrescence about 5 mm. in diameter and bright red in color. Peristalsis was very inactive but the pylorus was seen to contract close to this nodule. The lesser curvature appeared irregular indurated and gave a somewhat hard appearance, as though infiltrated. There was no peristalsis passing over it. There was one slightly depressed area in this region, suggesting an ulceration. The greater curvature and posterior wall were intensely red and glistening with irregular tortuous rugae. The gastroscopic findings are consistent with an infiltrating type of carcinoma and a marked gastritis.

X Ray 12/14/34 A lesion 3 cm. in diameter with in $1\frac{1}{2}$ inches of the pylorus appeared to be a small polypoid growth without a stalk.

Operation 12/17/34 One inch from the pylorus on the anterior wall of the stomach could be felt a very small indurated area in the mucosa. A Billroth II resection was performed.

From the Massachusetts General Hospital.

†Benedict, Edward B.—Assistant in Surgery Harvard University Medical School and Massachusetts General Hospital. For record and address of author see "This Week's Issue" page 595.

Pathological Report Adenocarcinoma Acute and chronic gastritis

4 A J W M G H No 343261, male, aged sixty three

X-Ray, 2/11/35 The stomach showed a smooth constriction involving its middle two-thirds. Only a thin stream of barium passed through this region. The rugae were completely obliterated, and at one place on the lesser curvature there was a small polypoid filling defect. The findings were those of an annular malignancy involving the middle third of the stomach.

Gastroscopy, 2/13/35 A fair view was obtained of the upper part of the stomach, but the lower half could not be seen, probably because of the annular constriction described by x-ray. The mucosa was nowhere normal, but in its place was an intensely red, fungating, slightly elevated mass, which in some places appeared ulcerating and in other places nodular. The lesion appeared to extend practically to the esophageal orifice and its operability from the gastroscopic appearance would therefore seem quite doubtful.

Operation, 2/19/35 Exploration revealed extensive carcinoma of the stomach, which extended from the cardia to within two and a half inches of the pyloric ring. Involved glands were felt along both the lesser and greater curvatures of the stomach. Even total gastrectomy was found to be impractical on account of the extension of the growth into the transverse mesocolon, a little to the right of the ligament of Treitz. The stomach was so extensively involved that gastroenterostomy could not be done above the growth.

Comment Gastroscopy here established the extent of the lesion and its probable inoperability.

5 J F F M G H No 340894, male, aged fifty-seven

X-Ray, 10/19/34 The lesser curvature of the stomach appeared rather rigid, but could not be palpated. No peristaltic waves passed over the lesser curvature. The distal third of the stomach was narrowed, and no normal rugae could be seen in this region. One or two small filling defects were noted. The findings were consistent with a carcinoma of the scirrhus type, of the pyloric third of the stomach.

Gastroscopy, 10/25/34 No normal mucosa was seen anywhere in the stomach. The antrum was occupied by an annular lesion that appeared infiltrating, but also slightly nodular and protruding. The color was bright red. No normal rugae were seen. In the upper part of the stomach the irregularities were less pronounced and may represent a marked verrucous gastritis, or may mean that the lesion is infiltrating fairly high.

Operation, 10/26/34 The stomach was involved in a very extensive carcinoma which was entirely inoperable. It had grown upward toward the esophagus and backward into the retroperitoneal tissue with numerous and large glands.

Comment Here again gastroscopy suggested a very high lesion. Gastroscopy may be particularly helpful when the stomach is inaccessible to palpation, and therefore more difficult for roentgen diagnosis.

6 M F B M No 16292, male, aged fifty-five

X-Ray, 11/23/34 The stomach was unusually high in position, very small, and emptied rapidly. There appeared to be an annular constriction involving

about half of the stomach, having the general appearance of scirrhus carcinoma. Palpation was impossible, due to inaccessibility of the stomach. In spite of a negative Hinton reaction, it was felt that syphilis could produce this picture.

Gastroscopy, 11/24/34 Toward the lesser curvature there was a crater about 2 cm in diameter, the margins of which appeared ulcerating and the edges irregular. No normal mucosa was seen anywhere in the stomach. The entire mucosa appeared studded with nodular protuberances, which seemed to extend almost to the cardia. The appearance was that of a constricting ulceration of the body of the stomach, with infiltration of most of the upper part. The lesion was felt to be malignant.

Operation, 11/30/34 Exploration showed four fifths of the stomach involved in new growth, which was adherent posteriorly, and extended up to the esophageal opening. The growth was entirely inoperable. A lymph gland along the mesentery was removed for biopsy.

Pathological Report Metastatic adenocarcinoma

Comment Gastroscopy was requested here by the X-Ray Department in order to help exclude the possibility of syphilis.

7 M K M G H No 337960, male, aged forty-five

X-Ray, 3/21/34 There was a large amount of fluid in the stomach. The rugae were somewhat enlarged. The findings were those of hypertrophic gastritis.

Gastroscopy, 4/5/34 The mucous membrane exhibited a warty appearance which was so marked in some places as to suggest malignant disease.

X-Ray, 6/21/34 Gross distortion of all the gastric rugae was still present. The lesser curvature at the junction of the cardia with the body of the stomach was stiff throughout the examination. A definite lesion was not demonstrable. Re-examination was requested.

7/7/34 There was an ulceration along the lesser curvature of the stomach extending almost to the antrum. Within this ulceration there was a projection about 1 cm wide and ½ cm deep. The rugae in the body of the stomach were definitely enlarged. Considerable fluid was present. The findings were thought to be those of ulcer in the middle portion of the lesser curvature with probably a second ulcer just below it and very extensive infiltration. On account of this extreme infiltration, malignant changes were considered possible.

Operation, 7/11/34 An inoperable neoplasm of the stomach was found.

Comment Although this case has been previously reported³, the suspicion of carcinoma by gastroscopy three months before it was suspected by x-ray is worth emphasizing.

8 C A M G H No 337178, male, aged forty-nine

X-Ray, 5/18/34 There was a large lobulated mass about the size of a fist in the posterior medial part of the fundus of the stomach, consistent with a cauliflower-like carcinoma. The lower portion of the stomach was normal and there was no obstruction of the cardia.

Gastroscopy, 5/22/34 The pylorus was well seen and around it the mucosa was somewhat pale and a little irregular. In the upper half of the stomach, on the greater curvature and posterior wall, an excellent view was obtained of a cauliflower-like lesion of a whitish gray color, with bright red streaks of blood running across it. This appeared to connect with an irregular ulcerating lesion involving the

posterior wall and extending up practically to the cardia. From the gastroscopic appearance it looks as though cure could only be effected by total gastrectomy if at all.

Operation, 5/31/34 Exploration disclosed a freely movable mass in the fundus of the stomach close to the esophageal opening and involving the posterior wall and greater curvature. The upper two-thirds of the stomach was removed and an anastomosis made between the antrum of the stomach and the esophagus.

Pathological Report Adenocarcinoma.

Comment In this case gastroscopy was of assistance in determining the extent of the lesion and indicating that removal of the stomach up to the esophageal opening would probably be necessary.

9 S N F M G H No. 263438 male aged fifty-eight.

X Ray 11/14/34 The patient was unable to swallow more than two mouthfuls of barium without vomiting. A large carcinoma involving the lower four-fifths of the stomach was demonstrated.

Gastroscopy 11/18/34 In place of the normal mucosa there appeared a nodular proliferative and in some places ulcerating neoplasm which was a bright red to gray color in various locations. The lesion appeared to be very extensive and was thought to be inoperable.

Operation 11/17/34 There was a huge carcinoma of the stomach extending backwards into the tissues behind so that removal was entirely impossible. A lymph node was removed for biopsy.

Pathological Report Metastatic carcinoma.

Comment A gastroscopy in this case correctly suggested an inoperable lesion. Although it is, of course, frequently impossible to be sure by any diagnostic procedure that a given lesion is inoperable, all methods at our disposal should be employed, and gastroscopy in doubtful cases may be of very great value.

10 F D F M G H. No. 333523 male aged fifty-seven.

X Ray 8/31/33 Examination showed a lesion which had the appearance of carcinoma of the greater curvature of the stomach about one inch from the pylorus.

11/22/33 Reexamination confirmed the previous findings. There was fixation of the lower three inches of the stomach, with deformity of the greater curvature and definite evidence of obstruction.

Gastroscopy 11/25/33 An extensive lesion was seen which appeared to involve most of the greater curvature and parts of the anterior and posterior walls. The appearance was that of extensive ulcerating carcinoma.

Operation, 11/28/33 There was an extensive carcinomatosis, primary in the stomach with metastases scattered throughout the peritoneal cavity one of which was removed for diagnosis.

Pathological Report Metastatic carcinoma.

Comment Here again gastroscopy suggested a very extensive lesion.

11. C. R. M M G H. No. 340431 female, aged fifty-four.

X Ray 10/6/34 Examination showed a carcinoma involving the middle half of the stomach with question of extension up to the cardiac orifice.

Gastroscopy 10/3/34 The lower part of the stom-

ach could not be seen as the gastroscopy was obstructed probably by the tumor. The tumor appeared both ulcerative and proliferative and involved the greater curvature posterior wall and lesser curvature extending it was thought to with in one inch of the cardia. No normal rugae were seen. The examiner felt that the chances of resection were small.

Operation 10/10/34 There was a very large carcinoma of the stomach extending up almost to the cardia and backwards around the great vessels. Radical removal was entirely out of the question. A small specimen was obtained for biopsy.

Pathological Report Metastatic adenocarcinoma.

12. A. S. V G H No. 342303 male aged fifty-seven.

X Ray 12/27/34 Stomach was high and transverse and practically impossible to palpate. The lower half of the lesser curvature was constantly deformed by a dish-like ulceration. Peristalsis was practically absent. X-ray findings were consistent with a large malignant ulceration involving the lower half of the stomach and located mostly on the lesser curvature.

Gastroscopy 12/31/34 About two inches inside the cardia there was a definite nodule projecting from the lesser curvature. This nodule was somewhat reddened near the base and whitish at the apex. Near this region the mucosa seemed somewhat pale. There was no peristalsis. Below this nodule the gastroscopy met with obstruction. The findings were felt to mean an infiltrating type of carcinoma extending fairly high along the lesser curvature.

Operation 1/4/35 A very high subtotal resection of the stomach was performed for carcinoma of the lesser curvature.

Pathological Report Adenocarcinoma.

13. E. S. M G H No. 328278 male aged sixty-five. Pernicious anemia and gastric tumor.

X Ray 6/26/34 There was an irregular filling defect showing evidence of craters involving the lower half of the stomach. The duodenum showed a constant deformity which appeared to be extrinsic. The findings were those of carcinoma involving the lower half of the stomach with extrinsic compression defect of the duodenum.

7/5/35 Reexamination confirmed the previous observation. There was a large defect in the pyloric end of the stomach.

Gastroscopy 7/6/34 The entire mucosa was very pale and thin so that numerous small blood vessels could be seen very well. Normal rugae were almost entirely absent. On the lesser curvature and posterior wall in the antrum of the stomach there was a rounded elevated red lesion which was fairly smooth in contour and which was attached to the mucous membrane by a broad base. The lesion appeared to be about 7 or 8 cm. in length and was thought to be a large benign polyp although malignant degeneration at the base was considered a possibility. The general appearance of the mucosa was typical of the atrophy seen in pernicious anemia.

Operation 8/7/34 The stomach was delivered without difficulty. In it could be felt a definite polyp. The stomach was opened and arising from the posterior wall about one-third of the way up from the pylorus was a long tongue-like polyp about 15 cm. in length and ulcerated in two places. It was excised with a wide margin around the base.

Pathological Report Gastric polyp. No evidence of malignancy.

Comment Clinically this patient had a typical pernicious anemia. The mucosa in untreated pernicious anemia is characteristically very

smooth and pale, and so thin that blood vessels can be plainly seen shining through. After liver therapy improvement in the appearance of the mucosa has been noted.⁵ The appearance of the tumor as seen through the gastroscope is shown in the accompanying illustration (fig 1). From

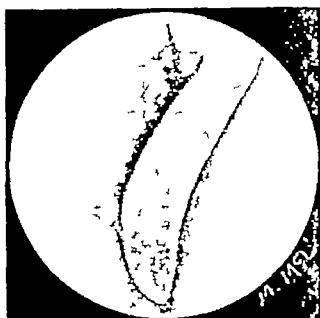


FIGURE 1 Gastroscopic appearance of benign polyp (Case 13)

that appearance alone a benign lesion seemed almost certain, but with a slightly ulcerated and nodular appearance at the base malignancy could not be excluded. As the polyp was turned on itself, its length appeared foreshortened as seen through the gastroscope. Since operation and liver therapy this patient has improved remarkably, and is now in very good health. The mucosa has also improved very definitely both in color and general appearance, so that by gastroscopy there is no longer a definite atrophy, but rather a superficial gastritis.

14 D J M M G H No 332957, male aged fifty-one ? Gastric pathology or extrinsic mass

X Ray, 11/1/33 There was marked deformity of the antrum, pylorus, and duodenal loop. The antrum and pylorus appeared to be displaced upward and fixed. The rugae were seen throughout the lower end of the stomach, and faint peristaltic waves passed over the narrowed and displaced antrum of the stomach. Definite x-ray evidence of disease of the stomach could not be demonstrated on two examinations. The deformity was probably from extrinsic involvement.

Gastroscopy, 11/3/33 The mucosa and rugae of the antrum and body of the stomach appeared normal throughout. The pylorus also appeared normal.

COMPULSORY STERILIZATION

In Germany, the law of July 14, 1933, makes compulsory the sterilization of all individuals with serious diseases (congenital mental debility, depressive manic psychosis, epilepsy, Huntington's chorea, hereditary deafness, hereditary blindness, serious malformations and alcoholism) which, according to medical knowledge, have a great possibility of resulting in deficient offspring. This law does not apply to drug addicts, nor to apparently normal individuals with one or more children with manifestly hereditary diseases. All the cases are submitted for judgment to a sanitary council composed of a judge, a government physician and a practicing physician. The patient may appeal against the decision to a

Operation, 11/23/33 There was a large mass in the body of the pancreas which seemed to infiltrate the posterior wall of the stomach. The liver contained many metastatic nodules. There were hard, firm glands along the common bile duct, and nodules in the peritoneum and in the pelvis. A gland was removed from the peritoneum for biopsy.

Pathological Report Metastatic adenocarcinoma

Comment Gastroscopy has in several cases, as in this one, been useful in helping to exclude intrinsic disease of the stomach.

Diagnostic gastroscopy is used as a very helpful supplement to x-ray examination in diseases of the stomach. It is not offered as a substitute for the Roentgen ray, since it is admitted that the latter is indispensable in the diagnosis of gastric pathology. In fact, since esophageal disease may be a contraindication to gastroscopy, x-ray study of the esophagus and cardiac orifice should always be carried out as a preliminary procedure. Patients with stomach complaints, even if vague and of short duration, should have early x-ray examination, followed in selected cases by gastroscopy.

A study of the cases presented above reveals that gastroscopy in neoplasm of the stomach may be a very valuable adjunct to the x-ray.

- 1 In making an early diagnosis of carcinoma,
- 2 In differentiating benign and malignant lesions,
- 3 In determining the location and extent of the lesion, and
- 4 In excluding intragastric pathology

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special court which has final jurisdiction. Wegner (1934) believes that 30 per cent of the cases of blindness may be prevented thanks to this law. There are, however, in the author's opinion, certain disadvantages to compulsory sterilization. The main one to be feared is that the patient, apprehensive of being declared to the competent authority, will see the physician as infrequently as possible, and will furnish him with an inexact history, thereby rendering the physician's task more difficult and preventing him from properly treating certain patients. — Excerpts from the address of Professor Franceschetti before The General Assembly of the International Association for Prevention of Blindness, London, April 5, 1935.

NEW ENGLAND SURGICAL SOCIETY

SALMONELLA SUPESTIFER INFECTION
WITH SURGICAL COMPLICATIONS*

BY IRVING J. WALKER, M.D.,† SOMA WEISS, M.D.,† AND ROBERT N. NYE, M.D.†

IT is the purpose of this communication to report two instances of *B. supestifer* infection with unusual clinical course and localized lesions, and to collect from the literature such others as have been reported to date.

The causative organism of this rather rare infections disease of human beings, the *B. supestifer*, is accepted as belonging to the *Salmonella* group, perhaps better known as the paratyphoid group of organisms. It is now agreed that the above mentioned disease of the porcine species, formerly believed to be the cause of hog cholera in this country, and Schweinepest in Europe, is due to a filtrable virus and that the *B. supestifer* is a secondary invader or saprophyte.

BACTERIOLOGY

Until quite recently it has been customary in most American bacteriological laboratories to employ a relatively simple classification for the pathogenic Gram negative bacilli. Those fermenting lactose were considered members of the colon bacillus group, whereas those not fermenting lactose were placed in the typhoid paratyphoid-dysentery group. Further subdivision of the latter was made on the basis of motility, sugar fermentations and specific agglutination tests. Dysentery bacilli are non motile and do not form gas with fermentable sugars. Typhoid bacilli also fail to form gas but are actively motile. All strains forming gas with fermentable sugars were placed in the paratyphoid group. If xylose, a rare sugar, was fermented and if agglutination was obtained with anti *B. Paratyphosus A* serum the strain was reported as *B. Paratyphosus A*, otherwise it was reported as *B. Paratyphosus M*. It was realized that many different species gave the same reactions as the latter, but so little was known that further separation was impossible.

Within the past few years many contributions have been made, particularly by White and by Andrewes in England, which have served to clarify our knowledge of this paratyphoid group. More than twenty different species can be identified by specific agglutination tests, other species have been described and probably many more will be reported.

From the Second Medical Service, Fifth Surgical Service and Department of Pathology, Boston City Hospital.
Read at the Annual Meeting of the New England Surgical Society at Manchester, New Hampshire, September 27, 1935.

*Walker, Irving J.—Clinical Professor of Surgery, Harvard University Medical School, Welles, Boston—Associate Professor of Medicine, Harvard University Medical School, New Robert N.—Instructor in Bacteriology and Immunology, Harvard University Medical School. For record and add cases of author see "This Week's Issue," page 535.

This paper is concerned only with the *supestifer* Hirschfeld subgroup of which there are three very closely related strains: (a) the American type (hog cholera bacillus diphasic type of White, Group I of Andrewes), (b) the Eastern type (*B. Paratyphosus C* of Hirschfeld), and (c) the European type (monophasic type of White, Group II of Andrewes). Although positive identification should be made only on the basis of specific agglutination tests, a presumptive diagnosis can be made from certain biological reactions. All ferment dextrose, xylose and mannite with the formation of acid and gas, but fail to ferment saccharose and lactose. The American and European types fail to ferment arabinose and can be differentiated one from the other by the fact that the European type forms H_2S in lead acetate agar. The Eastern type ferments arabinose with the formation of acid and gas, but fails to ferment inositol. It can be differentiated from several other species with identical biological reactions only by means of specific agglutination tests.

Instances of isolated and endemic gastrointestinal infection of the human being due to the *B. supestifer* occur relatively commonly in Europe and to a lesser extent in the United States, especially since the World War.

While undoubtedly the *B. supestifer* infection of the human being is the result of food contamination, the sources of these infections have remained undetermined and no definite relationship between the human and infected pigs or pork has been established.

Instances of septicemia associated with the *B. supestifer* are not uncommon and probably account for the localized lesion such as we are concerned with in the following cases.

REPORT OF CASES

CASE 1. E. K., a twenty-three year old male Jewish salesman entered the Boston City Hospital November 11, 1934 complaining of pain in the lower left chest, left shoulder and also of diarrhea.

On the afternoon of August 20, 1934, after playing golf and tennis, the patient experienced a slight chill. He vomited that evening and perspired freely during the night. There were two chills each accompanied by a high fever during the next forty-eight hours. The bowels at this time were constipated. On the second day of his illness he developed pain in the left upper quadrant of the abdomen and in the left chest. The pain was made worse by breathing. At the same time he experienced pain in the left shoulder. There was nothing significant in the past history except for the fact that he had

been treated for a duodenal ulcer, but had been free of symptoms from this condition for one year

The patient entered the Lucy Hastings Hospital at Manchester, N H, on August 22, 1934 At this time the positive findings in the physical examination were dullness in the left lower chest over an area both front and back from the seventh rib down wards The abdomen was distended and tender throughout, but especially over the left upper quadrant where there was also voluntary spasm Palpation of this region was unsatisfactory for any tumor mass because of the pain produced by pressure

For the first three days after admission to the hospital the patient had severe chills each day, followed by profuse perspiration. With the chills the temperature rose to 104° or 105° The heart rate was 80 to 100 per minute About the third day he developed a diarrhea which lasted for about two weeks The patient remained in the hospital forty-one days, complaining at intervals of pain in the left upper quadrant of the abdomen and in the left chest

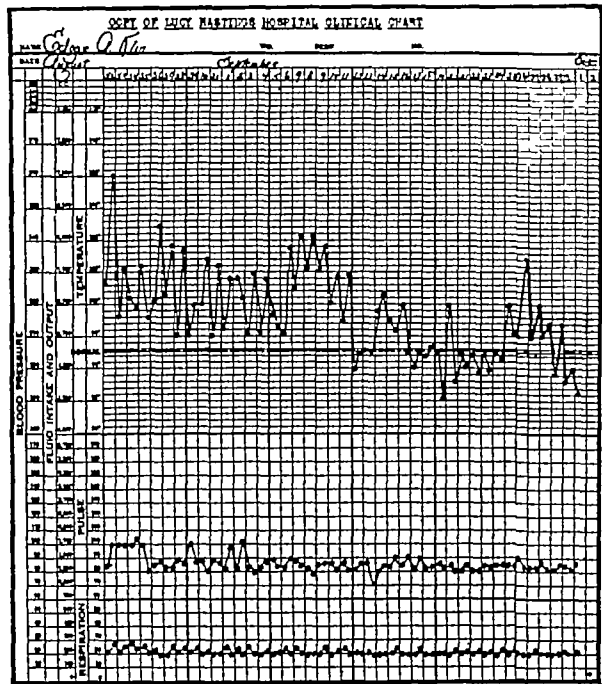


FIGURE 1
Chart of temperature heart rate and respiration in Lucy Hastings Hospital

After leaving the hospital he was fever free and without pain for about ten days He gained twelve pounds in weight and felt generally stronger Six days previous to the admission to the Boston City Hospital he experienced a more or less continuous pain of a low grade in the chest just to the right of the sternum in the 4th interspace This has persisted until now He had a return of the diarrhea, which lasted two days About four days previous to his entry to the Boston City Hospital he again experienced the left upper quadrant pain and had a fever of 102° F Since then he has been running an afternoon temperature The white count was 11,000 per cu mm of blood

The significant laboratory data were as follows On August 22, 1934, the examination of the urine was negative except for the presence of a slight trace of albumen The red count was 4.8 million and the white count was 15,000 per cu mm The differential white count contained 86 per cent polymorphonuclear neutrophils, 11 per cent lympho-

cytes and 3 per cent eosinophiles On August 23, the blood culture showed Gram negative motile bacilli, and blood cultures on future dates showed the same organisms The Widal test of the blood was negative on several occasions, and a blood test was also negative for undulant fever On September 8, blood culture were reported as negative for paratyphoid A and B On October 30, x-ray examination was negative except for a high diaphragm on the left side as shown in figure 2



FIGURE 2
X-ray of the chest demonstrating high left diaphragm

On entrance to the Boston City Hospital on November 11, 1934, the patient showed the following pertinent findings The skin was pale and dry Over the left side of the chest, posteriorly below the 9th space, there was flatness with absence of tactile fremitus, whispered voice, and breath sounds The area of flatness was higher in the axilla. Anteriorly there was dullness to flatness below the 5th rib and a definite friction rub was heard on inspiration in the anterior axillary line Over this area there was tenderness on percussion The radial pulse was rather small and collapsible and the arterial pressure was 114/76 mm Hg The abdomen was distended and tender, but without spasm except that of a voluntary nature in the left upper quadrant

The culture and Widal test of the blood was negative The red blood count was 4.3 million and the white blood count was 10,000 per cu mm of blood The hemoglobin content was 61 per cent Examinations of stools were negative for tuberculosis, motile amoebae and cysts X-rays of the chest showed the left diaphragm markedly elevated and flattened The outer half of the diaphragm was fixed The medial half moved slightly on respiration The right diaphragm was normal X-ray examination of the gastrointestinal canal revealed the stomach displaced toward the midline, and the splenic flexure of the colon slightly displaced downwards Flat x-ray plate of the abdomen (figure 3) showed an indefinite area of density in the left upper quadrant These x-ray findings were interpreted as being consistent with those of a left subdiaphragmatic abscess

In view of the fact that the diagnosis of abscess of spleen of unknown etiology was made operation under gas-oxygen-ether anesthesia was performed on November 22 1934 Incision was made in the



FIGURE 3.

X-ray of the abdomen revealing an indefinite area of density in the left upper quadrant.

left upper quadrant of the abdomen. Exploration of the latter was entirely negative except for the region of the left upper quadrant. The spleen was considerably enlarged. There were numerous ad-



FIGURE 4.

Showing a large postoperative sinus cavity filled with lipiodol.

hesions in the splenic region. On separating some of the adhesions and mobilizing the upper portion of the spleen an abscess cavity was found posterior to and involving the upper pole of the spleen. This cavity contained about six ounces of a watery pus

without odor. A cigarette drain was inserted into the abscess cavity and brought down around the outer border of the spleen and through a stab incision under the left costal margin. The original incision was closed without drainage. The patient was transfused with 500 cc. of citrated blood. The drain was removed on the twelfth day. A catheter was then placed into the sinus tract. Through this irrigations of salt solutions were carried. From time to time the question arose as to whether the sub-diaphragmatic space was being sufficiently drained. However the profuse discharge diminished and the patient left the hospital on December 27 1934 thirty-six days after operation with the catheter still in place. Lipiodol studies of the sinus tract made on December 20 1934 are shown in figure 4 indicating a large sinus cavity. Similar studies made on February 6 1935 are shown in figure 5 and demonstrate healing of the cavity with a narrow tract filled with lipiodol.



FIGURE 5.

Showing healing of the cavity with narrow tract of lipiodol in the left upper quadrant.

After removal of the catheter the sinus tract gradually healed. The patient's health has been perfectly normal to date. Figure 6 shows the clinical chart while the patient was at the Boston City Hospital.

Bacteriological studies of cultures of the pus removed from the abscess cavity demonstrated that the sugar fermentations were identical with those of the American and European type of *B. suis*. *B. suis* was not found in lead acetate agar, which permitted a presumptive diagnosis of the American type. Bacteria were agglutinated by a 1:2560 dilution of an anti-American type serum which agglutinated a stock American type strain in a dilution of 1:1280 and a stock European type strain in a dilution of 1:40. The etiological significance of bacilli which were isolated from the patient is proved by the fact that they were agglutinated by a 1:1280 dilution of his serum but were not agglutinated by dilutions of several normal sera as low as 1:40.

The unusual features of the case are as follows (1) A healthy individual suddenly seized with symptoms of a gastrointestinal nature, but with no history of food poisoning (2) The clinical course was similar to that of a paratyphoid infection (3) Blood culture showed a Gram-negative motile bacilli, negative for typhoid and paratyphoid A and B (4) Clin-

CASES REPORTED IN THE LITERATURE

Stimulated by the above-mentioned cases, we reviewed the literature to date with reference to surgical lesions associated with the *B suispestifer*. As will be seen almost all the cases were in children. We were able to gather the following cases

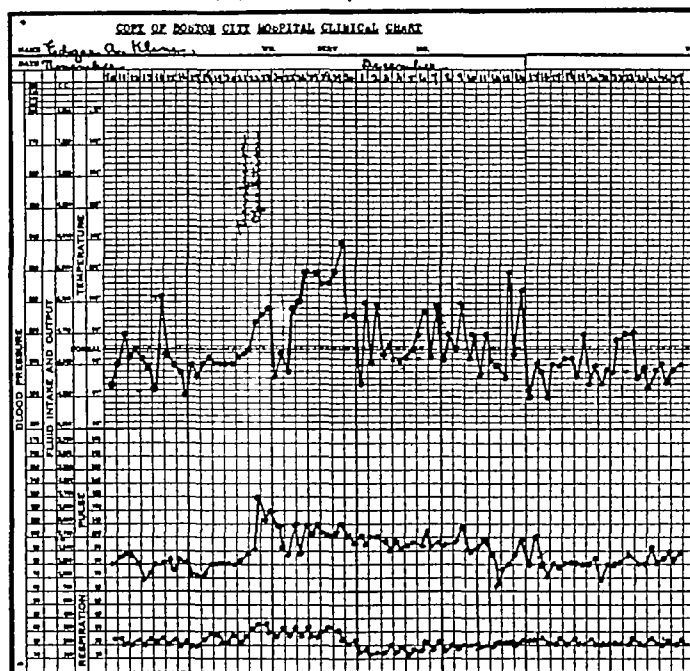


FIGURE 6
Chart of temperature heart rate and respiration in Boston City Hospital

ical evidence of splenic abscess appeared and on surgical drainage the infection, after bacteriological study, proved to be due to the *B suispestifer* of the American type

CASE 2 The second case from the records of the Boston City Hospital is as follows. A colored female, aged forty, entered the hospital on June 3, 1934, for treatment of diabetes mellitus. During the course of the hospital stay it was discovered that she had a positive Wassermann test of the blood. Her history also indicated that there was a possibility of a chronic cholecystitis. The Graham test confirmed this diagnosis. On June 5, 1934, a cholecystectomy was done. The gross findings of the gallbladder were not remarkable other than showing evidence of chronic infection. The microscopic finding was that of chronic cholecystitis without stones. Cultures from the gallbladder showed a Gram negative bacillus.

Bacteriological study of this case also showed sugar fermentation tests identical with the American European type and also failed to form H_2S . However the bacilli in this instance were not agglutinated by anti-American type serum but in view of the biological reaction, the tentative interpretation of a nonagglutinable strain of the American type was made.

The patient has had several subsequent hospital reentries for the treatment of diabetes but without symptomatology that could be attributed to the proved *B suispestifer* infection. Agglutination tests for *B suispestifer* types have not as yet been done on the patient's serum.

(CASE 1) Reported by Nabarro and White. This was of a child nine months of age who had been ill for two months without a definite diagnosis having been made. Attention was finally focused upon the right shoulder as possibly being infected. Aspiration of this joint showed a thin fluid. Bacteriological study revealed the organism to be that of the American type of *B suispestifer*. The patient was cured by aspiration of the joint. Apparently this is the first reported case either medical or surgical of the American strain of *B suispestifer* being found in Europe.

(CASE 2) The same authors incidentally mention but do not report in detail another case of a joint abscess in a child due to the European strain *suispestifer*.

(CASE 3) Kuttner and Zepp report a case of a male Negro child, nineteen months of age, who after complaining of malaise for two months developed a swelling of the right knee. The white count was 28,040 per cu mm of blood with 64 per cent polymorphonuclear leucocytes. Aspiration of the joint and bacteriological study of the pus revealed *B suispestifer* of the European type. The patient was cured by aspiration of the joint.

(CASE 4) The same authors report a second case of a female, aged five months. The first symptom was that of inability to move the right arm. The right shoulder joint finally became swollen. X-rays showed some destruction at the head of the right humerus. The white count was 22,600 per cu mm. of blood with 56 per cent polymorphonuclears. Aspiration of the joint showed pus. Study again showed the organism to be *B suispestifer*, European type. The patient was treated successfully by immobili-

zation of the right shoulder joint. This case demonstrated no febrile reaction during the illness.

In addition three other instances of localized lesions due to the *supestifer* should be mentioned. However the details regarding the bacteriological study of the cases are not available.

(CASE 5) Gaxxégo and Göttsch report a case of osteomyelitis due to the *B. supestifer*.

(CASE 6) Tevell cites a case of pyarthrosis of the shoulder joint due to the same organism.

(CASE 7) Bruin and Janssen report a case of infection of the knee joint the organism being the *supestifer*.

It is quite evident from the cases observed by us and from those reported in the literature that the surgical lesions developing during the human *supestifer* infections are similar in distribution to those found as complications developing during typhoid and paratyphoid disease.

Inasmuch as attention has only recently been focused upon the human infection due to the *B. supestifer*, it is not unlikely that cases in the past attributed in a general way to the paratyphoid group could well have been due to the *B. supestifer*, but because of the inadequate bacteriological studies were not accurately classified.

SUMMARY

1 Two cases with localized surgical lesions due to the American type of *B. supestifer* are reported. In the first case following a *transient bacteremia*, a metastatic splenic abscess developed, causing the clinical picture of left subdiaphragmatic abscess. Surgical drainage of the splenic abscess relieved the patient. In the second patient, *B. supestifer* was responsible for cholecystitis with the *usual clinical course*.

2 In spite of the fact that both cases reported were adults, *supestifer* infections in man have been reported most commonly in babies and children.

3 Unless serological and bacteriological studies are complete, many of the lesions associated with the *B. supestifer* will be attributed to some unidentified Gram negative motile organism.

4. Localized surgical lesions associated with the *B. supestifer* are rather rare and they are similar to the surgical complications of typhoid and paratyphoid fever.

5 *Supestifer* abscesses, in the majority of instances, occur probably as the result of septicemia, secondary to a gastrointestinal infection due to contamination of food with the *B. supestifer*.

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DISCUSSION

DR. GILL, Hanover, N. H.: Our experience with surgical complications of salmonella *supestifer* have been nil and the literature seems to have few reports.

Park and Williams say "Quite a number of paratyphoid varieties have been found to be the causative agent in food infection. Three paratyphoid varieties however have been the most frequent causative factors. Members of the *B. pestis caviae* (that is the guinea pig bug) or *Bacillus aertrycke* for one. *Bacillus supestifer* and *Bacillus enteritidis*. These are the three general subdivisions of the paratyphoids that are particularly food infectious organisms.

The bacilli may invade the blood stream and may find their way to the urine. This is most likely to be so in fatal cases."

Perhaps this is an example of localization in this case after a blood stream infection and abscess formation in the liver.

Quoting from Ford, "Speaking of intravenous infection of rabbits, a perfect serous exudate is found in the large body cavities with a fibrous deposit on the serous membranes, often containing small hemorrhages. Spleen and liver enlarged and show small circumscribed necrotic foci which may resemble the lesions in tuberculosis. Outspoken lesions of the intestines and patches in the lungs resembling croupous pneumonia may also occur. With large animals cattle, goats, etc. subcutaneous injection is followed by large localized abscesses and intravenous injection produces severe general reaction.

This whole group of paratyphoid organisms are subject to very evident variation. "Kendrick has observed that variants of *Salmonella supestifer* may be derived from smooth and rough forms by the action of bacteriophage." This is additional evidence to me anyway that we do get very decided variations in this group of organisms, from motile to nonmotile and even capsulated forms. There must, of necessity, be very distinct variations in the pathogenic proclivities of these organisms.

Quoting from Zinsser and Bayne-Jones, "Paratyphoid B. is probably a more common disease than paratyphoid A. and is more apt to be typhoid like and severe."

From the very distinct differences between the clinical manifestations of this disease and the ordinary case of so-called 'food poisoning' it would appear that there must be a very definite human paratyphoid B. organism which is conveyed by the same agencies and subject to the same epidemiological laws as typhoid fever. It is difficult to base this on bacteriological evidence since it is often impossible to find any cultural or agglutination distinctions between organisms isolated from the human blood or bowel and other bacilli which from their sources and general reactions would fall into the groups of hog cholera, enteritidis, etc."

Another sentence on the same page "It is difficult always to be certain that the strain is a true *Bacillus paratyphosus* B. and not *Bacillus aertrycke* or some closely related variety."

Another sentence, "The organism called *B. paratyphosus* C which was responsible for many cases of paratyphoid fever during the War has been identified by Andrews and Neave as one of the types of *Bacillus supestifer*."

It was formerly believed that hog cholera was

due to the bacillus which bears this name" "Since then it has been found that this disease is due to a filtrable virus. The constant presence of this organism in animals suffering from this disease, is, therefore, something of a mystery, but is probably due, as Dorset has suggested, to the fact that the organism is a constant inhabitant of the intestine in hogs, and manages to get into the circulation as a consequence of the pathologic conditions incident to hog cholera. A similar association of organisms in blood cultures with diseases of which they are obviously not the primary etiological factor has been observed in other conditions, notably, for example, the Plotz bacillus in typhus fever"

From the above brief review of the literature it can be seen that these groups of organisms are fairly prevalent and from the statements it can be seen that they may and doubtless are the cause of more surgical complications in man than we have been aware, particularly when we consider various cultural characteristics and the difficulty in isolating them

In each of the past two years in routine examinations of all freshman stools, a considerable number of paratyphoid carriers are found and it may be that more careful cultural methods will produce more cases of the type about which Dr Walker has given so careful a report in his paper today

CANCER OF THE MOUTH CARE OF THE PATIENT UTILIZING PROLONGED ANESTHESIA OBTAINED BY ALCOHOL INJECTION OF BRANCHES OF THE FIFTH NERVE*

BY HUGH F HARE, M.D.,† JAMES L POPPEN, M.D.,† AND WALTER B HOOVER, M.D.†

THE purpose of this paper is to present a method of caring for patients with cancer of the mouth wherein the alleviation of pain is of prime consideration. The alleviation of pain in patients with oral cancer has received too little attention, but we believe it to be an extremely important consideration because the dread of severe pain and the reaction following radon application have become almost as great in the minds of the laity as the fear of pain and deformity associated with surgical treatment. We further believe that if pain were eliminated in every patient, the dread of treatment in the mind of the layman would be diminished and the tendency to seek early treatment would be greatly increased. It is true that most patients with this type of lesion, having presented themselves for treatment, are cooperative and are willing to go through a period of discomfort. Many, realizing the severity of either radon or surgery, hesitate to seek or receive advice.

Since Dominici¹ in 1910 first described the removable radon needle, radiological treatment of cancer of the mouth has gradually become the method of choice. During the past twenty-five years, great improvement has been made in the estimation of adequate lethal dosage for various tumors, in the filtration of undesirable radiation and in the protection of uninvolved tissues. We now feel fairly confident that the lethal dose may be quite accurately estimated for a given type of tumor and also the amount of filtration necessary to prevent a severe grade of reaction.

When we consider that treatment by the most skilled has failed to cure more than one in three or four of these patients with oral cancer, together with the pain and expense involved, it is readily understood why many are discouraged and do not seek advice early.

We believe a definite diagnosis should be established by biopsy without fear of dissemination of the cancer cells, if sealed by cautery or if followed by adequate treatment. When a diagnosis is established, the patient or a responsible relative should be told of his condition and the course of treatment be thoroughly explained to him. This explanation produces a more cooperative patient. In treating oral cancer, more than elsewhere a cooperative patient is necessary. With the patient having a knowledge of his condition and an idea of his course resulting from treatment, we are ready to proceed.

In the Clinic, numerous cases of trigeminal neuralgia and some cases of advanced cancer have been relieved for twelve to fourteen months by an alcohol injection into the second or third divisions of the fifth cranial nerve. It occurred to us that alcohol injection would be a valuable procedure to use before radon treatment in cancer of the mouth. Accordingly, during the past year, we have used this procedure routinely with most satisfactory results. The method of injection will be described later.

THE ADVANTAGES OF PROLONGED ANESTHESIA

1 Prolonged anesthesia permits ambulatory treatment of the patient, obviating the constant, dull, nerve-wracking pain usually accompanying caustic radon treatment. Free of pain, the patient is able to carry on with a portion of his duties without great difficulty.

2 The patients are able to sleep and rest comfortably without opiates or strong sedatives.

3 Oral hygiene is improved. The patient can cleanse the mouth without pain, for this reason, the cleansing is more thorough and secondary infections accompanied by fetid breath less common.

4 The patient can eat without difficulty and without discomfort, except for numbness on the affected side. Without pain and nauseating drugs the appetite remains fair and the loss of weight which usually occurs with treatment has become negligible.

*From the Tumor Clinic Division of the Lahey Clinic

†Hare, Hugh F.—Assistant Roentgenologist. Peter Bent Brigham Hospital. Poppen, James L.—Associate in Neurosurgery. Lahey Clinic. Hoover, Walter B.—Otolaryngologist. New England Baptist Hospital and New England Deaconess Hospital. For records and addresses of authors see "This Week's Issue" page 596.

5 Radon implantation may be done without further anesthesia. The patient being cooperative, more accurate placing of each radon seed is allowed in and about the lesion.

6 The anesthesia allows the patient to wear a lead shield to protect the uninvolved tissues of the mouth for the first two weeks after radon implantation with little discomfort. The shield may be made larger than could ordinarily be tolerated, the larger shield giving more protection.

The disadvantages of the injection are minor. The patients complain of various paresthesias such as numbness and prickling sensation of the anesthetized side.

CARE OF THE MOUTH

In noninfected cases, no special care of the mouth is indicated before radon implantation. In the secondarily infected lesions, we believe that obvious sources of infection such as carious teeth should be cleared up and that a series of deep x ray treatment should be given over the affected side. The dose should not be larger than 3000 R units given in fifteen treatments as we must not injure the skin or subcutaneous tissues when radical resection of the glands of the neck is to be carried out later. During the time of the x ray treatments, hourly mouth washes of table salt should be used and the lesion carefully cleansed with a moist cotton pledget. This will decrease the infection about the lesion in from four to six weeks' time preparatory to placing the radon. We feel that the use of tobacco has been definitely demonstrated to be harmful and should, without question, be prohibited in all forms irrespective of the type of treatment to be administered.

Immediately before radon implantation is performed, the mouth should be thoroughly cleansed with seventy per cent alcohol, other antiseptics are unnecessary. After the radon implantation, hourly mouth washes of salt solution are advised for a period of two weeks and then six times daily. Gradually, the frequency of mouth cleansing is decreased as the lesion and reaction disappear.

PROTECTION OF THE ADJACENT TISSUES

A shield made of lead foil, 5 mm thick, smoothly coated with dental compound, should be prepared before the radon implantation and carefully fitted to the mouth. To be effective the shield must be of sufficient size to protect the structures adjacent to the lesion which is to be implanted with radon. In lesions of the tongue, this shield should be made large enough to cover the mandible on the adjacent side and the roof of the mouth. In cases where the floor of the mouth is involved, it has been suggested by one of us that in order to protect the mandible, it would be wise to separate the gum from the mandible and place the lead foil be-

tween the gum and the bone. This can be performed without discomfort due to the anesthesia and will be tried in the next case requiring this protection.

The lead shield should be used for two weeks which is the time of major radon activity and it should not be removed except for cleansing and feeding.

FEEDING

Liquid food of high caloric content is all that is required during the period of intense reaction. Our patients are given such a diet and solid foods are gradually added until the patient is able to take a normal diet.

TYPE AND METHOD OF INJECTION

Lesions of the tongue, the floor of the mouth, the mandible, and lower portion of the cheek are in the area supplied by the mandibular or third division of the fifth nerve. In such cases, an alcohol injection of the third division of the nerve is employed on the affected side.

Lesions which involve the hard palate and anterior three-fourths of the soft palate together with those involving the maxilla or upper cheek lie in an area supplied by the second division of the fifth nerve. Therefore this division is injected with alcohol on the side affected by such lesions. Cancer involving the areas of both the third and second divisions require injection of each.

Sensation to the posterior margin of the soft palate, the posterior portion of the tongue, the tonsillar fossa, and the pharyngeal walls is supplied by the glossopharyngeal nerve. Figure 3

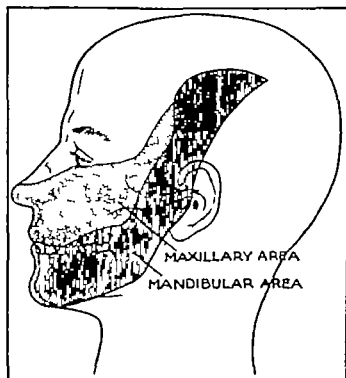


FIGURE 3 Demonstrates the cutaneous anesthesia following the injection of alcohol into both the mandibular and maxillary divisions at their exit from the cranium. The amount of overlapping of the cervical nerves over the ramus of the jaw varies in different individuals.

illustrates the sensory distribution of this nerve. Although we have never performed a neurectomy of the glossopharyngeal nerve to relieve

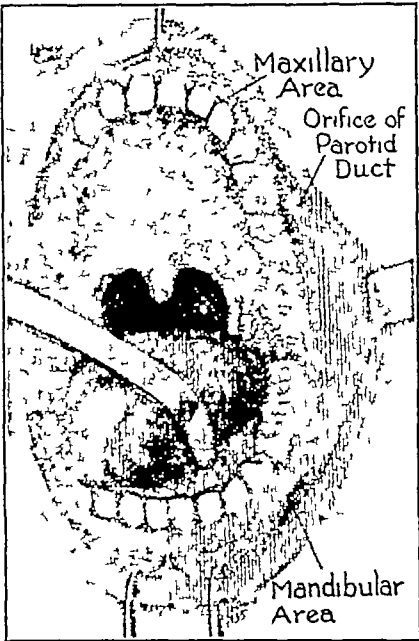


FIGURE 2 The lines indicate the distribution of anesthesia of the third division inside of the mouth. The dots demonstrate the maxillary division. The overlapping which occurs between the glossopharyngeal and maxillary division of the fifth in the region of the anterior pillar and base of tongue varies to some extent in different individuals

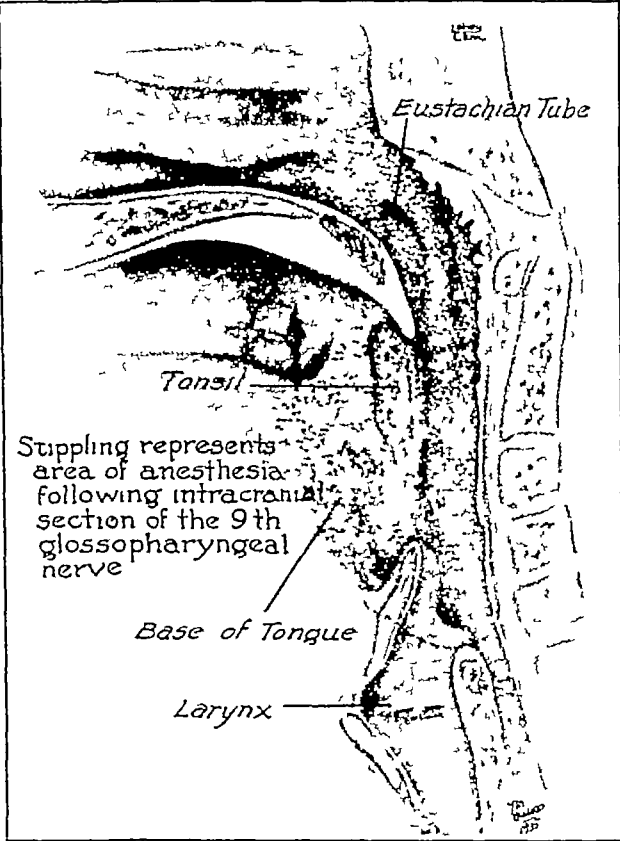


FIGURE 3

pain in treating cancer cases, it has been practiced by others for relief of pain and may well be worthy of consideration in selected cases. Before alcohol injections are attempted, one

must have a thorough knowledge of the skull with relation to the structures around the axis of the nerve trunk. This can be obtained only by dissection of the head and neck as well as by injecting the nerve trunks in cadavers with colored solutions in this way becoming familiar with the bony landmarks and approximate depth of foramina rotundum and ovale. After one has become acquainted with the landmarks, it is important if possible, to see injections performed by someone who has had experience with the procedure and likewise, do injection on patients under supervision. A most important faculty to develop is that of being able to visualize deep structures in three dimensions.

For the actual injection, a small instrument bag is all that is necessary. This consists of a five cubic centimeter Luer-Lok syringe, two No. 22 gauge needles three inches long, a centimeter,

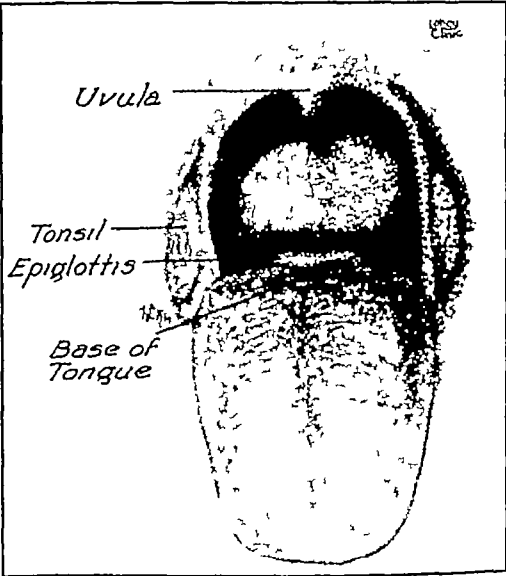


FIGURE 4

measure, a hemostat, a prepared solution of eighty per cent alcohol containing one per cent novocaine and a little bone wax to use as a marker on the needle. For all injections, the patient is asked to lie flat on the back on a table of sufficient height where the operator can be in an easy position. For a deep injection of the second and third division, the patient's head is turned well over to the opposite side and rests on a sandbag about two to three inches in thickness. We find that one-fourth grain of morphine given an hour before the injection will give us a more cooperative patient.

It is not necessary for the operator to clean up or use rubber gloves in giving injections, a manner to which we have become accustomed. The preparatory routine is as follows:

The sterile injection set is opened and with the sterile hemostat contained in the set an appropriate needle is adjusted to the syringe. If an injection of the foramen rotundum or ovale is contemplated, a bit of bone wax is fixed

around the needle, one centimeter beyond the usual depth at which these structures are reached. Two cubic centimeters of the eighty per cent alcohol mixture is drawn into the syringe, after which the appropriate area on the patient's cheek is sterilized with seventy per cent alcohol. A small piece of gauze dampened with alcohol is placed over the area to be injected in order that landmarks may be palpated through this. The approaches which we use to the foramen ovale and foramen rotundum are essentially the same as those described by Hartell and Harris.

Third division injection For this procedure the bone wax marker should be placed on the needle at a distance of 5.5 cm. from the point thus giving 1 cm. leeway between the marker and the depth at which the nerve should be reached. The syringe with attached needle is taken in one hand while the index finger of the other palpates through the sterile gauze the highest point of the notch on the lower border of the zygomatic process. The patient is then instructed concerning the procedure by being told that there will first be a slight prick as the skin is pierced after which no great discomfort will be felt until the nerve is entered when there should be experienced a pain sharp in character, radiating down the lower jaw to the chin or to the front of the tongue. The patients are told particularly to let the operator know if pain radiates upward into the temple or backward toward the ear because when the radiation occurs in these directions, it means that the needle has impinged upon the meningeal artery, the eustachian tube or the auriculotemporal branch of the third division.

The sterile gauze is now removed from the cheek and the needle inserted just below the zygomatic notch at the point where a slight imprint will have been left by the palpating finger pressed upon the gauze. The needle is directed slightly upward and backward and at the depth of four and a half centimeters, the nerve trunk may be reached upon the first attempt. If pain radiates correctly, a drop or two of alcohol is injected. This causes a momentary severe pain over the course of the nerve, but it is followed immediately by numbness and cessation of pain. If the nerve is not reached at the usual depth our practice is to withdraw the needle a centimeter or two and then direct it somewhat forward so as to come down upon the external pterygoid plate. This is an essential landmark because the foramen ovale lies just posterior and slightly medial to it. With disorientation the needle is again withdrawn somewhat and directed a little backward until the nerve is entered as evidenced by a pain radiation. It may be necessary to repeat this process several times and also it must be remembered that there are slight variations in the depth at which the for-

men lies. In some individuals, it may be reached at slightly less than four and one-half centimeters and rarely at a depth as great as five centimeters from the skin.

When the nerve trunk has been entered and a few drops of alcohol injected, the patient's lower lip near the median line is tested for anesthesia. This should be done with a pin point and the patient's eyes should be closed. If a fair hit has been made, the sensory loss is almost immediate on this portion of the lip, lower gum and half of the anterior two-thirds of the tongue. Having determined this, we then inject about 1 cc. of alcohol very slowly after pushing the needle gently inward for a millimeter or two during the process, in order to be sure that the substance of the nerve is wholly injected. The needle is then withdrawn and pressure made over its point of entrance with sterile gauze in order to prevent oozing. The patient is now asked to open the mouth. If injection of the third division has been complete, the lower jaw will deviate distinctly toward the affected side.

One further point regarding the injection should be noted. At times when the needle is in the proper position and depth, there is no radiation of pain down the jaw, but severe pain is present at the tip of the needle. This happens in a fairly large percentage of cases. A drop of alcohol may then be injected and it usually brings on radiation of pain followed by numbness indicating that a fair hit has been made. The reason care should be taken in injecting only very small amounts slowly, is that at times the point of the needle enters the foramen ovale unwittingly. If the point happens to be in the subarachnoid space around the ganglion and alcohol is injected, severe reactions as well as permanent damage may be done. If on the other hand, only a drop has been injected and if the patient develops nystagmus, vomiting or other untoward symptoms the needle should be withdrawn. The resistance with which the alcohol enters is usually a reliable indicator as to whether the needle is in nerve tissue provided, of course, that the position and depth are proper as well as the definite radiation of pain. Should the patient complain of severe pain in the ear, as the injection is started, it may mean that the alcohol is entering the eustachian tube or has struck a small branch of the trigeminal which innervates the ear.

Second division injection The patient is prepared in the same manner as for the third division. The needle is pressed through the skin just beneath the anterior portion of the zygoma and anterior to the coronoid process. The needle passes medially at a forty degree angle anterior to the coronoid process and immediately posterior to the maxillary process. This is

the so-called "anterior approach" As it enters the pterygoteigomaxillary fissure which is a narrow opening about 5 cm wide, it usually strikes the external pterygoid plate behind the posterior border of the maxilla in front. The nerve, as a rule, is reached at 5½ cm depending, of course, on the width of the face of the patient. It is important that one should not go deeper than six centimeters at any time because of possible injury to important structures, especially the optic nerve. If the external pterygoid plate is struck, it can be used as a valuable landmark, the foramen rotundum lying anterior and 75 to 1 cm deeper. If the posterior portion of the maxilla is reached before entering the pterygomaxillary fissure, it will also serve as a guide keeping in mind that the fissure in which the nerve lies is founded by the maxilla anteriorly and the external pterygoid plate posteriorly. By gentle manipulation of the needle, the nerve will be reached if no unusual bony prominence makes it impossible. Throughout the procedure, one should have a mental picture of the deep structures. As soon as the needle enters the nerve tissue, a spray of pain will be felt along the course of the nerve. Here, again, only a few drops of alcohol are injected at a time. If complete anesthesia of the upper lip, ala of the nose, and roof of the mouth is obtained, one or two cubic centimeters more is then injected slowly. The most reliable place to test the anesthesia obtained is on the upper

lip and the ala of the nose while the patient has the eyes closed. There are no contraindications to alcohol injection with the exception of local infection in the skin or tissues through which the needle must pass.

CONCLUSIONS

The relief of pain during treatment for oral cancer is of prime consideration.

Our method of utilizing prolonged anesthesia, and the method of producing it by alcohol injection of the 2nd and 3rd divisions of the fifth nerve have been described.

In addition to relief of pain, this prolonged anesthesia is advantageous because

- 1 It allows the patient to wear the necessary protective shield more comfortably.
- 2 The mouth is easier to cleanse.
- 3 The loss of weight during treatment is negligible as the patients are able to eat well during the period of intense radon reaction.

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THE PSYCHOGENIC PROBLEM (ENDOCRINAL AND METABOLIC) IN CHRONIC ARTHRITIS*

BY H ARCHIBALD NISSEN, M D,[†] AND K A SPENCER[†]

IT is with interest that a medical internist addresses a group of psychopathologists. He brings to you for solution some of the clinical observations of the individual, the chronic arthritic. These observations have been checked repeatedly, and today are presented to you for consideration and opinion. Whether cause or effect, accident or coincidence, related or unrelated symptoms and signs of joint impairment without demonstrable infection, toxemia, etc., the single constant is disturbance of the psyche and homeostasis. What is the answer? The practice of medicine, especially "chronic" medicine, emphasizes the well-known fact that no one specialist can succeed without the other. Today this is particularly true of the internist and the psychopathologist, or psychiatrist. Both practitioners realize the importance of the psychogenic and endocrinal (metabolic) factors in

chronic disease. The internist, however, in dealing with the psychical, feels he is leaving the realm of pure science and entering that of theory and belief, whereas the psychopathologist, by successful application of therapy along psychological and endocrinal lines, knows he has changed surmise and theory into fact. Years of study of the clinical course of a group of patients with chronic disease, especially that called arthritis, brings one to the conclusion that the psychical affects the clinical picture to a great extent. The internist recognizes this fact but can go only a limited distance in treatment before he realizes that one better equipped than he is needed. In short, if the chronic disease patient is to be treated adequately, a close relationship between internist and psychopathologist must be established and maintained.

The term *arthritis* is applied loosely to any and every complaint referable to a joint*. Actually about thirty-five per cent of patients with so-called arthritis, seen in practice, will prove

*Read by invitation before the American Psychopathological Association May 18 1935 in Washington D C

[†]Nissen H Archibald—Member of the Staff and Visiting Physician New England Deaconess Hospital. Spencer K A—Medical Research Statistician. For records and addresses of authors see This Week's Issue page 596.

*Naturally acute traumatic or septic surgical joints are excepted.

to be suffering from that disease. Of this thirty-five per cent a certain number will be found to have a specific arthritis,—gonorrheal, luetic or tuberculous. The remainder, possibly twenty-five per cent of the original number will be genuine arthritides of unknown etiology. (In a recent study¹ the authors found that sixty-eight per cent of a group of five hundred arthritides were in fact patients with degenerative or tissue changes, and only thirty-two per cent had arthritis, i.e., actual joint destruction. The destruction may be partial or complete but a certain amount is definite. Tissue changes, contraction or atrophy of muscles, may cause deformity, but arthritis is not necessarily present.) This genuine arthritis has been classified variously as "rheumatoid", "Type I", "infectious", "atrophic", or "arthritis deformans". To some, including the authors, it is simply arthritis of unknown etiology. To others its etiology is definitely considered as streptococcal in origin. One of the most reasonable exponents of this belief is Hindley Smith.² He considers joint involvement of this type merely one symptom of a definite disease which he calls "chronic streptococcal toxæmia". His description of this condition resembles Coburn's³ "rheumatic state". Keefer⁴ on the other hand does not agree that the theory of focal infection as the etiologic agent in arthritis has been proved. In any case whatever the etiology of this non-specific arthritis, its sufferers are the patients for whom the physician can do the least in the way of arresting the disease or improving the general condition. They are the individuals, many of whom following a Life Course C⁵ become and remain crippled in varying degrees. They present a tremendous medical, social and economic problem in practically every civilized country.

In the accepted classifications of arthritis gout is the only type listed as a "metabolic joint disorder". (There are those who consider the degenerative changes occurring in women at the climacteric as being also metabolic in origin.) Many facts suggest that this nonspecific arthritis is another metabolic (endocrine) disturbance. Cannon⁶ has proved the effect of emotional states on the homeostasis, and eventually on the physiology, of the body. He applies the term "homeostasis" to the normal correlation and functioning of the different body systems, and demonstrates the effect on them of uncontrolled emotion, particularly of rage and fear on the endocrinal glands. These same emotions, and in man their intermediates strain, grief, etc., thus disturb the mechanism regulating the distribution of sugar, calcium and other mineral constituents, fluid retention and excretion, blood circulation and the autonomic nervous system. Obviously prolonged disturbance of any one of these is likely to produce physiological change.

As early as 1919 Jelliffe and White⁷ discussed "bone disorders due to disturbances of nervous functioning". They attributed to "certain hypothyroidisms" the development of a rheumatoid arthritis possibly by reduced capacity of the individual to react normally to minimal subinfections.⁸ They concluded their observations as follows: "Psychogenic arthropathies and arthritides are as yet not definitely established. There is some evidence from the psychoanalytic school to show that unconscious complex reactions may show themselves as bony syndromes. The classical relationship between excessive anger and gout is a case in point. Unconscious sadistic states produce transitory and even chronic arthritic changes." In the sixth edition of their work⁹ the same observations are amplified. One reads "The psychogenic discipline is also commencing to show that purely emotional reactions extend deep down in the individual's metabolic processes and must be evaluated in the study of chronic arthritic processes." "It is here considered absolutely imperative that such factors" (psychogenic) be evaluated in the study of some of the arthritides."

Richardson¹⁰, Stokes¹¹ and others have observed psychopathy in its relation to physiological changes and organic disease. The authors believe that psychogenic factors play an important etiologic role in the production and maintenance of the nonspecific arthritic syndrome, though a review of the literature on arthritis will not show this to be a general opinion. Ravers¹² suggests it. Many writers include psychotherapy in the régime of reeducating a crippled patient. Some men cite worry, strain, etc., as contributory factors, but as a rule do not stress their importance. The psyche must be recognized also as a causative or activating factor in joint disturbances other than arthritis,—that is in those confined to capsule and soft tissue, or degenerative joint changes.

The actual association between psychical and physiopathological is as difficult to prove as that of the much debated focal infection and systemic involvement.¹³ However, in spite of the incompleteness of most clinical case histories, and the paucity of detail, it is interesting to note how frequently a story of emotional stress precedes, or coincides with the onset of physiological dysfunction in the chronic disease patient. A follow-up study of a large group of patients will emphasize this point. In a yearly check-up repeated conversations with the same patient will elicit facts in the emotional life previously undisclosed. No first examination reveals the inner stress which may have been present in the early years of illness. (A relatively short hospital stay, without subsequent yearly follow-up, is of course responsible for the dearth of personal information in the usual hospital record.) In the authors' group of five

hundred arthritic patients, analyzed according to the functional life course each followed¹⁵, eight per cent of Courses A and D ("A" comprised of the best tissue and "D" of the worst), twenty-six per cent of Course B, and thirty-eight per cent of Course C gave a history of recognized psychical disturbance. In other words, twenty-two per cent of the five hundred could be classed definitely as having had sufficient emotional strain preceding the arthritic onset to warrant its being considered an etiologic agent (It is believed that given proper opportunity a similar story would have obtained from many others). In a previous article, one of the authors suggested the similarity between the schizophrenic and the arthritic¹³. Hoskins¹⁴ list of etiologic factors, potentially important in the schizophrenic, applies equally to the arthritic.

Emotional conflicts

Withdrawal of interest in environment and transfer to phantasy life

Bad mental and physical habits

Industrial and social maladjustment

Structural defects of body

Defective brain metabolism

Abnormal endocrine function

Autonomic nervous dysfunction

Cardiovascular insufficiency

Defective gastrointestinal functions

Liver dysfunctions

Abnormal mineral metabolism

Disturbed acid-base equilibrium

Vitamin deficiency

Infectious and surgical disease

Other metabolic disease

The chief point of *difference* between the two appears to lie in the outlet chosen for the emotional disturbance. The schizophrenic finds his escape from reality through fantasy or dream life, the arthritic through the somatic or physical. In a recent visit to a state hospital for mental diseases not a single arthritic was found among 2200 patients, while in the group of 500 arthritics analyzed only three were diagnosed as having mental disease. The arthritis in these cases was of gonorrheal origin and had left no great residual handicap.

The one hundred and thirteen patients out of the entire group of five hundred with recognized psychical disturbance showed forty-three per cent with nonspecific arthritis, seven per cent with specific arthritis (gonorrheal), twenty-four per cent with tissue changes, causing deformity in some, but without actual arthritis and twenty-three per cent with degenerative changes. Three per cent followed Life Course A (a course in which the patient returns to practically normal activity after recovery from the initial joint disturbance), fifty-two per cent Course B (the patient in this course shows remission and relapse of joint symptoms with no

marked disability until the terminal years of life) thirty-eight per cent Course C (the patient in this group shows a drop to a markedly subnormal level of functional activity in from one to seven years and remains at the low level the rest of life), and three per cent Course D (a steady, downhill progression without remission). Another unanswered question is why certain emotionally unstable individuals, if seeking escape from reality, followed Courses A and B, achieving only temporary release, while others followed Course C, securing permanent escape. Was the strain less severe, or the tissue inheritance and acquired intelligence better in the A's and B's than in the C's? The internist can only question, the psychopathologist may go farther and learn the truth.

In all the cases it seems reasonable to believe that the psychical maladjustment preceded the evidences of physiological dysfunction. In some instances the psychical element was alone sufficient to cause a slow, gradual metabolic change, eventually resulting in actual joint or tissue damage, in others, it caused the same metabolic change which was aggravated by individual receptivity (allergic sensitization) to infection, and in others or perhaps in all, there was the additional factor of poor tissue inheritance, tissue unable to cope with infection, or an inherited mental and emotional make-up too unstable to adjust itself to life's demands. In short, two factors stand out as vital in the etiology of certain arthritides, the mental or psychical reaction and the inherited body tissue. (Possibly both must be considered as inherited tissue if an individual inherits psychical as well as physical components. The psyche appears to be the necessary catalyst to maintain equilibrium between the physiological and functional activity of the body, but if these two activities are out of balance, the psyche is unable of itself to change the imbalance.) Nutrition during the first five years of life, and environmental influences, also play important parts.

REVIEW OF CASES WITH RECOGNIZED PSYCHICAL AND ENDOCRINAL DISTURBANCES

(Twenty-two per cent of the 500 studied)

Observation of psychical and metabolic disturbances do not lend themselves to the usual statistical tabulations, but a few figures are of interest. One hundred and thirteen patients out of the group of five hundred were known to have shown definite endocrinal and psychical disturbances with associated joint reactions, consisting of pain, congestion or swelling. As a rule no acute inflammatory joint symptoms or signs were present. In a few cases they were evident, but accompanying them were other toxic factors. Sixteen per cent of the group were male and eighty-four per cent were female. In the male group, joint disturbances followed marital upheavals, sudden violent shock, or re-

trament from a long period of strenuous business life (removal of motivation for living without substitution) In the young women definite endocrinal disturbances were manifested by menstrual irregularities (fourteen per cent of the women in the group), definite association between menstruation and increased joint pain or congestion (seven per cent of the group) improvement in joint symptoms during pregnancy with relapse following delivery, etc. Twenty two per cent of the ninety five women in this particular group developed arthritic symptoms or had a flare up of former joint disturbance during menopause. In still older women whose arthritis began years after the menopause many showed a combination of cumulative infection and exposure, plus a sudden cessation of a former motivation for living a motivation which had carried them through the previous years of tremendous mental and physical strain.

Fifty-eight individuals (fifty one per cent of the group) had a history of years of maladjustment, of emotional and mental strain of early implanted fear or of shock preceding the onset of arthritis. (Of these, eight carried an additional load of infection.) Six were men fifty two women.

Fifty two patients (four men and forty-eight women) were of an emotionally unstable type. They had shown hysteria, mild phobias, nervous breakdowns and general instability under stress.

In forty six patients (five men and forty-one women) there was recognized exacerbation of joint symptoms with emotional crises.

Three men and fourteen women showed marked weight fluctuations, eight men and twenty four women showed tissue changes manifested by muscle congestion, contractures or atrophy.

Nine patients (three men and six women) improved with modified psychotherapy after other forms of treatment had failed. (This form of treatment had been tried in very few cases.)

In the "C" group, infection was marked in nine cases. These individuals dropped to their low level of functional activity rapidly, while the others, who showed no evidence of any infectious element reached their low level gradually and more slowly. Also the duration of life after the arthritic onset was shorter when the extra load of infection was present. In other words, where the physical changes developed gradually over a period of years no infectious factor appeared to have been added to the accumulated psychological disturbance. The addition of infection and other extraneous elements to psychical imbalance, whether long drawn out or cataclysmic, produced an explosive physical response with a rapid production of joint and tissue damage and disability.

One or two illustrative cases will suffice.

A girl of unstable temperament at the age of fifteen was in a railroad accident. She developed

a "railroad spine" which eventually cleared up. Afterward minor accidents produced transient paralyzes. She attempted to be a trained vocalist, found it too exacting and too difficult a career to pursue. She was unsuccessful in love. At the age of twenty-seven following a street car accident in which she suffered no bodily injury she developed gradually arthritic symptoms in all her joints. The joints were swollen and painful but not acutely red or inflamed. She was seen first five years after the onset. At the age of forty-two a condition of complete helplessness was present, fifteen years after the onset. At this time she presented a picture of infection (nasopharyngeal) plus a distorted motivation for living. She apparently obtained definite satisfaction in playing the rôle of a suffering martyr. She will talk about herself for hours as she lies in bed practically immobilized because of ankylosed and destroyed joints. A mother and sister are in constant attendance having been for years deprived of any normal life or activity which did not center about the patient.

Another patient, female, had been subjected to emotional strain from childhood. Her father deserted the family when the patient was five. The mother and children were deported from the United States back to Poland where they remained for the next five years, then returned to America. At sixteen the patient went to work in a factory (under poor hygienic conditions). At eighteen fleeting joint pains were noted. At twenty she was married to a man whom after marriage she discovered to be a manic depressive out on parole from a state hospital. Tremendous emotional strain followed. There was an arthritic flare-up after pregnancy a second after the next pregnancy a third after the death of the second child. The husband was in and out of asylums each parole ending in violence at home. The patient's joint exacerbations coincided with the periods her husband spent at home. She showed marked weight loss. Eight years after the onset she had become entirely helpless ankylosis was present in every joint except a few fingers. There had never been acute inflammation of joints.

A third woman had been subject to recurrent severe infections all her life. Menstrual flow was always scanty. She was an only daughter. There were strong family ties. Shortly after her marriage both parents became chronic invalids due to cardiovascular disease, one with resultant motor disturbances and the other with cerebral changes. They and two brothers came to live with the patient, her husband and their one child a daughter. For the next twelve years the patient's home life was marred by emotional conflict and physical strain. Her susceptibility to infection and endocrinal dysfunction continued to be evident. Arthritic onset occurred at forty-five, menopause four years later. With the latter there was an exacerbation of joint symptoms. Following the death of the parents and lessening of emotional strain there was a definite subsidence of the arthritic manifestations. A year or more later relapse followed a new strain.

The patient's daughter was sixteen at this time. The patient attempted to reproduce her own experience, to dominate her daughter as she had been dominated. She capitalized her disability. Five years later with the rebellion of the daughter who left home secretly to be married the patient lapsed into a state of complete helplessness. Rapid deterioration followed. During her arthritic life there were recurrent periods of marked weight loss and gain.

During their various hospital admissions these patients were studied exhaustively by x-ray by laboratory tests, and by consultation with otolaryngo-

logical, genitourinary, and gastro intestinal specialists. Only the nervous system remained unexplored. Only the individual personality, the psyche, was ignored. Only the man trained in psychopathology was unconsulted. The patients responded to no treatment which was tried. The only known form of treatment not attempted was psychotherapy.

PROGNOSIS

Five years or more must elapse after the onset of arthritis before one can make an accurate prognosis. During this time the patient is of course treated along accepted lines. Specific treatment, if indicated, rest, analgesics, supportive, dietetic and physiotherapy are carried on as well as orthopedic measures directed in prevention of deformity. To date, however, intelligent study and treatment of the individual personality has been inadequate. The potential arthritic, or the one seen first in the early stages of the disease, needs this just as definitely as he needs bed rest, diet or vaccines. The psyche calls for the care of a specialist as urgently as do the sinuses, the gastrointestinal or the genitourinary tracts. After the general practitioner has recognized his potential psychotic or arthritic, he must turn for help to the psychopathologist in order to reeducate and readjust the maladjusted psyche before physiologic or pathologic changes develop, before the combined problem of psychical and physiological disturbance becomes established. Too often psychotherapy is relegated to a place of minor importance in the routine treatment of an arthritic patient or is used only as a means of reconciling an established cripple to his life of inactivity. If this individual has consciously or unconsciously, reached his state of protected dependence purposefully, the application of psychotherapy at this point is too late. On the other hand, if this form of treatment is skillfully used in the pre-arthritic or early stages of the disease a future generation may see a marked decrease in the number of handicapped, or helpless, arthritics.

This paper contains a plea for help,—help that must come from other than the present avenues of research. It presents clinical observations plus personal follow-up for years of a group of patients with joint complaints, among whom are a certain number with real arthritis. These are not analyzable by the usual resources open to the practitioner of internal medicine. The psychogenic recognition calls for psychopathological help, and from this combination there may emerge,—first, a proved etiologic agent, and secondly, a practical therapy.

CONCLUSIONS

- 1 A certain number of genuine arthritics, in whom no reasonable, proved cause for arthritis can be found, is present in every group of so-called arthritics.

- 2 Among this nonspecific group will be evident numerous individuals in whom psychogenic and endocrinal disturbance has been dominant before and during the early stages of arthritis. This suggests that the etiology of this syndrome should be looked for in the psychical realm. Definite contributing factors are tissue and psychical inheritance, the first five years of life (nutrition and environment), exposure and infection, exogenous and endogenous. The psychical disturbances found in the group of patients studied were in some instances culminating affairs, or in others, long drawn out, constantly irritating emotional disturbances, which finally reached a point sufficient to disturb the body homeostasis. The individual involved obviously had no conscious recognition of the inside changes in physiology via the autonomic nervous system or endocrinal metabolic imbalance until the joints appeared as definite somatic evidence of such impaired function. Endocrinal disturbance in many was manifested by association between joint reaction and menstrual irregularities or menopause, by tremendous weight variations, by vasomotor changes, etc.
- 3 Endocrinal and metabolic physiology, plus the inherited psyche, represents an individual's birthright. If the birthright is sound, and the first years of nutrition are satisfactory, the individual will go through life in a philosophical manner without undue wear and tear on the psyche, or joint manifestations. However, if the individual inherits an unstable psyche and has poor nutrition during early life, with or without the addition of infection, he may be able to live and die without actual psychical or somatic disturbance, provided he finds a protected niche in life and escapes emotional and social strain. If, on the other hand, that individual has repeated rebuffs, suffers sudden or prolonged emotional strain, he may well be precipitated into schizophrenia or into an arthritic syndrome.
- 4 A striking similarity has been noted between a group of schizophrenic and arthritic patients. To date, genuine arthritis and schizophrenia have not been found present in the same patient. The objective of each is to escape reality. The schizophrenic achieves this by the mechanism of fantasy or dream state in its variations, the arthritic by somatic or physical pathways through functional disability.
- 5 These observations are based on a clinical follow-up of a group of arthritic patients over a period from four to eighteen years. There has been no jumping to conclusions. At the end of five years after the appearance

of joint symptoms a fairly accurate estimate of the future clinical course of the patient can be made

- 6 The internist can institute and carry on the physical treatment indicated, and can recognize the potential psychotic disturbance. He is limited in his application of psychotherapy however. A closer relationship between the psychopathologist and the general practitioner is urged as a means of solving the arthritic problem and so lessening the economic and social waste caused by it

COMMENT

This paper was arranged primarily to present to a group of trained psychopathologists a problem of internal medicine, in which the internist realized his limitation in the treatment of rheumatism, or chronic joint disturbances. To any man in practice, specialist or general practitioner, similar observations of marked changes in motivation of living and emotional reaction in many patients must be apparent. To date the authors have yet to interview any man interested in rheumatism and allied rheumatic conditions, who did not admit to a certain percentage of failures, patients who had progressed steadily to complete destruction of all joints in spite of every effort. This paper offers a therapeutic aid to the man who will give sufficient attention to the psychical aspects of the chronic arthritis, particularly in the early stages. It is a measure which has been neglected. One of the most recent publications on arthritis¹⁵ does not contain in its index the words psyche, psychiatry or psychogenic. The physician who wishes to utilize psychotherapy has two alternatives, first, to apply it himself or secondly to

call in a consultant. The first means he must know enough of the function of the thalamus and hypothalamus, the endocrines, body metabolism and psychogenic manifestations, to apply this knowledge in his practice. If he does not not know, he must learn. The second alternative is to recognize his emotionally unstable patient (his potential arthritic) and to call in consultation, and work with, a psychiatrist if one is available. He must select, however, a man broad minded enough to be interested in applying his specialty (psychopathology) and *no more* to one group of patients (arthritis in this instance) over a period of years.

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AN UNUSUAL FRACTURE OF THE LOWER END OF THE RADIUS

(Atypical Colles's)

BY DUNLAP P. PENTHALLOW, M.D.*

THE following case is reported as showing what is believed to be a rather unusual type of fracture of the lower end of the radius. This fracture on first inspection appeared to be a typical Colles's fracture but on closer inspection several dissimilarities, which will be explained more fully in the description, were noted. The nearest approach to this fracture which I have been able to find is one described in Scudder's Fractures, figs 714-715. That fracture is described as a T fracture of the lower end of the radius, in which there is no lateral displacement of the radial styloid although there is backward displacement of the lower frag-

ment. In the fracture about to be described there are several differences.

CASE: J. F. aged thirty-four white engineer. Patient states that while cranking an automobile engine, the engine backfired and the starter handle struck his right wrist causing immediate pain and disability. He was seen shortly after the accident and on first inspection appeared to have a typical Colles's fracture. There was the characteristic "silver fork" deformity and broadening of the wrist. On more careful inspection and on examination certain essential differences were noted. The radial styloid instead of being on a level with or proximal to the level of the ulnar styloid was considerably distal and in fact was distal to the normal level as compared with the left wrist. The hand instead of presenting radial deviation was in ulnar deviation. The lower fragment of the radius was displaced backwards as in a Colles's fracture and

Penthallow, Dunlap—F. (Senior Clinical Orthopedics, Georgetown Univ. School of Medicine. For record and address of author see "This Week's Issue" page 536.

crepitus and abnormal mobility were present. Circulation of the hand and fingers was good and there was no apparent nerve involvement.

An x-ray which was taken at that time showed a fracture line extending through the lower end of the radius with the lower fragment displaced back-

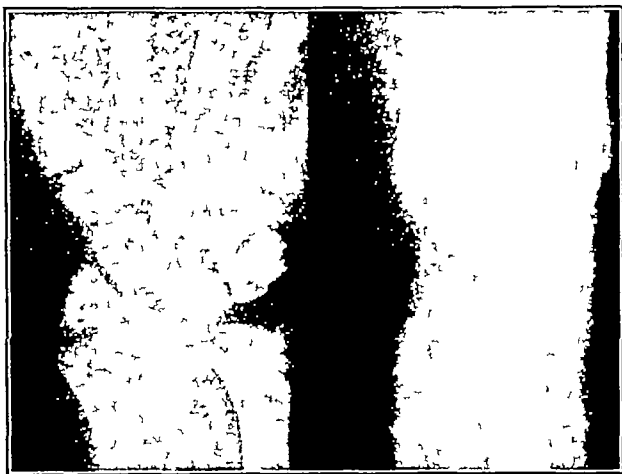


FIG 1 Showing displacement downward of the radial styloid and impaction of the mesial border. Backward displacement of the lower fragment is also shown.

wards. The lower fragment of the radius, however, instead of being impacted on the outer surface was pulled distally and separated, thus causing the radial styloid to be distal to its normal level. On the mesial edge there was impaction. As a result of this impaction on the mesial border together with

the separation of the fragment on the outer border, the hand and wrist were in a position of ulnar deviation (Fig 1).

Under gas anesthesia the fracture was reduced, the procedure in general being the same as for a Colles's fracture. There was one essential difference, however, since the fracture, after reduction,



FIG 2 Fracture after reduction showing complete anatomical reposition of the fragments.

was immobilized in a plaster cast with the hand in palmar flexion and in radial deviation.

Following the reduction another x-ray was taken which showed good reduction of the fracture and with the fragments in good position (Fig 2).

Convalescence was uneventful and there was a complete restoration of function.

A PROPOSAL FOR A CLINICO-PATHOLOGICAL CONFERENCE*

BY RAYMOND H. GOODALE, M.D.†

THE program of a hospital staff meeting should include something more than the routine reports of deaths. Attendance may be stimulated if some program is outlined from which staff members derive some benefit. To this end we have developed a modified clinico-pathological conference for a part of the program.

In the Massachusetts General Hospital clinico-pathological conference a staff member reviews a case and discusses the differential diagnosis. Usually he is not aware of the autopsy findings which are presented after he gives his clinical diagnosis. In hospitals which are not associated with medical schools, it is difficult to find staff members who are willing to lead a clinico-pathological conference in this manner. In the

Worcester City Hospital all of the current service men learn the autopsy findings of a case before the next staff meeting.

In order to teach the staff to correlate clinical and autopsy findings the author has adopted the following plan which has been successful. A committee reviews the deaths and selects four cases for discussion. Usually these are the autopsied cases. One or two of these are selected for detailed correlation of clinical and autopsy findings. At the staff meeting the staff member or interne concerned presents the pertinent clinical and laboratory data, and gives the diagnosis as it was made before the autopsy. The pathologist then gives each member a mimeographed copy of the correlated clinical and autopsy findings. He then reads the correlated data and adds comments. Next the illustrative gross organs are shown, and any microscopic material is demonstrated.

Following is an example showing the set-up used

*From the Pathology Department, Worcester City Hospital, Worcester, Mass.

†Goodale, Raymond H.—Pathologist, City Hospital, Worcester. For record and address of author see This Week's Issue, page 596.

WORCESTER CITY HOSPITAL MEDICAL STAFF MEETING

Myelogenous Leukemia

Case of R. B., male aged fifty-six. Hosp No 233504 A145-35

Temp 99 to 102.5 Pulse 100 to 135 Resp *8

Height = 67 inches Weight = 175 lbs Blood pressure 100/60

AUTOPSY FINDINGS

Mouth

Gums swollen and red ulcerated only at place where teeth were extracted

Pericardial cavity

40 cc. of bloody fluid fibrinous pericarditis

Heart

Weight 530 Gm (normal 300 to 360 Gm)
The muscle is pale and flabby

Pleural cavities

100 cc of straw-colored fluid in each cavity

Lungs

Frothy bloody fluid in both lower lobes. No pneumonia

Spleen

Weight 680 Gm (normal 150 to 200 Gm)
Fairly soft infarcts

Liver

Weight 2550 Gm (normal about 1500 Gm)
Smooth and firm

Kidneys

Weight 680 Gm (normal 270 to 360 Gm)
Soft, pale, symmetrically enlarged petechial hemorrhage in cortices and pyramids orange gravel like material in calyces

Bone marrow

Megakaryocytes diminished Filled with myelocytes and myeloblasts crowding out erythroblastic tissue.

CLINICAL FINDINGS

Gums swollen and red ulcerated only at place where teeth were extracted

Heart sounds distant.

No murmurs or enlargement. Heart sounds distant auricular flutter and fibrillation

Slight dullness at both bases

Slight dullness with crepitant and subcrepitant rales at bases

Palpable one finger below costal margin no tenderness

Not palpable

Trace of albumen many hyaline casts

Blood smear—platelets decreased 81 per cent myelocytes 3 per cent myeloblasts Red count 1960 000 White count 120 000 to 48 000 Peroxidase stain 87 per cent granulocytic series 13 per cent lymphocytic series

Incidental findings

Small right hydrocele. Moderate arteriosclerosis of aorta

Since the introduction of this system of correlation a year ago we have noted that the internes are stimulated to have the records more thoroughly prepared. Everyone who at

tends the meetings including the pathologist, is learning the art of correlating the findings at the bedside with the autopsy material.

PREGNANCY IN BICORNATE UTERUS

A Case Report

BY M. W. PEARSON, M.D.,* AND HARLAN W. ANGLIER, M.D.*

IN November 1933 a young woman Mrs. S. came to my office with the following history and symptoms:

She had skipped two menstrual periods and believed that she was pregnant. For the past two

or three days she had experienced some pain and discomfort in the pelvis with a bloody vaginal discharge.

She was a healthy well-developed woman twenty-one years of age no previous pregnancies. On pelvic examination the uterus was found enlarged to about the usual size for three months gestation in good position with a somewhat elongated cervix.

*Pearson, M. W.—Chief of Staff, Mary Ledge Hospital, Ware, Mass.
*Anglier, H. W.—Visiting Surgeon, Mary Ledge Hospital, Ware, Mass.
For records and addresses of authors see "This Week's Issue," page 536.

and no dilatation of the os After rest in bed for two or three days the pains and vaginal discharge subsided

Once or twice during the winter she had a recurrence of the same symptoms which subsided as before after rest in bed.

She lives in a neighboring town and it was only by telephone that I was in communication with her until April, 1934, when she had a more severe attack and came to the Hospital by my advice for observation In bed in the hospital no more pain or flowing occurred. The fundus of the uterus was then at about the level of the umbilicus, the cervix was still unusually long with no dilatation of the os At this time no fetal movements were made out and no fetal heart sounds heard.

We could arrive at no entirely satisfactory explanation for her history and symptoms thus far, but she was comfortable and there seemed no indication for any active interference, so she was allowed to go home

There were no further developments until June 13 about the time of her expected labor, nine months from her last regular menstrual period At this time there was recurrence of pain so she came to the hospital It was then evident that there had been no further enlargement of the abdomen since the last examination in April, and x-ray showed the outline of a fetal skeleton at about five months, in the left position, head presentation The pains soon subsided and the patient was again sent home to await developments The best we could do for a diagnosis at that time was probable fibroid with pregnancy

There was no further enlargement during the summer and she remained in the best of health, but became tired of carrying her unsightly abdominal tumor and desired to have it removed if possible Accordingly abdominal section was decided upon which was performed October 9, 1934 by Dr Harlan W Angier of Ware

Following is Dr Angier's account of the operation

A low, left paramedial incision was made On opening the peritoneum, a firm, grayish yellow mass

was exposed This was about the consistency of a fibroid, and nothing was felt which might identify it as a fetus The omentum and transverse colon were attached on the anterior surface, the cecum was adherent to the right posterior surface over an area about five centimeters in diameter, the jejunum was attached posteriorly and drawn very tight so that the impression, on passing the hand behind, was of a broad band running to the duodenum, the bladder was distorted by adhesions to the lower aspect

The omentum, intestines and bladder were separated with difficulty but little bleeding The left tube, round ligament and a short distance down the broad ligament were cut The mass was then clamped off below and removed A double layer of sutures closed the opening in the side of the uterus just above the internal os The remaining uterine tissue was about the size and shape of a normal uterus The wound was closed in layers

Examination of the mass showed a contracted, dehydrated, and degenerated uterine wall varying in thickness from 0.3 cm to 1 cm, the thickest portion being at the placenta which was 1 cm in thickness and attached through its entirety

The fetus, a male, was dehydrated and quite mummified There was no sign of decomposition Its length was 28 cm Anteroposterior diameter of the head was 9 cm All parts in apparent proportion and no evidence of deformities

Convalescence from the operation was without complications of any kind She was discharged from the Hospital on the twelfth day entirely well, and still very desirous of having a living child if possible

She menstruated normally November 10, one month from the operation, and again in December and January but not after and it became evident that she was again pregnant Gestation proceeded this time in an entirely normal manner up to full term and she was delivered October 13, 1935 of a perfectly developed 9 lb boy

The labor was without serious complications of average duration and severity for the occiput right posterior position

NO INFERIORITY FOUND IN BRAINS OF WOMEN

By The Associated Press

MOSCOW, March 10 — V P Ospoff, director of the Bekteroff Institute for the study of brains, reported tonight that there is no scientific basis for the theory that women's brains are inferior structurally to men's

The report was based on a study of 500 human brains carried on by the institute over several years

The investigations proved it is impossible to determine from its structure whether a brain belongs to a man or woman, Dr Ospoff said

He denounced the theory disproved by the study as a 'convenient argument used in some countries

to enable the strong to exploit the weak"—*New York Times*, March 11

DEALERS IN ALCOHOLIC CANDY AND PATENT MEDICINE FIND OPPOSITION IN FEDERAL LAW

Sale of alcoholic candies, which flared up in a shortlived revival following repeal, has been punished in two more Federal jurisdictions, according to the Food and Drug Administration report.

Several manufacturers and shippers of patent medicines have also been fined for having shipped products under labels carrying false statements of effectiveness, and false and fraudulent curative claims for the treatment of the conditions named.—*U S Department of Agriculture*

CASE RECORDS

of the

MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT M.D.

TRACY B MALLORY, M.D., Editor

CASE 22121

PRESENTATION OF CASE

First Admission A thirty four year old white American ice peddler was admitted complaining of painful swelling of the left hand

Eleven weeks before entry he developed vesicular eruption on his fingers accompanied by itching. Despite the application of several salves the lesions persisted and spread over the hands. Finally after the institution of intra venous therapy by a physician the eruption in the right hand improved somewhat. Two weeks before coming to the hospital there was an exacerbation of the eruption and many small vesicles became filled with pus. Four days later there appeared red streaks extending up the left forearm. The left hand became painful red, and swollen. A few days later the patient had malaise, chilly sensations, and some tenderness in the left axilla. The entire arm became quite painful

Physical examination showed a well developed and nourished young man. On the skin of both hands, wrists, fingers, and interdigital spaces there were scaly erythematous patches with minute vesicles and pustules. The left hand was more extensively involved and the forearm was slightly swollen, indurated, tender, and reddened to the elbow. The left epitrochlear and axillary nodes were enlarged, soft, and tender. The heart and lungs were negative. The blood pressure was 120/70. A moist scaly eruption was present between the toes.

The temperature, pulse and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 4,370,000 with a hemoglobin of 80 per cent. The white cell count was 11,000, 67 per cent polymorphonuclears. A Hinton test was negative.

The patient was treated with hot medicated soaks with subsequent gradual improvement. An area of tender induration appeared on the medial aspect of the left epitrochlear region but this subsided shortly afterward. He was discharged on the eighteenth day. His temperature had never risen above 99° throughout the hospital stay.

Second Admission, five days later

On the day after discharge the patient again developed a tender reddened, hard swelling in his left forearm. On the following day he complained of pain and tenderness in the muscles of his calves. Walking was so painful that he went to bed. The next day he had a rather severe headache and some chilly sensations. The pain in the leg muscles now extended to his hips. On the day before entry he complained of vague pain in all extremities and his back. A physician was called who found the patient's temperature to be 101°. Later he became nauseated and complained of a sensation of great weight in his chest.

Physical examination showed the patient to be slightly lethargic. The vesicular rash previously described was present on his hands and feet and there was slight edema of the hands. The skin of the left forearm was mottled, red, and there were several blotchy areas on the upper arm. The eyelids were edematous. The throat was slightly injected. There was tenderness elicited in all muscles of the back, extremities, and neck. Maximal tenderness was thought to be present along the nerve trunks and there was questionable thickening of the left ulnar nerve. The neck was slightly stiffened and motion was painful. A bilateral Kernig sign was elicited. The biceps jerks were present and equal. Knee jerks were sluggish and the ankle jerks were absent.

The temperature was 103° the pulse 100. The respirations were 24.

Examination of the urine showed a slight trace of albumin but was otherwise negative. The blood showed a white cell count of 23,000, 80 per cent polymorphonuclears, 6 lymphocytes, 3 monocytes, 9 myelocytes and 2 eosinophils. The stools were negative. A lumbar puncture showed an initial pressure of 90. There were 5 lymphocytes per cubic millimeter. An ammonium sulphate test showed a questionably positive reaction. The total protein was 52 milligrams per cent. The spinal fluid sugar was 73 milligrams per cent. A Wassermann test was negative. Blood cultures were repeatedly negative. Agglutination reactions for the typhoid-dysentery group were negative. A muscle biopsy was negative for trichiniasis and vascular disease. The phenolsulphonphthalein excretion was 95 per cent in two hours. The non protein nitrogen of the blood was 29. The chlorides were equivalent to 95 cubic centimeters N/10 sodium chloride. The serum protein was 5.7. An electrocardiogram was negative.

A ray examination of the chest was negative. The patient gradually improved generally and the temperature with daily oscillations, slowly returned to normal at the end of a week. He continued to complain of pain in the left arm where tenderness was found over the ulnar

nerve with hypesthesia over its cutaneous distribution. A week later the patient had no complaints but had occasional rises of temperature to 102°. The white blood cell count remained elevated between 15,000 and 20,000. Shortly afterward he developed pain and tenderness in the left arm, leg, and side of the abdomen. On the following day there was a flare-up of the skin eruptions over both arms. Thereafter he improved and complained only of some vague joint pain. Frequent exacerbations of the generalized aches and fever were usually associated with ingravescence of the skin eruption. At the end of five weeks the patient developed tender subcutaneous nodules about two millimeters in diameter on the calves of his legs. These were transient. Eleven days later the patient requested leave to go home, and he was discharged although there was no evidence of any improvement.

Final Admission, two weeks later

Shortly after discharge the patient had stabbing pain in the left arm and right leg. The distress was sufficiently severe to require morphin for relief. He had several chills and his temperature remained fairly constantly elevated.

Physical examination showed an emaciated, gaunt, drowsy man moaning with constant pain. There was marked tenderness over all the extremities and slight tenderness of the abdomen and costovertebral angles. There was moderate brawny edema of the left hand and both feet and ankles. The mucous membranes were dry. The heart and lungs were negative. There was no evidence of any active skin lesion. The previously described skin nodules had disappeared.

The temperature was 102°, the pulse 110. The respirations were 24.

Examination of the blood showed a white cell count of 33,000, 87 per cent polymorphonuclears, 11 lymphocytes, 1 mononuclear, and 1 eosinophil. The platelets were normal in appearance. The stools were negative. The blood cholesterol was 137 milligrams per cent. The uric acid was 2.03. Again repeated blood cultures showed no growth.

A flat x-ray film of the abdomen showed a few areas of calcification above the crest of the ilium which were believed to be calcified glands. The left lobe of the liver appeared to be slightly enlarged. The chest was negative. The extremities showed some fleck-like atrophy in the region of both wrists and bones of the feet.

A week after admission the patient improved somewhat although his temperature remained slightly elevated and the white blood count remained in the vicinity of 23,000. Four days later the patient had severe right upper quadrant pain which was aggravated by inspiration. There appeared dullness, râles and bronchial breathing at the right base. The blood pressure was 150/100 and a friction rub was heard

over the precordium. The temperature was 101°. X-ray examination showed slight enlargement of the heart and cloudy dullness in both lung fields, less at the periphery and in the apices. He was considered to be moribund, but four days later had improved markedly although he complained of some substernal oppression. Dullness was now found in the left lower chest in addition to persistent signs on the right. The respirations were 42 and a friction rub was still heard over the precordium. On the twenty-third day his face became quite cyanotic and the neck veins were markedly distended. The respirations were characterized by expiratory grunting. The chest signs were unchanged. Another x-ray showed change in the previous areas of dullness which were now practically confined to the upper lung fields. A well defined rounded area of density was present in the left upper lung and there was some fluid in the left pleural cavity. The heart and upper mediastinal shadows were slightly increased in size. A week later the left arm became blue, cold and edematous. A feeble radial pulse was felt on this side. The left external jugular vein was felt to be prominent, firm, and cord-like. There was marked pitting edema of the ankles. The heart sounds were weak. The temperature was 99°, the pulse 120. Three days later purpuric spots appeared in the skin of the chest and the arms. The left arm became somewhat warmer and there was diminution of its swelling. Corneal ulcers then appeared in both eyes and he began to sink rapidly. He died on the thirty-sixth hospital day, three months after his first entry.

DIFFERENTIAL DIAGNOSIS

DR WILLIAM D SMITH. I would like to know more about this man's occupation. I would like to know if he drove a horse, if he took care of the horse, or if the horse had a cold.

Eleven weeks before entry he developed a vesicular eruption on his fingers accompanied by itching. He might have had a dermatitis. He might have had a fungus infection. At least he had it for eleven weeks before he came into the hospital.

I do not believe the eruption improved on account of the intravenous therapy.

Of course he might have had a skin lesion and it might have become secondarily infected but when it says "many small vesicles became filled with pus" it makes one think that they were pustules from the beginning rather than lesions becoming infected from some extraneous source.

He had a lymphangitis, also a systemic reaction to his infection, whatever it was, and probably glandular enlargement in the axilla.

"On the skin of both hands, wrists, fingers, and interdigital spaces there were scaly ery-

thematous patches with minute vesicles and pustules" I am guessing that the skin lesions and the pustules were part of the disease

He apparently had athlete's foot. I have heard Dr Swartz say that while this type of fungus on the foot may cause a lymphangitis it does not ordinarily cause a systemic infection that is a fungus septicaemia. It still leaves it open as to whether this eruption on the hand was fungus or not.

Dr Oliver does the fungus eruption cause pustules ordinarily?

Dr. E. LAWRENCE OLIVER I think when there are pustules it is probably secondary in infection and staphylococcus. Vesicles as well as pustules make culture media

Dr. SMITH I cannot draw any conclusions from the blood examination. We cannot say that he had a leukocytosis, although the white count is a bit more than ten thousand

"An area of tender induration appeared on the medial aspect of the left epitrochlear region but this subsided shortly afterward" I cannot interpret that. Apparently it was not an epitrochlear gland but an indurated area in that region. If this were a pyogenic infection it would be extraordinary to have that amount of lymphangitis and that glandular involvement without some fever and increased white count.

The tenderness elicited in the muscles makes one think of periarteritis nodosa. The nerve tenderness and the thickening of the ulnar nerve make your mind jump to leprosy but it jumps back again very quickly

"The neck was slightly stiffened and motion was painful" He had meningeal irritation at least, if he did not have meningitis.

The white count in the second admission is just a bit high. The few myelocytes do not particularly interest me. He did not have eosinophilia, which does not rule out periarteritis nodosa or other diseases where we would expect an eosinophilia.

The spinal fluid sugar is just a shade high and suggests that he certainly did not have a pyogenic meningitis

The blood cultures were negative. That is interesting because if this were a pyogenic condition we would expect repeated blood cultures to show something. On the other hand, if this were a fungus infection or glanders we might have repeated cultures and quite likely not get a positive finding

"A muscle biopsy was negative for trichiniasis and vascular disease" I suppose there again they are thinking of periarteritis nodosa.

This illness has been characterized by marked remissions and exacerbations when he seemed to be pretty well and then pretty sick.

The left hand and arm seem to bear the brunt of the local reaction whatever it may be. I was hoping there would be a running nose so that we could discuss glanders.

The skin lesions in this exacerbation are gone and the previously described skin nodules are gone.

"Repeated blood cultures showed no growth" Again I think that makes it more doubtful if this were any of the ordinary pus-forming or gangrenas

"Four days later the patient had some right upper quadrant pain which was aggravated by inspiration" Was that pleurisy Dr King?

Dr. DONALD S. KING I think so

Dr. SMITH I think it might be from the subsequent story

"A friction rub was heard over the precordium." (The last case I discussed had a friction rub on paper but none at postmortem.)

We might think he had pericarditis, lung changes, and perhaps involvement of the mediastinal glands. He has pulmonary involvement certainly. What sort we do not know. My guess is that he has some venous thrombosis in his central vascular system or near it. I am still not willing to make a diagnosis of pneumonia. These changes jump from the lower lobes to the upper lobes in the most discouraging and distressing fashion.

The x ray description of that "well defined round area of density" again makes one feel that the lung changes are very likely metastatic and not terminal pneumonia and that the lung pathology is part of the original disease whatever that may be.

At first glance I thought he had an arterial obstruction of the left arm but he has no business having edema. The arm should not be edematous if he has arterial obstruction so I do not know whether it was arterial or venous. If it was arterial the arm should be white and not edematous, instead of that it was blue, edematous and cold.

He may have a thrombosis in the jugular vein.

Of course the easiest thing to say is that he had a dermatitis, secondary infection a lymphangitis, and a septicopyemia

Did he have glanders? With glanders we could have papules and pustules. We can have a chronic glanders that is difficult to diagnose. You may get with glanders, pneumonia and meningitis. Could these swellings be farcy buds that did not break down? In glanders you expect some to break down somewhere. Furthermore, if it was glanders we probably would have something in the story about the Strauss test and the malain test and the complement fixation test. Still I think glanders could cause this picture. Then having that we drop into the other queer things the mycoses. Of course,

more acute lesions since we have very carefully studied over fifty sections

At this point I suggest that we begin our differential diagnosis again. We are dealing with the chronic, perhaps with the healed stage of a diffuse arterial disease. It is not embolism because no source for emboli in the major arterial circuit was found and embolism of such a diffuse character would certainly have involved the spleen. In contrast to malignant hypertension the disease spares the arterioles. It differs from Buerger's thromboangitis obliterans in concentrating its effects upon the smaller arteries of the viscera rather than the larger vessels of the extremities. Syphilis must, I suppose, be mentioned though the evidence that it ever produces peripheral vascular disease is far from convincing and in this case the negative Hinton and Wassermann tests are adequate to exclude it. What have we left? A large group of vaguely defined disorders of the blood vessels and one other disease entity—periarteritis nodosa. Two attempts to make this diagnosis by biopsy were unsuccessful but that is not an uncommon experience when no subcutaneous nodules are present to guide one's scalpel. No characteristic lesions of the acute stage were demonstrated at autopsy. Periarteritis cases do, however, occasionally survive the acute stage to die considerably later of its consequences or of intercurrent disease. We have had one patient, proved to have periarteritis nodosa by biopsy at this hospital, who died at home nearly two years later. From Vienna one case has been reported where an autopsy was secured about four years after the acute stage of the disease. The vessels were characterized by healed milary aneurysms—exactly what one would expect from the nature of the acute lesions. In several vessels from this patient, particularly in the liver and kidney, healed aneurysmal dilatations of small arteries are present, certainly suggestive of the lesions that have been described. The involvement of the brachial artery and vein and the lesions in the small intrahepatic portal radicles are not well explained by this diagnosis but I must leave that question open.

A PHYSICIAN: How do you explain the paradox of chronic lesions in the vessels and acute parenchymal degeneration?

DR MALLORY: Of course we may have missed acute lesions in the vessels, but, as I said, this seems to me unlikely. I would make the following series of assumptions. During the acute stage of his disease many vessels were narrowed and some were completely occluded. He must in general have developed an adequate collateral, however, for only in the heart did we find any evidence of old parenchymal degeneration. In the last few days of life his heart weakened, his blood pressure probably dropped and circulation in focal areas dropped below the critical level.

DR JONES: Was there any evidence of peritonitis? I ask because for about a week he had intense abdominal pain and tenderness and it seemed as if he had peritonitis.

DR MALLORY: I should think that pain might possibly have come from the liver infarcts. It is at least possible.

DR JONES: He had on two occasions sharp pains in the left arm, if I remember correctly, and we wondered again if he had a nodule. Material was sent for biopsy, but the sections did not suggest this at all?

DR MALLORY: No they did not.

The muscle showed very marked atrophy with a great deal of fibrosis. There are nearly occluded arteries between the muscle fibers. The peripheral nerves were negative and the spinal cord was negative.

A PHYSICIAN: Have the skin lesions any relation to this disease at all?

DR MALLORY: My guess is no. How would you feel about it, Dr. Oliver? At the time of autopsy the skin lesions had disappeared.

DR OLIVER: I think secondary infection might have had something to do with it. A pus infection on top of the skin affection might lead to this condition.

DR SMITH: What about this repeated lymphangitis and cellulitis of the arm? Was that irrespective of the underlying disease?

DR MALLORY: I should imagine he had a skin infection and lymphangitis probably unconnected with the underlying disease.

A PHYSICIAN: Were any of these peculiar changes found in the coronary arteries?

DR MALLORY: There were changes in the smaller ones, especially in the left auricle beneath the thrombi, where patches of absorption of muscle cells were found.

A PHYSICIAN: Did the heart's blood show no growth?

DR MALLORY: We did innumerable blood cultures at various times and they were all negative.

CASE 22122

PRESENTATION OF CASE

A sixty year old white Canadian housewife was admitted complaining of pain in the abdomen.

The patient had been perfectly well until two months before entry at which time she had an attack of "gall stone colic" from which she recovered completely in a few days. Two weeks before coming to the hospital she had another similar attack, during which she developed a persistent pain in the back between the shoulder blades. At this time a physician reported the palpation of an enlarged, tender gallbladder which emptied suddenly following pressure, with relief of her pain. About a week later she began

to have severe pain in the midabdomen, and a mass about the size of a small grapefruit was felt in this region. Enemata produced no relief. On the following day she was unable to move either leg. The reflexes in the right leg were absent and those in the left were sluggish. From a level midway between the xiphoid and umbilicus downward, pain, heat, and cold perception were absent. Thereafter there was no change in her condition although the abdominal pain was intermittent.

Physical examination showed a markedly obese elderly woman in no acute discomfort. The skin of the arms was dry and scaly and there was an early decubitus ulcer in the sacral region. The heart sounds were regular but rather distant. P_2 was greater than A_2 . The blood pressure was 120/80. Rales were audible at both lung bases. There was marked tenderness over and to the right of the third, fourth, fifth and sixth dorsal vertebrae. The abdomen was protuberant and firm, and there was tenderness with deep pressure in the left lower quadrant. No evidence of ascites was elicited. There was pitting edema of both ankles. There was complete paralysis of the lower extremities with weak knee jerks. The right ankle jerk was present, but the left was absent. No Babinski was elicited. There was diminution of touch perception from the fifth dorsal spine down. Vibratory sense was absent in the ankles as was position sense in the toes.

The temperature was 100° , the pulse 120. The respirations were 20.

Examination of the urine showed a specific gravity of 1.002 to 1.008 in several specimens. There was a large trace of albumin and the sediment contained large numbers of white blood cells and on one occasion was loaded with erythrocytes. Casual urine specimens were negative for Bence-Jones protein but a twenty-four hour specimen was positive. The blood showed a red cell count of 4,900,000, with a hemoglobin of 90 per cent. The white cell count was 17,500. 90 per cent polymorphonuclears, 4 lymphocytes, 4 eosinophils, and 2 unclassified cells. The nonprotein nitrogen of the blood was 130 milligrams. An intramuscular phenolsulphonephthalein test showed less than 5 per cent excretion in 90 minutes. The serum protein was 11.4 grams per cent. A lumbar puncture between the third and fourth lumbar vertebrae gave an initial pressure of 110 and a final pressure of 0 after 8 cubic centimeters of clear, faintly yellow fluid was obtained. There were no respiratory oscillations observed and jugular pressure produced no change in the fluid pressure level. Examination of the spinal fluid showed 4 lymphocytes. The total protein was 560 milligrams per cent with a clot. Tests for globulin were positive. The sugar was 109 milligrams per cent and the Wassermann test was negative. X-ray examination of the chest showed the

heart to be enlarged downward and to the left. The aorta showed a marked degree of tortuosity. The lungs were clear. The skull exhibited multiple punched-out areas without any thinning of the cortex. The sixth dorsal vertebra was collapsed and the seventh was also said to be involved. Surrounding the fifth to the seventh dorsal vertebrae was a soft tissue mass which exhibited no calcification. The ribs were normal but the remainder of the skeleton showed slight decalcification.

Shortly after admission the patient developed a generalized blotchy, macular, dull red eruption, most intense over the abdomen. This persisted for about a week, at which time a vesicular like eruption occurred about the hips. On several occasions crystals appeared upon the patient's forehead and face. About two weeks after entry the nonprotein nitrogen had gradually diminished to 58 milligrams and the patient had some return of sensation in her extremities. X-ray therapy was instituted over her kidneys, hips, and back. During the third week the patient gradually became drowsy, markedly nauseated, and her nonprotein nitrogen rose to 117 milligrams per cent. Thereafter she became stuporous and developed twitching of her hands. Her decubitus ulcers spread and concomitantly her temperature, which had fluctuated between 99° and 101° , rose to 104° , and she died on the thirty-third hospital day.

DIFFERENTIAL DIAGNOSIS

DR WYMAN RICHARDSON. Time is getting short and I will try to make this discussion brief. It is much easier to arrive at a diagnosis having gone over the entire course of this patient's illness. The difficulties confronting the physician earlier in the course of the disease, however, can easily be appreciated. If we consider the essential and important features, only one diagnosis appears to fit the facts. These features are as follows. First, a tumor involving the dorsal spine and also apparently involving the skull, secondly a rather rapid failure of renal function, thirdly the presence of Bence-Jones protein in the urine, fourthly, a serum protein of 11.4 grams per cent. Myeloma is the only disease which satisfactorily explains these findings. It is true that certain cases of widespread bone metastases from carcinoma have been reported in which there was Bence-Jones protein in the urine, but I am doubtful whether any such case showed a serum protein of 11.4 grams per cent. It is a well known fact that patients with myeloma frequently die in uremia. Apparently the cause for this is a precipitation of the abnormal protein in the renal tubules with consequent failure of renal function.

If we try to explain all the symptoms on this basis there are certain ones which leave us rather puzzled. The story of the palpation of an en-

larged gallbladder with sudden emptying following pressure leaves me feeling very skeptical I do not explain this I believe, however that the pain in the back between the shoulder blades, in view of the later symptoms, was due to destruction by tumor of the dorsal vertebra. The sudden paralysis and the sacral ulcer were surely due to invasion of the spinal cord by tumor. The spinal fluid findings are characteristic of this.

Evidently then, the sixth dorsal vertebra has been destroyed by tumor involvement with encroachment upon the spinal cord. There does not appear to be by x-ray very widespread skeletal involvement, and the fact that there is no anemia is consistent with this idea. One wonders whether a critical eye could have detected plasma cells in the blood smear. I find it much easier to locate these cells after the diagnosis has been established by other means. It would have been interesting to have had some blood calcium determinations, as there is frequently a disturbance in calcium metabolism. I am not certain as to the nature of the skin eruption but would tend to associate it with uremia. The crystals which appeared on the patient's forehead and face were probably urea crystals. I assume that the patient died of renal failure and see no reason to suspect any other cause for her death.

I see I have not explained the presence of an abdominal mass. Nothing is said about this on examinations later on, and I am inclined to disregard it as probably due to some temporary stasis in the gastrointestinal tract.

We usually speak of myeloma as being multiple, but I am sure there have been cases of fairly localized tumors in this disease. We certainly are finding them much more frequently than we did a few years ago, undoubtedly because we are looking for them more carefully.

My diagnosis is, then, myeloma with secondary renal failure.

DR ALFRED KRANES. I may be able to answer some of Dr Richardson's questions. The patient was naturally admitted to the Neurological Service because of the paraplegia, and when the renal insufficiency was discovered I was asked to see her. The combination of renal insufficiency with normal blood pressure, skeletal pain, and cold block immediately suggested multiple myeloma, and I therefore looked for Bence-Jones proteinuria on a specimen voided at that time but was unable to find any. The next day, using a twenty-four hour specimen, we were able to demonstrate a moderate amount. This was an additional illustration of what we have seen in other cases of myeloma, namely inability to demonstrate Bence-Jones proteinuria in single urine specimens but finding it in twenty-four hour collections. The morning that we were unable to find any Bence-Jones protein in

the urine I looked over a smear for plasma cells and was able to demonstrate several, although as Dr Richardson suggests one felt more certain of their being plasma cells when the Bence Jones protein was discovered and the serum protein report was returned, and when finally the skull plate was seen we were positive about the plasma cells.

Calcium and phosphorus determinations were done and they were essentially those found in any case of renal insufficiency, the calcium being 9.98 and the phosphorus 6.25. A phosphatase showed 3.17 Bodansky units.

The abdominal mass described in the history we were unable to confirm.

CLINICAL DIAGNOSES

Multiple myeloma
Uremia

DR WYMAN RICHARDSON'S DIAGNOSES

Multiple myeloma.
Myeloma kidney

ANATOMIC DIAGNOSES

Multiple myeloma with destruction of the sixth dorsal vertebra and with compression of the spinal cord
Hydronephrosis
Myeloma kidneys
Decubitus
Perisplenitis, chronic

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY. As Dr Richardson pointed out, the diagnosis in this case once all the facts were known admitted of no possible doubt. The crux of the matter always rests in thinking of myeloma before the Bence Jones protein in the urine and the hyperproteinemia have been discovered. Dr Krane deserves the credit for that in this case.

I take exception to only one of Dr Richardson's predictions. The spinal cord in these cases, though often showing evidence of injury, is rarely invaded by the tumor. Occasionally an epidural tumor mass may press upon it, but more often the injury is from pressure secondary to destruction of the vertebrae and angulation of the spinal column. That was the case with this patient, who showed complete destruction of the sixth dorsal vertebra with marked angulation at that point. We were limited in our autopsy to an incision in the back, but after removal of a portion of the spinal column it was possible to explore the abdominal cavity from behind. There was no tumor and no abnormality of the gallbladder that could be discovered by palpation. The kidneys were removed and showed the characteristic changes found in cases of myeloma. The tubules were

universally dilated and a considerable proportion of the collecting tubules and Henle's groups contained the dense hyaline casts which are characteristically found. One point which often serves to differentiate these casts and those found in ordinary types of nephritis is that they appear to act like mildly irritant foreign bodies provoking a cellular reaction in which monocytes predominate and foreign body giant cells are occasionally seen.

This laboratory has always had a particular interest in multiple myeloma because the first adequate description of the histology of the tumors was published by Dr Wright from a case which died in this hospital in 1898. The earliest report of the disease was probably that of Bence Jones in 1848, but a clear picture of the gross

pathology was first published in 1873 by J von Kussak, who gave it the name of multiple myeloma. To Dr Wright belongs the credit for recognizing the characteristic cell as a plasma cell. The introduction of x rays began to make the tumor readily recognizable when the cases were of the classical type with multiple small tumor nodules throughout the flat bones. In recent years we have learned that there are many clinical types. The disease can affect a single bone or can produce a diffuse leukemic involvement of all the hematopoietic marrow with absolutely no x ray changes. It can, moreover, appear in an extra-osseous form and primary plasmocytomas of the nasal pharynx are undoubtedly another manifestation of the same process.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States, Canada \$7.04 per year \$8.52 per year
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Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway, Boston, Mass.

MORE ABOUT POLIO VACCINES

IN our issue of October third, 1935, we cautioned against the too hasty trial of vaccines advocated for the prevention of anterior poliomyelitis. It was our conviction that vaccines composed of killed virus could have little or no immunizing value. At that time, while we had very grave doubts as to the harmlessness of vaccines made from "attenuated" virus, we did not express our fears because we lacked proof of the effect of such living vaccines upon susceptible children. We privately believed that the tests to which these vaccines had been subjected fell far short of proving that they could be safely used for the immunization of human beings. To test these agents on urban adults or even on children of eight years or more could furnish no criterion for their action in children in the more susceptible age groups.

We knew that the use of small amounts of formalin, of sodium metacresolate or other antiseptics can attenuate viruses only by diluting them. If the concentration of the added germicide is sufficient to kill the virus, the vaccine

is impotent, if lower concentrations are employed some of the virus will remain alive.

The first effect was the one sought by Brodie, the latter by Kolmer, who believed that living virus was necessary for the production of active immunity.

A careful reading of the publications of these two authors gives the impression that Brodie was confident that in his vaccine the virus was dead, while Kolmer believed that, although the virus in his preparation was living, by his treatment it had been robbed of its infectious power. The virus in the Brodie vaccine might or might not be dead—the virus in the Kolmer vaccine was living and capable of producing infection in monkeys. The fact that the injection of this viable virus into Kolmer, his two sons and his colleague was followed by no untoward results is of little significance in so far as the safety of the vaccine is concerned. The preliminary tests made by Brodie on his vaccine were, to our minds, of even less significance, since his subjects were all urban adults, who presumably were immune to anterior poliomyelitis.

So great was the demand for protection against this disease that ten thousand or more children and adults were treated with these two vaccines. Since our editorial appeared it has become increasingly evident that such vaccines may not be the innocuous agents that they have been assumed to be.

In a communication appearing in late December, written by one of the able and conservative officers of the United States Public Health Service, there were reported twelve cases of undoubted acute anterior poliomyelitis appearing in children treated with two poliomyelitis vaccines. These cases developed in a community where the disease was not prevalent, at the time of the occurrence of these cases the period elapsing between the first injection of the vaccine and the onset of symptoms would cover the incubation time of poliomyelitis infection, in every case in which the sequence was known, the level of the spinal cord first affected corresponded to the extremity in which the injection was made, the incidence of infection was greater among the vaccinated children than among unvaccinated children of the same ages and similar circumstances, and, of these twelve vaccinated children, six died—a fatality rate of fifty per cent, a rate far above that of the cases of poliomyelitis occurring last autumn throughout the country.

Furthermore, doubt has arisen as to the complete harmlessness of the Brodie vaccine.

As a result of these revelations, Park has ceased to give out the Brodie agent for human immunization and the supply of the Kolmer vaccine has been limited. Geiger, Health Commissioner of San Francisco, has recently for-

binden the use of poliomyelitis vaccines in the city and county of San Francisco

In our previous editorial we argued for extreme conservatism in accepting any agent designed for the prevention or treatment of this disease, and we emphasized the necessity for subjecting any such biological agents to rigid controls. We repeat this plea and urge physicians to be positive of the harmlessness of any such products before they use them in their practice or before giving them approval.

Polio vaccines must wait. They must be studied far more exhaustively than they have been before again being used on human beings. Medical men and public health officers also must wait, and they will be wise if they delay their adoption of these new agents until they are approved by our Federal Public Health Service.

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LESS FOOD WITH MORE MEALS

More frequent and more moderate meals for the human family were suggested by Dr. Howard W. Haggard, head of the Department of Applied Physiology at Yale University, addressing delegates to the conference of the Personnel Research Foundation in New York last January. This conclusion was based on a study of medical and mental factors affecting workers in business and industry where efficiency was found to be increased when additional food, in limited quantities, was taken between breakfast and lunch and again between lunch and dinner.

The practice also proved of value in building up the health of workers who were found to be suffering from a deficiency in diet.

Even prior to Dr. Haggard's work it has unquestionably been found of benefit by many individuals to prevent the blood sugar tide from ebbing too far, apparently the omnivorous human animal fares best when a medium is struck between the habits of the carnivorous animal who eats infrequently but to repletion, and the herbivorous type which grazes practically constantly.

A change in the habits of a nation however is not made without some drastic readjustments and if Dr. Haggard's suggestions are accepted in too literal a fashion there may be some repercussion on the ever present servant problem, there will also continue to be the world's millions who are forced to ignore the blood sugar tide and draw their belts still tighter when that empty feeling overtakes them.

Perhaps, also, the true reason has been found why England, with four square meals a day, has maintained for these centuries the supremacy of

the seas. Possibly Waterloo was won, not on the cricket fields of Eton but on the roast beef of merry England.

HOUSE BILL 34

At this writing House 34 is still before the Massachusetts Senate and seems to be in line for postponement of final action because of an amendment which will probably carry it back to the House for concurrent approval unless some other action is taken. It has been the cause of stormy and acrimonious debates.

The opponents have made a significant demonstration of the purpose to block the effort to endow the State Board of Registration in Medicine with more authority to deal with the educational experience of applicants for registration.

They seem to be unappreciative of its advantages and their arguments are apparently inspired by prejudice rather than reason. It was apparent, at a recent hearing, that an aggressive minority was unable to understand the plain English construction of the bill.

The arguments submitted in opposition are singularly lacking in logic and based almost entirely on the wish to keep the door to medical practice open to the "poor boy", completely ignoring the right of the people to have the best possible medical service. The fact that the boy without financial resources has generally been given adequate assistance to obtain an education, provided that he is otherwise well equipped, has been left out of the picture. Hence the attack has degenerated to the position of misstatements and personal abuse with all the arts of the political agitator. The Board of Registration in Medicine, the author of the bill, and the Officers and Fellows of the Massachusetts Medical Society who have worked for its passage have been criticized on the floor of the Senate Chamber in language devoid of the approved amenities of debate quite in accord with the practice sometimes reported in legal controversies.

When the bill was reported out of the House and forwarded to the Senate the following amendment was added:

"Section 3 For purposes of examination and registration osteopathic schools rated as A schools by the American Osteopathic Association shall have the same standing before the board as A schools so rated by the American Medical Association."

In the Senate several proposed amendments designed to weaken the bill have been rejected but there is probability of the following being added to the present draft:

Add at the end of section one the following:—"An applicant aggrieved by

the refusal of the board to approve a medical school under this section shall be entitled to have the reasonableness of such refusal reviewed by a justice of the superior court, whose decision shall be final."

Another amendment is pending which, if enacted, will give to the Secretary of the Board of Registration, The State Commissioner of Public Health and The State Commissioner of Education authority to determine which medical schools may be approved.

Further delay has been sought by the request to the Supreme Court for a decision as to the constitutionality of the bill. The general impression is that this bill has provoked the most animated debate of the 1936 session.

While there is a strong sentiment in favor of enactment of this bill the opposition is resourceful and will employ every legislative expedient to discourage its supporters who are still confident of success. Assuming that the arguments for special consideration of the plight of the "poor boy" are based on the opportunities existing in the substandard medical schools significant facts are presented in the preliminary report of the Registration Board examination recently held which appears on page 599 of this issue of the *Journal*, where it is shown that a majority of the applicants for registration are repeaters from medical schools which are not approved by the Council on Medical Education and Hospitals. The figures warrant careful consideration and should have influence in determining the attitude of the members of the Legislature.

Much credit is due to Senator Miles of Brockton who has carried the major burden of the proponents.

If it were possible for the women of the State to express their sentiments, there would be little doubt of the outcome. We believe that they, very generally, want for themselves and the children of the Commonwealth the blessings of scientific medicine.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

THE Annual Meeting of the Massachusetts Medical Society has always appealed to the membership at large because the Committee of Arrangements and the State Officers have worked unceasingly to provide a program well-balanced, and interesting to all physicians.

In furtherance of that plan, the Section devoted to Obstetrics and Gynecology will, this year, present three papers which it is felt will have a distinct appeal to the man in general practice as well as to the specialist.

One of the influential physicians in the field of obstetrics, Dr. Edward A. Schumann of Philadelphia, will read a paper on "Ante Partum Hemorrhage." This is a very timely subject because statistics in our own State show that it is one of the most common causes of maternal mortality.

Another paper will be read by Dr. F. L. Good on "Menorrhagia and Metrorrhagia of Benign Origin in Women Under Forty-Five Years, With a Plea for More Conservative Treatment." This is always an important subject, for there are divergent views as to the treatment applicable to this class of patients.

A third essay by Dr. George M. Shipton will deal with "Hospital Puerperal Sepsis." This paper will probably promote as much discussion as time will permit, for it will cover an actual series of cases and will be handled fearlessly.

The Officers of the Section earnestly urge every practitioner to plan now to attend this Section Meeting and enter into the discussion of these papers, which have been designed to bring out problems that are met in everyday practice.

The Annual Meeting is primarily for medical problems, but it will also introduce social features. Make it a three-day vacation. Ample recreation has been provided for the ladies while the doctors improve their medical knowledge.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

BENEDICT, EDWARD B. A.B., M.D. Harvard University Medical School 1923. Assistant in Surgery, Harvard University Medical School and Massachusetts General Hospital. Clinical Assistant in Bronchoscopy and Esophagoscopy, Massachusetts Eye and Ear Infirmary. His subject is Gastroscopic Observations in Neoplasia. Page 563. Address: Massachusetts General Hospital, Boston, Mass.

WALKER, IRVING J. A.B., M.D. Harvard University Medical School 1907. F.A.C.S. Surgeon-in-Chief, Harvard Surgical Teaching Service, Boston City Hospital. Clinical Professor of Surgery, Harvard University Medical School. Address: 520 Commonwealth Avenue, Boston, Mass. Associated with him are

WEISS, SOMA. M.D. Cornell University Medical College 1923. Associate Professor of Medicine, Harvard University Medical School. Director of the Second and Fourth Medical Services (Harvard). Associate Physician of the Thorndike Memorial Laboratory, Boston City Hospital. Address: Boston City Hospital, Boston, Mass. And

NYE, ROBERT N. A.B., M.D. Harvard Uni

versity Medical School 1918 Assistant Pathologist, Boston City Hospital Instructor in Bacteriology and Immunology, Harvard University Medical School Address Boston City Hospital, Boston, Mass Their subject is Salmonella Suspester Infection with Surgical Complications. Page 567

HARE, HUGH F B S M D Harvard University Medical School 1928 Assistant Roentgenologist, Peter Bent Brigham Hospital Consultant, Middlesex County Sanatorium Waltham. Radiologist Lahey Clinic Address 605 Commonwealth Avenue Boston Mass Associated with him are

POPPEN, JAMES L A B, M D Rush Medical College Chicago Illinois 1930 Associate in Neurosurgery, Lahey Clinic Member of Staff New England Deaconess and New England Baptist Hospitals Address 605 Commonwealth Avenue, Boston, Mass. And

HOOVER, WALTER B M D Washington University School of Medicine 1922 Otolaryngologist, New England Baptist Hospital and New England Deaconess Hospital In charge of Ear Nose and Throat Department Lahey Clinic Address 605 Commonwealth Avenue Boston Mass Their subject is Cancer of the Mouth Care of the Patient Utilizing Prolonged Anesthesia Obtained by Alcohol Injection of Branches of the Fifth Nerve Page 572

NISSSEN, H. ARCHIBALD A B M D Harvard University Medical School 1916 Formerly Assistant Physician, Robert B Brigham Hospital. Member of the Staff and Visiting Physician New England Deaconess Hospital Assistant Physician, Palmer Memorial Hospital Former Instructor in Medicine Harvard University Medical School Member of American Association for the Control and Study of Rheumatic Disease Address 205 Beacon Street, Boston, Mass Associated with him is

SPENCER, K. A. Formerly, Survey Executive Robert B Brigham Hospital Now Medical Research Statistician assisting Dr Nissen Address 232 Bay State Road, Boston Their subject is The Psychogenic Problem (Endocrinal and Metabolic) In Chronic Arthritis Page 576

PENHALLLOW, DUNLAP P S B M D Harvard University Medical School 1906 F.A.C.S Surgical Staff, Providence Hospital Professor Clinical Orthopedics, Georgetown University School of Medicine. His subject is An Unusual Fracture of the Lower End of the Radius (Atypical Colles's) Page 581 Address 1830 Jefferson Place N W, Washington D C

GOODALE, RAYMOND H B S M D Harvard University Medical School 1924 Pathologist City Hospital, Worcester Visiting Pathologist

Belmont Hospital and Fairlawn Hospital Worcester and Harrington Memorial Hospital, Southbridge Assistant Professor of Experimental Pathology Boston University School of Medicine His subject is A Proposal for a Clinico-Pathological Conference Page 582 Address City Hospital, Worcester, Mass

PEARSON M W M D Harvard University Medical School 1891 Chief of Staff, Mary Lane Hospital, Ware Address Ware, Mass. Associated with him is

ANGIER, HARLAN W M D Tufts College Medical School 1915 F.A.C.S Visiting Surgeon, Mary Lane Hospital Ware Consulting Surgeon, Wing Memorial Hospital, Palmer Address 45 Main Street, Ware, Mass Their subject is Pregnancy in Bicornate Uterus Page 583

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

C. J. KICKHAM M.D., Chairman 524 Commonwealth Ave Boston Mass.	R. S. TITUS, M.D., Secretary 472 Commonwealth Ave., Boston Mass.
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CARCINOMA OF THE CERVIX AND PREGNANCY

Carcinoma of the cervix and pregnancy is an uncommon combination and occurs in the ratio of one to 2000 The tumor may arise before pregnancy takes place or may become apparent only after pregnancy is well established.

The symptoms, as in all cancers of the cervix, may be slight or absent until the disease is well advanced. Early recognition of the growth must be made by examination before symptoms commence. Once the growth has reached symptom giving proportions there should occur spotting discharge, and mild hemorrhage Pain is a late symptom and does not occur until broad ligament invasion has taken place

On inspection the pregnant cervix, if the seat of a congenital erosion or an exposure of the endocervix due to an old laceration is vascular and edematous and suggests hyperplasia of the epithelial structures. It is usual for cervical cancer to be hard and friable but this tumor complicated by pregnancy may be soft and is often blended into the structure of the edematous cervix In advanced cases with a cauliflower or ulcerating lesion the diagnosis is usually obvious.

When the disease is suspected the diagnosis should be confirmed by microscopic examination of a piece of tissue The microscopic diagnosis

A series of short selected articles by members of the Section is being published weekly
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

of cervical cancer uncomplicated by pregnancy is easy but when complicated by pregnancy it may be unusually difficult. Proliferation of epithelium with down growth into the underlying connective tissue is not rare. Mitotic figures occur. The cells, however, are usually less undifferentiated and anaplastic and upon this fact the diagnosis can be accomplished.

The treatment of carcinoma of the cervix in pregnancy is not always clear but general principles can be laid down. Infection is a great hazard both in the radium and surgical treatment and careful vaginal preparation must always be carried out. In early cancer and early pregnancy, radium or total hysterectomy is the method of choice. In late cancer and early pregnancy, radium should be used. The pregnancy should be interrupted by gentle instrumentation at the time of application of radium. Miscarriage usually follows without complication.

In early cancer and a pregnancy of from three to six months, amputation of the cervix with evacuation of the uterus followed by radium treatment or a total hysterectomy should be carried out. In advanced cancer, radium followed after at least six weeks by cesarean section, depending upon the state of the fetus, is the proper procedure.

In early cancer and a pregnancy advanced to six months or beyond, treatment of the cancer with radium followed by cesarean section at the time of election is proper if a child is desired, and this method of treatment is usually satisfactory. If the child is not to be considered, a total hysterectomy may be done. If the cancer is advanced, cesarean section should be performed to save the child. This should be followed by radium treatment. The delivery of a large fetus through a radium-treated cervix is not a safe procedure and should be avoided.

The prognosis is often better than in uncomplicated cancer of the cervix,—for the tumor, because of frequent antepartum examinations, may be discovered early and either radium treatment or hysterectomy has a better than usual chance of success.

The problems of diagnosis and treatment in cases of pregnancy complicated by carcinoma of the cervix are great for the radiologist, obstetrician, and pathologist and each case is deserving of special individual consideration. No absolute rules can be laid down, but early biopsy in suspicious cases should be carried out and, on the whole, treatment with radium with due regard to the age of pregnancy is best.

AIDS TO THE COMMITTEE OF ARRANGEMENTS

BRISTOL SOUTH DISTRICT

Dr Curtis Tripp, New Bedford, Mass
Dr Emery C Kellogg, Swansea, Mass
Dr John C Corrigan, Fall River, Mass

A PRIZE FOR AN APPROVED ESSAY

The attention of interns in Massachusetts hospitals is called to the fact that a prize of \$50.00 has been offered by the Massachusetts Medical Society for the best written and most comprehensive case report submitted by one of their number holding a rotating internship in any Massachusetts hospital which is approved by the American Medical Association for intern training during 1935-1936.

This report is to be typewritten, and when completed is to be sealed, unsigned, in a plain envelope, which in turn is to be placed together with a separate slip bearing the name and address of the contestant, in a larger envelope, and sent to

The Massachusetts Medical Society,
Committee on Medical Education and Medical Diplomas,

8 Fenway, Boston, Mass

The contest this year closes May 1, 1936. Reports may be submitted at any time prior to that date.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

Postgraduate Extension Courses, scheduled this spring in the various Districts, will begin as follows

Berkshire

Thursday, March 26, at 4 30 P M, at the House of Mercy Hospital, Pittsfield. Subject: Psychobiology in General Medicine. Instructor: Kenneth J Tillotson. Melvin H. Walker, Jr, Chairman.

Bristol North

Wednesday, April 1, at 7 30 P M, at the Morton Hospital, Taunton. Subject: Acute and Chronic Nephritis. Instructor: Earle M Chapman. Arthur R. Crandell, Chairman.

Bristol South (New Bedford Section)

Friday, March 27, at 4 00 P M, at St Luke's Hospital, New Bedford. Subject: Acute and Chronic Nephritis. Instructor: James P O'Hare. Harold E Perry, Chairman.

Middlesex East*

Wednesday, April 22, at 4 00 P M, at the Melrose Hospital, Melrose. Subject: Acute Nephritis — Etiology, Diagnosis and Treatment. Nephrosis and Its Treatment. Instructor: Lyman H Hoyt. Joseph H Fay, Chairman.

Middlesex North

Friday, April 17, at 7 00 P M, at the Lowell General Hospital, Lowell. Subject: Acute and Chronic Nephritis. Instructor: James P O'Hare. Leonard C Dursthoff, Chairman.

*Inasmuch as five sessions were given in this District during the fall of 1935 there will be but five sessions this spring.

Norfolk†

Friday March 27 at 8 30 P.M., at the Norwood Hospital, Norwood Subject Immunology—Latest Developments in Immunization Smallpox, Typhoid Measles Scarlet Fever Diphtheria, Whooping Cough, and Infantile Paralysis. Instructor Gaylord W Anderson Hugo B C Riemer Chairman.

Worcester (Milford Section)

Wednesday March 25 at 8 30 P.M., at the Milford Hospital Milford. Subject Gastroenterology Instructor E. Stanley Emery Joseph L Ashkins Sub-Chairman.

†The course previously given at the Faulkner Hospital will be combined with the group at the Norwood Hospital

MISCELLANY

MASSACHUSETTS BOARD OF REGISTRATION
IN MEDICINEPRELIMINARY REPORT ON EXAMINATION HELD
MARCH 10 11 12 1936

One hundred and seventy-seven candidates presented themselves for examination on the first day

One hundred and seventy-four candidates presented themselves on the second day Of the three candidates who withdrew on the first day all were repeaters (at least twice) one from an approved school two from "nonapproved schools"

Fifty-six candidates took the examination for the first time 44 from approved schools 12 from "nonapproved schools."

One hundred and eighteen candidates took the examination having failed at a previous examination of these 99 had failed at least twice, and 19 had failed at least three times.

Of the 99 repeaters 15 were from approved schools 84 were from "nonapproved schools"

Of the 19 candidates who had failed three or more times two were from "approved" schools one foreign, one in United States and 17 were from "nonapproved schools."

CONNECTICUT ITEMS

RECENT DEATHS

HURLBUTT—AUGUSTUS MOEN HURLBUTT M.D., formerly a prominent surgeon of Stamford, Connecticut, died at his home March 2 1936 aged eighty-one years

Born in Stamford, a graduate of Yale and the College of Physicians and Surgeons of New York Dr Hurlbutt had practiced in his native town for over fifty years

QUINTARD—EDWARD QUINTARD M.D., of New York City with a summer home in Norfolk Connecticut died at Chattanooga, Tennessee February 13, 1936 He was planning to devote his time next summer to writing a book to be called "Knollybrook Essays"

Dr Quintard was an author of many volumes of

verse and essays as well as having been active as a medical teacher and practitioner

MOUNTAIN—JOHN H MOUNTAIN M.D. City Health Officer of Middletown Connecticut, died at St. Raphael's Hospital New Haven Connecticut March 6 1936 He was a member of the State Medical Society and the American Medical Association

MISS ABBOTT'S ELECTION

Miss Lucy B Abbott of the William Backus Hospital Norwich Connecticut, was elected President of the New England Hospital Association at the recent meeting of this association at Boston Massachusetts

29 000 000 VISITS TO HOMES

Dr Howard W Haggard Associate Professor of Applied Physiology at Yale University said the 20 000 nurses in the organizations ranks in 1935 were "probably a tenth as many as could be used to greatest advantage" The present staff in a population of 120 000 000 provides only one nurse for every 6 000 inhabitants he pointed out, and yet last year that little band made 29 000 000 visits to American homes visits of mercy and education — *New York Times* March 11

TUBERCULOSIS ABSTRACTS

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS
ASSOCIATION

APRIL, 1936

Those who see the steady stream of patients entering the tuberculosis sanatorium deplore the all too evident delay in making the diagnosis About five out of each six patients in our sanatoria throughout the country are classified on admission as moderately advanced and far advanced cases of tuberculosis One reason for delay in diagnosis is undoubtedly to be found in the lethargy of the people, coupled with the common human failing of not wishing to face unpleasant facts Another reason is that even though the warning signals of tuberculosis have been given widespread publicity in the past, new generations are constantly appearing on the scene and older ones forget so easily What are tuberculosis associations doing to meet this situation?

URGING EARLY DIAGNOSIS

The founders of the tuberculosis movement realized that only through broad education of the public could any progress against tuberculosis be made The new discoveries of Koch Nagel Piquet and others the promising results of Trudeau's method of treatment, the pioneering activities of Biggs, inspired hope that the disease which had resisted medical science so long could be curbed Yet this could be accomplished only with the understanding support of the people They must know that tuberculo-

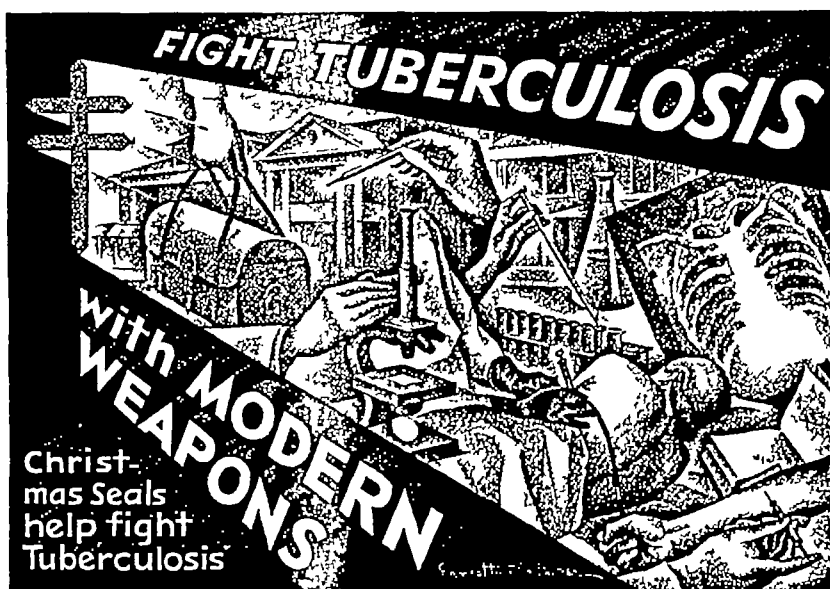
sis is curable and preventable, that it is not a stigma, and that facilities for diagnosis and treatment must be liberally provided. Wisely the founders chose as the motive power of the new movement, public education. In the early days the exhibit and the lecture were the chief means of arousing public sentiment. Later the press printed matter and motion pictures were added. Today practically every avenue of reaching the attention of the masses is used.

Each year tuberculosis associations select a certain theme which all associations are urged to emphasize during that year. Printed matter and publicity aids are produced in advance. To make a definite impact the "release date" is set for April 1

all the educational material, care is exercised not to cause undue alarm.

The second objective sought is to encourage routine search for symptomless tuberculosis among groups of young people such as high school and college students. What is the justification for advocating this new departure?

Tuberculosis sanatorium statistics indicate that the ratio of "early cases" admitted has not increased appreciably during the past ten years. This in spite of years of earnest effort to urge people to obtain medical advice on the appearance of the early symptoms enumerated above. Many conscientious doctors constantly on the alert for tuberculosis have despaired of increasing their batting average of dis-



Type of poster design used in educational campaign

Early diagnosis was the subject of the first of these campaigns hence it was called "Early Diagnosis Campaign," a label which has persisted even though subsequent themes were on other aspects of tuberculosis control.

This year the slogan is "Fight Tuberculosis with Modern Weapons." The two objectives aimed for are (a) to remind people of the early symptoms of tuberculosis and the importance of consulting the doctor on their appearance, (b) to arouse interest in the routine search for early tuberculosis before there are symptoms and physical signs.

To achieve the former, booklets, articles and outlines for talks have been prepared calling attention to the four most common symptoms of early tuberculosis (as determined by surveys of large numbers of sanatorium patients), namely, fatigue, loss of weight, cough that hangs on and indigestion. Blood spitting, pleuritic pain and other symptoms are also mentioned. It is carefully explained that none of these symptoms is pathognomonic, but that any of them should be considered as a danger signal to be investigated by the physician. An effort is made to create appreciation for the x-ray. In

covering the disease in its incipency. The reason for that failure cannot be blamed entirely on the apathy of patients, nor on the lack of vigilance of doctors. It is to be accounted for in part by the fact that the transition from "early" or "silent" tuberculosis to the moderately advanced stage is usually a relatively swift one and only by the barest chance is the minimal case detected. So long as we are obliged to wait until symptoms betraying pulmonary damage drive the patient to our offices, we shall probably continue to despair.

Wrestling with this deplorable state of affairs, efforts have been made to devise some way of detecting tuberculosis in its silent stage among apparently healthy people. Chadwick, Rathbun, Myers and others pioneered in introducing the scheme of examining routinely, with tuberculin and the x-ray, students in colleges and high schools. This procedure, modified in various ways, has "caught on" throughout the country. The routine examination of all students brings to light early cases that might otherwise be undetected and progress to disabling disease. Lees, who examined last year all students of the University of Pennsylvania by the tuberculin

x-ray method, found 17 cases of adult type pulmonary tuberculosis of whom all were symptomless and only one was dismissed from the school. Contrast this with the usual method of "passive case finding" i.e. waiting for persons to apply to the doctor for the relief of symptoms. Lees reports that during the course of the same year 15 cases of tuberculosis had been discovered among students who came to the doctor because of one or another symptom. Twelve of the 15 were advanced cases and were obliged to leave school.

In high schools the story is substantially the same except that fewer cases of adult type tuberculosis are found. However follow-up work of adolescent children with significant childhood type lesions leads the investigators into many homes where there is an open case. This is important, for the real threat to the youngster is probably not the calcified remains of a primary complex but daily contact with a source of infection. No wonder proponents of the routine tuberculin x-ray plan emphasize the value of locating such sources of infection. In grade schools the routine method has not been found so productive but where funds and facilities are available, it is certainly an excellent addition to our school health program.

It is with the hope that the public will accept these newer ideas for the protection of young people that demonstrations are carried on in several important colleges and schools. It is hoped that ultimately parents will depend upon the family doctor to examine their children as a matter of course with tuberculin and the x-ray when indicated. In this educational campaign tuberculosis associations look to the physician for guidance and counsel.

ROENTGENOGRAPHIC VISUALIZATION OF CEREBRAL VESSELS*

The technique of roentgenographic visualization of the cerebral vessels by injection of radio-opaque substances into the carotid artery has been only sporadically adopted since its introduction by Moniz and Lima in 1931.

The method as described by the above authors consists in exposing and ligating the common or internal carotid artery injecting colloidal thorium dioxide (thorotrast) and taking x-rays of the skull near the completion of the injection. Since this method constitutes a major surgical technique many surgeons have hesitated utilizing the procedure. Because of this objection Loman and Myerson have developed a more direct method of cerebral vasography which may be learned after a short period of practice.

Briefly this method is as follows. With the patient lying on his back and the side of the neck sterilized and novocainized a needle attached to a syringe is inserted through the skin into the common carotid artery at the level of the cricoid

cartilage. In order to make certain that the needle is well within the lumen of the vessel the needle is connected by means of a stopcock to tubing and an aneuroid manometer. If the puncture is successful, the manometer needle records wide oscillations and furthermore compression of the carotid artery below the puncture site causes a quick fall in pressure followed by a rapid return to the original pressure with free oscillations when the compression is released.

If these conditions obtain, the procedure is continued as follows. An assistant either slows the arterial flow to the brain by compressing the carotid artery below the site of puncture or better still slows the cerebral venous circulation by compressing both jugular veins. While either type of compression is being continued, the operator injects as rapidly as possible 10 cc. of colloidal thorium dioxide. Rapidity of injection and adequate compression of the neck until all the x-ray plates are taken are requisites for successful visualization of the cerebral vessels. Lateral plates are taken, exposure being one-half second. The first roentgenogram taken near the completion of the injection gives a beautiful outline of the internal carotid artery and its branches. A second and third roentgenogram taken at three-second intervals give good pictures of the cerebral veins and sinuses.

Of thirty injections done by the writers neither immediate nor late ill-effects have been observed. Not only may aneurysms of the internal carotid or its branches be directly visualized by this method, but many cerebral neoplasms may be indirectly located by the presence of dislocation of the cerebral arterial tree. It is probable also that other cerebral abnormalities may be determined by cerebral vasography.

CORRESPONDENCE

THE ANNUAL REGISTRATION OF PHYSICIANS

March 16 1936

Editor *New England Journal of Medicine*

The bill for Annual Registration of Physicians was referred to the Council as to the support of the Society before the Legislature.

After rather careful study I commented on various parts of the bill which seemed dangerous to the future welfare and independence of the Medical Profession. In the report of the Council Meeting in last week's *Journal* I read only an extract from an editorial in the *Journal* and this editorial favored the bill.

Some of the unfavorable features of the bill brought out in my remarks were I believe in some small part responsible for the overwhelming and almost unanimous vote by the Council not to support the bill.

For the information of the Medical Profession, I trust you will this week be able to publish the fol-

Abstract—Loman, Julius: Visualization of the cerebral vessels by direct intracarotid injection of the radio-opaque thorotrast. *Am. J. Roentgenol.* 23:133 (Feb.) 1934.

lowing remarks made by me at the Council Meeting

(The bill is still before the Legislature)

ANNUAL REGISTRATION OF PHYSICIANS

According to the Editorial of December 12 1935, in *The New England Journal of Medicine*, the official organ of the Massachusetts Medical Society, "The real intent of the bill is slightly different from the obvious purpose which appears on superficial examination, The real intent of the bill is to provide accurate and adequate information, easily accessible to all, as to which physicians the state now regards as qualified to practice medicine. Annual registration is only one of the elements necessary in fulfilling this intent"

If the bill becomes a law, what its purpose is will be determined by each changing board unless some individual physician takes the matter to court. Is it not therefore wise to see how the bill affects the physician?

"Every person registered by the board as a qualified physician, who is engaged in the practice of medicine within the Commonwealth, shall annually in December, etc"

The above are the only physicians specified for annual registration. No provision is made for registering already licensed physicians who have been in Europe for a year or two or who have been ill and out of practice or who have been in practice, temporarily or otherwise, in some other state or for those who wish to enter practice at some other date than December 31

A physician registering must record 'with the board his name, his registration number, his professional address, and such other information as the board may require' This allows each board great latitude and if the tendency in the world toward bureaucracy and autocracy, regardless of party continues, before long physicians will be likely to find that boards at various times will require different kinds of information. "Such other information as the board may require' does not belong in the bill unless it is expected that the board will use considerable discretion in reregistering

Furthermore applications for reregistering must be filed "on blanks furnished by the board at the request of the physician" These applications are to be remembered and filed at the busiest time of the year for physicians. If the physician is to furnish the funds, why should not the board at least be required to send out blanks?

The present laws against practicing medicine without a license are severe and it would seem, enforceable

The need of annual lists of registered physicians seems small. Practically 5,000 of the 7,000 physicians in the state are members of the Massachusetts Medical Society and are annually published alphabetically and by cities and towns. Other organizations possibly list 1,000 more. The town and city clerks all have compulsory lists of all registered physicians in their communities. Every city and

town directory has up to date lists of physicians and the telephone directories semiannually publish more or less complete lists

To summarize, the present laws have plenty of teeth. The vast majority of the physicians are already listed in various ways. The proposed law makes one more nuisance tax. If a law is to be enacted for annual registration and if the physicians are to raise annually \$15,000 for the use of the State, then the law should not be ambiguous, and it should be mandatory that the board register physicians already holding a Massachusetts license provided they furnish certain specific information. Disciplinary action regarding physicians is already apparently adequately provided for in existing law and no physician should feel any annual anxiety as to his registration renewal

RICHARD DUTTON

STATE MEDICINE AND HOSPITAL SERVICE

March 10 1936

Editor, *New England Journal of Medicine*,

"City Hospital Out-Patient Department Sets Record of Nearly 500,000 Patients" Such a headline stared at the reader a few days ago in *The Boston Herald*. From further reading of the two-column article, one concludes that instead of half a million patients it meant more likely half a million consultation visits, figuring an average of five visits to a patient. I have not at hand the corresponding figures of our other large hospitals, as the Massachusetts General, the Peter Bent Brigham, the Massachusetts Memorial, and the Beth Israel Hospitals. Assuming even that the total number of consultations in all these hospitals will only equal that of the City Hospital, it would mean a round million free consultations a year in Boston alone. Taking even the lowest average of a medical fee of one dollar per consultation, it would make a sum of one million dollars in fees, of which the medical profession was deprived as an income.

Far be it from me to begrudge the unfortunates who are forced to seek free medical service. I believe 95 per cent of them belong to those, for whom each dollar given as a fee would mean so much less food, fuel, and clothing for himself and his family. They are certainly entitled to be taken care of. But the question is, who should foot the bill? Why should the medical profession alone shoulder the whole burden? Would it not be more just to arrive at an equitable distribution of this burden in form of taxation perhaps, where the medical profession would be necessarily likewise represented? Owing to the millions of free consultations, hundreds of physicians in Boston are confronted with the heavy problem of making both ends meet, and many of them are forced to give up practice and look, though mostly in vain, for anything else to eke out a living.

In view of these figures and the present deplorable situation caused by the many years of depression, I question the wisdom of our officials in the American Medical Association, as well as in our

own State Society in so bitterly opposing state or socialized medicine which at least would guarantee to physicians a minimum fee for services rendered and assure them a moderate pension when disabled or aged.

M. J. KOVAKOW M.D.

728 Washington Street
Brookline, Mass

DR RHOADS COMMENT ON "POLIO VACCINES"

The Hospital of The Rockefeller Institute
for Medical Research
66th Street and York Avenue New York

February 3 1936

Editor *New England Journal of Medicine*

I am very much interested in the editorial in *The New England Journal of Medicine* for October 3 1935 I quote from that editorial

"If we remember their laboratory experiences correctly (Harvard Infantile Paralysis Commission) it would seem that the injection of sub-infective amounts of living virulent virus repeated many times failed to produce sufficient active immunity to protect a susceptible monkey against a subsequent inoculation with a fatal dose of virus.

This is contrary to the facts since Aycock was able to immunize by sub-infective amounts and we were able to repeat this work.

C. P. RHOADS, M.D.

EDITORIAL COMMENT We welcome Dr Rhoads comment on our editorial, "Polio Vaccines" and in order to meet his very reasonable objection and at the same time to be more explicit, we might revise the paragraph in question to read as follows: If we remember their laboratory experiences correctly (Dr Aycock and his associates of the Harvard Infantile Paralysis Commission) it would seem that while intradermal injections of active virulent virus produced immunity in the majority of monkeys to subsequent intranasal applications and intracerebral inoculations of the active virus, such intradermal injections did not consistently produce immunity in the monkeys so treated. Furthermore, although the immunizing doses of living virus were sub-infective when given intradermally they would have been rapidly infective if injected intracerebrally or even if applied intranasally. The point which we wished to make was that living virus was not a satisfactory immunizing agent.

This contention, we feel finds additional support in the results of Dr Rhoads experiments. In his communication appearing in *Science* in 1930 there was described the use of filtrates of fresh, pooled living monkey virus and of suspensions of glycerolated material of the same strain absorbed in both cases on aluminum hydroxide. The results following the treatment of *Macacus rhesus* monkeys with the preparations were reported by Dr Rhoads as follows

"The immunity thus induced was tested in three ways. First, glycerolated virus was repeatedly instilled into the nostrils. All the previously treated animals resisted infection although the control developed typical poliomyelitis. The second test, carried out 28 days after the first consisted of intracerebral inoculation of fresh virus. Of three animals so treated, one developed poliomyelitis as did the control, and two resisted infection. The third test was made with the blood serum of the treated monkeys. Each of the three sera was tested separately and each neutralized the virus.

It may therefore, be concluded that the virus when absorbed on aluminum hydroxide is incapable of producing poliomyelitis but still capable of inducing active immunity in *Macacus rhesus*. In a small series of animals thus immunized no symptoms of experimental poliomyelitis arose and in one only was the degree of immunity although adequate to protect against nasal instillation insufficient to protect against intracerebral injection of virus. That all three treated monkeys developed immunity is shown by the serum neutralization tests."

In a subsequent communication Dr Rhoads described his immunization experiments on monkeys with living poliomyelitis virus neutralized by convalescent human serum. We quote from the discussion

"The results of the experiments described in the foregoing protocols indicate that a varying degree of immunity to poliomyelitis can be induced in monkeys by the intradermal and subcutaneous injection of poliomyelitis virus neutralized by mixture with human convalescent serum. That the protection conferred by such treatments is not constant, or perhaps of high degree, is evident from the fact that only one-half of the treated animals survived the direct inoculation of virus. Furthermore the serum of one of six survivors failed to neutralize a small quantity of poliomyelitis virus, although the remaining five effected complete inactivation. On the other hand six of eight animals which remained well were retested by direct virus inoculation and proved resistant.

It is interesting to compare these experiments with the refractory state resulting from the subcutaneous inoculation of active virus studied by Stewart and Rhoads " in which it was shown that four of eight treated animals were unable to resist direct intracerebral inoculation of rather weak virus strains. The foregoing experiments suggest that the production of immune bodies in certain animals may follow the injection of neutralized virus ineffective in producing disease symptoms when inoculated intracerebrally in normal monkeys.

While we regret any false impression that we may have caused by our original statement in regard to the results of the Harvard Infantile Paralysis Commission, we still firmly believe that the experimental evidence indicates that the immunity evoked by living virus has not yet been shown to be consistent or of a sufficiently high order to encourage

its use for any purpose other than for experimental study in the laboratory

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DIATHERMY IN LOBAR PNEUMONIA

Editor, *New England Journal of Medicine*,
In a letter published in your *Journal* Dr Wetherbee wrote an answer to Dr King's criticism of our paper^{1, 2}, entitled "Diathermy in Lobar Pneumonia." Dr Wetherbee's correspondence contained the following paragraph

"Point 2 (dealing with the debatable question as to whether or not lung is heated by diathermy), I am referring to Dr Resnik, the physiotherapist of the group, for anything he may care to say on the subject, or on any other subject in connection with Dr King's letter" Dr Wetherbee used the correct term "debatable" To the best of my knowledge to this date we have no absolute proof either for or against this contention However, such proof was not our main concern, as may be seen from the following statement in our preliminary report "In this discussion we are concerned neither with laboratory findings nor the underlying theories as much as we are interested in the actual clinical findings The latter were gratifying" We were satisfied both from our own limited experience in this series of cases as well as from a fairly extensive and well representative literature on the subject that greater clinical improvement may be effected in the course of this disease when general medical care is coupled with the proper application of diathermy Since the publication of our report, there appeared a paper entitled "Status of Diathermy in Pneumonia" by Dr Harry Eaton Stewart

In this paper he quotes Dr Marjorie Warren of West Middlesex Hospital, London, as follows "For several winters the results were so favorable that the Directors fitted up a special diathermy ward for patients with pneumonia Shortly after it was ready last winter it was used to capacity to serve patients from a Welsh labor group who had marched on London to petition Parliament. These workers arrived in the vicinity of London in a pitiful physical state Undernourished, ragged, sleeping on the ground, they contracted pneumonia in large numbers Of these unfavorable cases over fifty were treated with a mortality of three per cent (The average mortality in England is somewhat greater than ours—about thirty five per cent.) Dr C A Robinson of the same hospital reporting on their cases as a whole gave a mortality of twelve per cent in a total of one hundred and seventy cases As these figures covered several different epidemics over considerable time they present a fair picture of results

It is now the established routine for all pneumonia cases"

"The following figures (table I) are reported from

the Employees' Hospital of the Tennessee Coal, Iron and Railroad Company, Fairfield, Alabama, by Dr Groesbeck F Walsh

Coal and Iron Railroad Company		Re- cov- ered	Died	Mortality
Treated Cases	95	83	12	12 4 per cent
Controlled "	59	47	12	20 3 " "

Thus we could go on building up statistics, sufficient quantitatively and qualitatively to support the theory that the mortality is greatly reduced by this form of treatment However, as mentioned above in our paper, we acted as impartial observers, reported facts as we found them, and stressed mainly the symptomatic relief obtained from diathermy (not at all to the exclusion of serum therapy or any other form of recognized treatment) As regards our mortality statistics we stated "The number of cases is so small that the statistics especially must be regarded with suspicion, and we feel that our results are suggestive rather than conclusive"

Dr King charged us with an act of omission He says "In regard to the physiological changes which may be expected from the use of diathermy in pneumonia, the authors have not taken into account the very careful experimental work done by Drs Binger and Christie at the Rockefeller Institute for Medical Research Their experiments on animals and on three human subjects, while perhaps not conclusive, should be given an important place in the consideration of the use of diathermy in pneumonia" I believe that Dr King answered his own question when he used the following expression "while perhaps not conclusive" With all due regard to these two investigators, we must admit that their findings were neither inconsistent with our report of benefits derived from the use of diathermy in pneumonia, nor did they disprove the theory of local heating of the consolidated lung May we quote Dr Christie's own words "Our work has been mainly confined to the physiologic effects of these currents, and we are not in a position to express any opinion as to their therapeutic value We believe that diathermy is the best method of applying heat, if penetration to the deep tissues is desired"

In their third original report, entitled "The Temperature of the Circulating Blood", Binger and Christie voiced the following opinion "This indicates that the lungs are being heated but that the blood passing through the pulmonary vessels is removing the heat at approximately the rate of production" It seems to me that this leaves very little doubt as to the fact that the lung tissue is heated locally, because heat like water would tend to flow from a higher point to a lower Furthermore, Dr King emphasizes the importance of this experimental work of Binger and Christie as being "very careful experimental work done" But Binger him

self could not have considered it absolutely faultless when he wrote the following "In the lungs of three patients suffering from lobar pneumonia no such local heating effect could be demonstrated. The discrepancy can be explained partly by the fact that in the case of dogs the anesthetic impeded the efficiency of the heat regulating mechanism, partly by the particular relation of the thermocouple to the lesion which in these patients may not have been such as to demonstrate local heat storage. The possibility of demonstrated local heating is not precluded by these observations." Thus we find Binger himself admitting uncertainty both in the technique of those experiments and in the conclusion that might be based on their findings. For he states that *the possibility of demonstrating local heating is not precluded by these three observations.* These two admissions alone punctured the balloon which they constructed to attack the theory of local heating. The support that their work may lend to the opponents of the use of diathermy in pneumonia, becomes even weaker in the light of the analysis of Dr Stewart who was invited to assist in their study and who as he puts it, feels that he is in a position to know more than a cursory reading of the articles would afford. Therein Dr Stewart points to retractions on the part of the investigators.

Dr N. E. Titus points as follows to the injurious effects produced by the reports of Drs Binger and Christie "In all electrical treatments technique is most important and also the apparatus used must be suitable to produce the desired reaction. Binger and Christie neglected both of these important factors and since they did not obtain results and their conclusions had the stamp of authority diathermy as a rational aid in the treatment of pneumonia has suffered untold harm." I am in favor of a laboratory checkup on the various phases of the practice of medicine. I do not feel, however that laboratory men have a monopoly over the power of observation. Medicine is still emerging from empiricism. Was it not Sir Oliver Lodge the great British scientist, who expressed his opinion to the effect, that laboratory investigations are only a couple of hundred years old while the human race has known of the existence of certain truths for thousands of years? Is it not in accordance with the best medical tradition that if in thousands of cases of diathermy in pneumonia improvement was observed clinically we have a right to give the patients the benefit of this therapy? And we have this right, notwithstanding the fact that a very limited effort on the part of the laboratories has not succeeded as yet to determine the factors which are responsible for the valuable aid rendered by diathermy in the general medical care in the treatment of pneumonia. As long as nobody has demonstrated that diathermy has caused any harm, and as long as its application does not exclude any other form of recognized treatment, then it seems to me that the medical profession should be encouraged rather

than discouraged, to continue with its observations in this field clinically as well as by laboratory investigations.

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JOSEPH REYNOLDS, M.D.

184 Bay State Road Boston

RECENT DEATH

MacPHEE—L. LEZ MacPHEE, M.D., of Glen Road Wellesley Massachusetts with an office in Boston died at the Hotel Commander in Cambridge his winter home, March 13 1936 after a short illness.

Dr MacPhee was born in Somerville in 1888 and received his M.D. degree from the Tufts College Medical School in 1916. He was especially interested in gastro-intestinal diseases and early in his career engaged in postgraduate medical study in Edinburgh Munich and Vienna.

Dr MacPhee is survived by his widow Mrs Bernice (Grady) MacPhee two sisters and a brother.

NOTICE

MEDICAL CLINIC AND STAFF ROUNDS AT THE
PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M. on Thursday March 26 in the Amphitheatre of the Peter Bent Brigham Hospital Dr Henry A. Christian Physician-in-Chief, Hershey Professor of the Theory and Practice of Physics in the Harvard Medical School will give a medical clinic. To it are cordially invited practitioners and medical students.

On Saturdays in the wards of the Peter Bent Brigham Hospital from 10 to 12, staff rounds will be conducted by Dr Christian.

REPORTS AND NOTICES
OF MEETINGS

NEW ENGLAND ROENTGEN RAY SOCIETY

The New England Roentgen Ray Society met at the Peter Bent Brigham Hospital, December 20 1935 with Dr A. S. MacMillan presiding. The program was presented by members of the staff of the Peter Bent Brigham Hospital.

Dr William Vaughan presented the first paper of the evening speaking on "Pituitary Tumors." He pointed out that while tumors of the posterior lobe of the pituitary are practically unknown adenomas of the anterior lobe are of fairly frequent occurrence. These adenomas are designated as "chromophobe"

acidophile', or "basophile", according to the staining properties of the type of the cell involved

Acidophilic adenomata produce the clinical syndrome known as "acromegaly" Dr Vaughan discussed the case history of an acromegalic patient who developed almost total blindness over a period of three years of the disease He was given four x-ray treatments of three hundred r units each to the pituitary region, with restoration of normal vision within three months Dr Vaughan cited this as typical of the excellent results obtained from radiation of acidophilic adenomata

The history of a patient with a chromophobe adenoma who suffered severe headaches and marked visual disturbances was presented Two series of x-ray treatments to the pituitary resulted in abolition of the headaches, and great improvement of vision Eighty per cent of such cases respond well to radiation therapy Failure to respond is an indication that the tumor is cystic and an indication for surgical treatment Cystic degeneration and appearance of radioresistance may result from radiation therapy

The "Clinical Features of Pituitary Adenomas" were discussed by Dr Max Schnitker The chromophobe adenomas are twice as common as all other pituitary tumors combined They are nonsecretory and give no systemic symptoms until they become so large as to cause atrophy of other pituitary tissue, and secondary hypopituitarism with symptoms similar to those of Froehlich's syndrome If the adenoma occurs in a child, pituitary dwarfism results X-ray examination of these patients reveals a typical "balloon" sella turcica, which has resulted from the expanding tumor Progressive enlargement usually occurs in the midline, and involves the optic chiasm with the production of a bitemporal visual field defect, and, eventually, if untreated, in total blindness Occasionally growth occurs laterally and the temporal lobe of the cerebrum is involved with interruption of the optic radiation and homonymous hemianopsia Choked optic discs and elevated intracranial pressures are rarely encountered in these tumors, and do not occur unless there is invasion of the ventricles

Hypopituitarism manifests itself in obesity, laziness, easy fatigability, fine silken hair, and a low basal metabolic rate Headaches may be very troublesome, but usually disappear entirely if the tumor breaks through the sella turcica Ninety per cent of these cases seek medical advice because of slowly progressing visual defects

Acidophilic adenoma, or diffuse increase in the number of acidophilic cells in the pituitary, results in gigantism, if occurring in the prepubertal period, and in acromegaly if occurring after puberty when the epiphyses are closed These patients show acromegalic features, overgrowth of hair, profuse perspiration, elevation of basal metabolic rate, glycosuria, polydipsia and polyuria Females show irregularities of menses, and males may become impotent The sella turcica is dilated in approximately ninety per cent of the cases Headaches are a

more troublesome feature in this group than in the chromophobe type of tumor, although visual disturbances are not so commonly encountered

Determination of visual field changes are an important method of following progression of pituitary tumors, and of determining the efficacy of radiation therapy

All chromophobe adenomata should be given a trial series of x-ray treatments before surgical measures are resorted to The most widely used surgical approach to the pituitary is the transfrontal route, and well handled cases show a mortality rate of only five per cent

Studies of the response of hypopituitary patients to hormonal medication have been ambiguous Although the basal metabolic rate is low in such cases, there is no elevation produced by administration of desiccated thyroid in massive doses One case with extreme lassitude was treated with injections of "Antuitrin S", without results Subsequent administration of "Antuitrin G", however, resulted in marked subjective improvement

Dr Merrill C Sosman spoke on "Pituitary Basophilism" Basophilic adenomata are very rare, and produce very striking signs and symptoms, because of their great secretory activity Such tumors usually occur between the ages of fifteen and twenty one years, and are more frequently found in females than in males In a series of sixteen cases the average duration of life from onset was five years Such patients usually show a marked adiposity of trunk and face, which spares the limbs, there is great overgrowth of hair, and excessive pigmentation of the skin Amenorrhea develops, a low basal metabolic rate is produced, hypertension is characteristic, and there is acral cyanosis, striae distensae, hyperglycemia, and polycythemia X-ray shows diminished density of the bones similar to that observed in hyperparathyroidism Most of such patients die with carbuncles, or skin infections Dr Sosman reported two cases which showed very striking regression of symptoms, and clinical improvement from radiation therapy

Dr Joseph C Aub discussed "The Clinical and Metabolic Changes Occurring in Pituitary Tumors." He pointed out that such tumors seem to produce systemic symptoms by stimulating the other glands of the body to hyperactivity The rôle of the pituitary in carbohydrate metabolism, however, is antagonistic to that of the pancreas Experimental removal of the pituitary results in marked increase in ability to metabolize carbohydrates, and enhances the efficacy of insulin Ablation of both pituitary and pancreas results in mild hyperglycemia without acidosis, but restoration of the pituitary to these animals causes severe diabetes, and death from acidosis

Studies of the calcium metabolism were made in one of the cases of basophilism reported by Dr Sosman During the active stage of the disease the bones showed marked decalcification, and although the blood calcium levels were normal, the calcium

output was five times that of a normal individual of the same age and weight. Following treatment and clinical improvement the calcium output dropped until at present it is but fifty per cent of the normal value. The excretion of phosphate was practically unchanged either in the active disease or following treatment.

The basal metabolic rate of this patient, which had been low before treatment, is now within normal limits. The sugar tolerance curve before treatment was of diabetic type, but after therapy carbohydrate intake causes elevation to no more than eighty milligrams per cent an abnormally small rise.

Dr W N Myhre spoke on "Teleoroentgen Treatment of Leukemia." The average life span of an individual with untreated chronic myelogenous leukemia is between one and a half and two and a half years, and spontaneous remissions are rare occurring in only seven per cent of cases. With radiation therapy life expectancy is increased thirty per cent, and remissions are induced in fifty per cent of the cases. Methods of radiation therapy have included the local radiation of the spleen, long bones and chest, and autotransfusion with irradiated blood. Such methods have given similar results. In the past twenty months forty seven cases of chronic myelogenous leukemia have been treated with the 'spray' or teleoroentgen method at the Brigham Hospital. Small doses of radiation are given to the anterior and posterior surfaces of the whole body only the head being shielded. The drop in white count seems to be directly proportional to the area of body surface so treated. Treatments are continued daily until the white count has been lowered to between ten and twenty thousand. The drop continues after cessation of treatment until the levels are seven to eight thousand. Coincident with the drop in the white count, there is an increase in the red blood cells. Radiation sickness does not occur in these cases, and remissions so induced are of greater degree and longer duration than those obtained from local treatment.

Dr William P Murphy remarked that the treatment of leukemia should be directed toward the relief of symptoms and reduction of lymphoid hyperplasia. The rise in the red count noted after spray treatment is probably due to relief of a previously overcrowded bone marrow. Between series of radiation the red count and hemoglobin should be kept well up with large doses of iron and intramuscular liver. Cases of anemia secondary to leukemia fail to show response to iron and liver except immediately after radiation.

After spray treatment the white count rises markedly (even doubles) within twenty four or forty-eight hours. This rise is perhaps due to the production of maturation of the leukemia cells, allowing their entry to the blood stream in large numbers. This observation raises the question of

whether leukemia is a deficiency disease similar in some respects to pernicious anemia.

Dr George W Holmes stated that in his experience results obtained from the use of "spray" x ray during the past five years had not been so satisfactory as those reported from the Brigham Hospital. Radiation sickness occurs after any form of x ray therapy if the dosage employed is large enough. It may be prevented by using small divided dosages over a prolonged period of time.

NEW ENGLAND HEART ASSOCIATION

The New England Heart Association met January 6 1936 at the Peter Bent Brigham Hospital, Dr Samuel A. Levine presiding. The first paper of the evening was presented by Dr J G Gibson and, on the subject A Method of Determining the Blood Volume. A modification of the dye method of determining the plasma volume developed by Gregersen, Gibson and Stead (Am. J. Physiol. 113 [Sept.] 1935) was described.

Three sources of error exist in the Keith Rowen tree technique (1) due to colorimetry of turbid solutions (plasma) (2) due to hemolysis and (3) due to variability of time required for complete mixing of injected dye, which is determined by total volume and velocity rate of the blood occurs normally in seven minutes and is prolonged in cardiac failure.

These errors are eliminated by (1) the use of the spectrophotometer (2) the use of the blue dye T 1824 (Evans) having maximum light absorption at the wave length of least absorption of hemoglobin and (3) by determining the mixing time and disappearance rate of the dye and thus the theoretical dilution value at which all the dye is mixed with all the blood before any dye has disappeared or any blood has been withdrawn.

The technique permits frequent repeated determinations since errors due to residual dye from previous injections are canceled out by the spectrophotometer.

T 1824 is nontoxic, does not pass the "blood brain barrier" and hence gives a true value for total plasma. Plasma volumes as encountered clinically may range from 2000 cc. (myxedema) to 6600 cc (congestive failure).

Dr William A. Evans, Jr., spoke on "Blood Volume Changes in Congestive Heart Failure." The blood volume in normal individuals was found subject to wide variation when expressed either in absolute quantity or in proportion to body weight. To determine the changes occurring in congestive failure two methods were used (1) Groups of individuals representing different degrees of decompensation were compared statistically and (2) observations were made on individuals during recovery from congestive failure.

Group I contained those individuals with organic heart disease but no evidence of failure and a normal venous pressure and circulation time. In Group II the subjects had dyspnea and limited activity but no signs of congestive failure. In Group

III the subjects had both signs and symptoms of failure, and a venous pressure below 150 mm. In Group IV were the severely decompensated patients with a venous pressure above 150 mm. In Groups I and II the average blood volume did not differ materially from the normal, while in Groups III and IV the average figure was increased by 20 per cent and 60 per cent, respectively.

All patients studied during recovery from decompensation exhibited a diminution in blood volume proportional to the degree of recovery. The greatest loss observed was 3780 cc in one week. At first the loss in plasma is greater than the loss in red cells, while later the reverse occurs.

Dr Soma Weiss pointed out that this work has definitely disproved the concept of two types of congestive failure, one in which there is an increased blood volume, and the other in which there is a decreased blood volume. All cases of congestive failure are characterized by an increased volume.

Dr Michel Pijoan discussed "The Mechanism of Hypertensive Crises." Studies were made of the blood pressure and blood sugar responses following the intravenous administration of fifteen units of insulin in normal individuals, patients with essential hypertension and with Addison's disease. In twenty-five normals the blood sugar fell to a level of forty milligrams per cent without any appreciable changes in blood pressure. A sharp rise in blood pressure averaging forty millimeters of mercury, systolic, and seven millimeters of mercury, diastolic, then occurred. The blood sugar rose ten milligrams per cent, and gradually returned to the fasting level. In twenty cases of essential hypertension the initial fall in blood sugar was to an average of forty milligrams per cent, blood pressure remained constant, but then suddenly rose sharply fifty millimeters of mercury systolic, and twenty-two millimeters diastolic, at this point the blood sugar rose twenty milligrams per cent. Four patients with Addison's disease had an initial drop in blood sugar of fifteen milligrams per cent, which was sustained for two hours with a gradual rise in the next three hours with no changes in blood pressure.

In normal dogs following intravenous insulin (one unit per kilo) there occurs a drop in blood sugar from ninety milligrams per cent to twenty-five milligrams per cent without changes in blood pressure, then there is a sharp rise in both systolic and diastolic tensions (from 125 mm to 200 mm of mercury systolic and from 80 mm to 120 mm of mercury diastolic) with a rise in blood sugar of fifteen milligrams per cent. Following adrenalectomy the fall in blood sugar was sustained at a level of twenty-five milligrams per cent for one and one-half hours with a subsequent rise to normal, with no changes in blood pressures.

It was concluded that insulin hypoglycemia calls for a secretion of adrenin which is responsible for the sudden elevation in blood pressure. The response of the hypertensive to the secretion of adrenin accompanying recovery from hypoglycemia

is excessive, whereas there is no response in the patients with Addison's disease.

Dr Weiss stated that injection of adrenin in the hypertensive patient causes hyperactivity of the parasympathetic system rather than the sympathetic system, and that there is a resultant drop in blood pressure, and not an elevation and crisis. Dr Pijoan replied that if adrenin is incubated with homologous serum for several hours before injection, it will cause a rise in blood pressure.

"Hemopericardium as a Cause of Sudden Death" was discussed by Dr Marshall N. Fulton. Twenty-four instances of hemopericardium among the 3400 autopsied cases at the Peter Bent Brigham Hospital were reviewed. There were fourteen patients who died of rupture of the ventricle subsequent to coronary occlusion. In all but one of these, rupture took place within seventeen days from the onset of symptoms. There were four instances of dissecting aneurysm which bled into the pericardial sac, three of mycotic aneurysm with intrapericardial rupture, two of hemopericardium following pericardial tap, and one of so-called "spontaneous rupture" of the aorta. No cases due to trauma were encountered. The amount of blood contained within the pericardium was generally less than 500 cc. Death, in these patients, generally was sudden though not instantaneous, there usually being a period of collapse lasting two to fifteen minutes before death occurred. In one instance of rupture of the ventricle and two of dissecting aneurysm this period lasted for hours, the patients dying gradually. The diagnosis of hemopericardium may be suspected in a patient known to have one of these types of cardiac or aortic lesions who suffers collapse and dies within a brief period, usually within two to fifteen minutes.

"The Early Diagnosis of Aortic Stenosis" was the subject of Dr Samuel A. Levine's address. Some years ago the diagnosis of aortic stenosis was made much too frequently. Many basal systolic murmurs which were eventually found to be benign or which accompanied nonvalvular disease of the heart were misinterpreted as due to aortic stenosis. There then followed a period of skepticism about the significance of the systolic murmur, and it was taught that aortic stenosis was a very rare condition. In fact one of the most noted authorities on heart disease in a recent book stated that this lesion is rare. Postmortem studies, on the contrary, show that stenosis of the aortic valve is almost as frequent as of the mitral, but that in many cases the diagnosis is overlooked.

A fairly certain diagnosis of aortic stenosis can be made if one finds a loud harsh systolic murmur and systolic thrill at the base of the heart, especially in the aortic area. The finding of calcification of the valve on fluoroscopic examination is practically pathognomonic. However, the valve will be stenosed for years before either a thrill will become palpable or calcification visible. A review of sixteen cases of definite aortic stenosis seen in pri-

vate practice in which the diagnosis eventually was made but which were previously seen and not properly diagnosed has convinced Dr Levine that this lesion must be suspected or diagnosed even in the absence of a thrill when a loud harsh systolic murmur (grade three or louder) is heard at the base of the heart. Occasionally the systolic murmur will be as loud or louder at the apex than in the aortic area. This is particularly true in the absence of hypertension, for when the latter is present and occasionally under other circumstances a loud basal systolic murmur may be present without aortic stenosis.

Dr A. W. Contratto reported on "Aortic Stenosis Syncope Angina Pectoris, and Sudden Death. The study was undertaken in an attempt to determine if there was any relationship between aortic stenosis carotid sinus irritability and syncope and sudden death or between aortic stenosis, angina pectoris and sudden death. One hundred and sixty cases of aortic stenosis were studied. Of this number one hundred were males and sixty were females. In this series fifty were autopsied cases. The average age of the patients in this series was fifty-one years. Eleven of the fifty-two cases in which the form of death was known died suddenly.

Syncope was a common complaint in twelve per cent of the cases. Marked vertigo was a prominent symptom in an additional ten per cent. No cause of the frequent occurrence of syncope in patients with aortic stenosis was determined. Fifteen patients with aortic stenosis were studied for carotid sinus irritability with negative results.

A large incidence of precordial pain was found in this series, twenty per cent having definite angina pectoris and twelve per cent having prominent precordial pain not characteristic of angina pectoris. Angina pectoris was as common in patients having aortic stenosis without aortic insufficiency as it was in those patients having aortic stenosis with some degree of aortic insufficiency. Six of the eleven cases that died suddenly in this series had angina pectoris. Also in studying the autopsy material in fifty cases, a large incidence of coronary sclerosis was found. Thus, it was felt that a large proportion of patients with aortic stenosis who die suddenly die with angina pectoris.

Is Digitalis Present in Body Fluids in Digitalized Patients? was the topic of the paper delivered by Dr Maurice A. Schnitker. It was noted that some patients complained of weakness, headache, nausea, and occasionally vomiting following salyrgan diuretics. If digitalis acting substances can be demonstrated in edema fluid, the mechanism may be that the patient is re-digitalized with a rapid elimination of fluid. Analyses were made of pleural and ascitic fluid from seven digitalized patients in which the fluid was known to have accumulated while digitalis was being taken. For controls similar fluids from four patients known to have had no digitalis were used. A precipitate obtained by treating the fluid with alcohol extracting with chloroform, reextract

ing with ether-petroleum benzoin was suspended in Clark's solution. This was tested in the Straub frog heart preparation.

The effects recorded on a kymograph compared with standard curves of digitalis showed very suggestive evidence of digitalis bodies in the seven digitalized fluids. In none of the controls was a digitalis-like effect observed. With digitalized fluid recovery of the heart could not be obtained by washing or by atropine. These measures caused recovery with non-digitalized fluids. Chemical tests, though not specific, have shown only two positive of six tests. These observations furnished suggestive but not conclusive, evidence that digitalis is present in body fluids of digitalized patients.

TRUDEAU MEDICAL SOCIETY

The annual open meeting of the Trudeau Medical Society was held in the Beth Israel Hospital on the evening of February 11. Dr Richard H. Overholt presided.

Dr Max Pinner spoke on "The Diagnostic and Prognostic Significance of Positive and Negative Sputum." Dr Pinner pointed out several exceptions to the usual rule that the finding of a positive sputum makes the diagnosis of pulmonary tuberculosis. In the first place patients may have tuberculosis with a positive sputum but there may also be another more important disease present. Secondly a positive sputum may come from tuberculous lesions in the tonsils or larynx without any pulmonary tuberculosis although these cases are rare. Thirdly in compensation and insurance cases patients may secure positive sputum from other people and pass it off as their own. Fourthly there are about twenty five species of acid fast organisms in sputa which are not tubercle bacilli, and these may be isolated only by culture and guinea pig inoculation. For this reason, whenever there is a discrepancy between the clinical and laboratory findings the bacilli should be carefully cultured. With these exceptions a positive sputum means active positive pulmonary tuberculosis.

Less than one per cent of active pulmonary tuberculous patients have negative sputum when the sputum is studied by direct smear concentration methods culture or inoculation. For this reason failure to find the tubercle bacilli in the sputum practically excludes active pulmonary tuberculosis. Negative sputum, contrary to the statement of many textbooks has definite diagnostic significance and Dr Pinner showed slides of several x-rays to demonstrate this point. However in the hematogenous, nonmiliary diffuse pulmonary tuberculosis the sputum is negative. In the series which Dr Pinner presented only nine out of five hundred sputa had to be cultured or inoculated into guinea pigs to show the presence of the tubercle bacilli. In all the other cases they were found either by direct smear or by concentration methods. The most reliable criterion for a closed cavity is a negative sputum. Dr Pinner pointed out the im-

been so treated, tying together of the tendons may be done from within out. This method minimizes operative trauma. Again the stitch does not penetrate the core of the tendon at the severed surface. Core-penetrating sutures provoke more scar tissue between the tendon-ends. The scar may stretch producing a little slack which defeats complete restoration of function.

unsurmountable disability in a middle-aged pianist or harpist. We should always strive for maximum results. I use a banjo splint with a rubber-band to support the antagonizing flexor. The elastic is removed every hour for active exercise of the repaired extensors. The device is also used following the repair of extensor tendons at the knuckles.

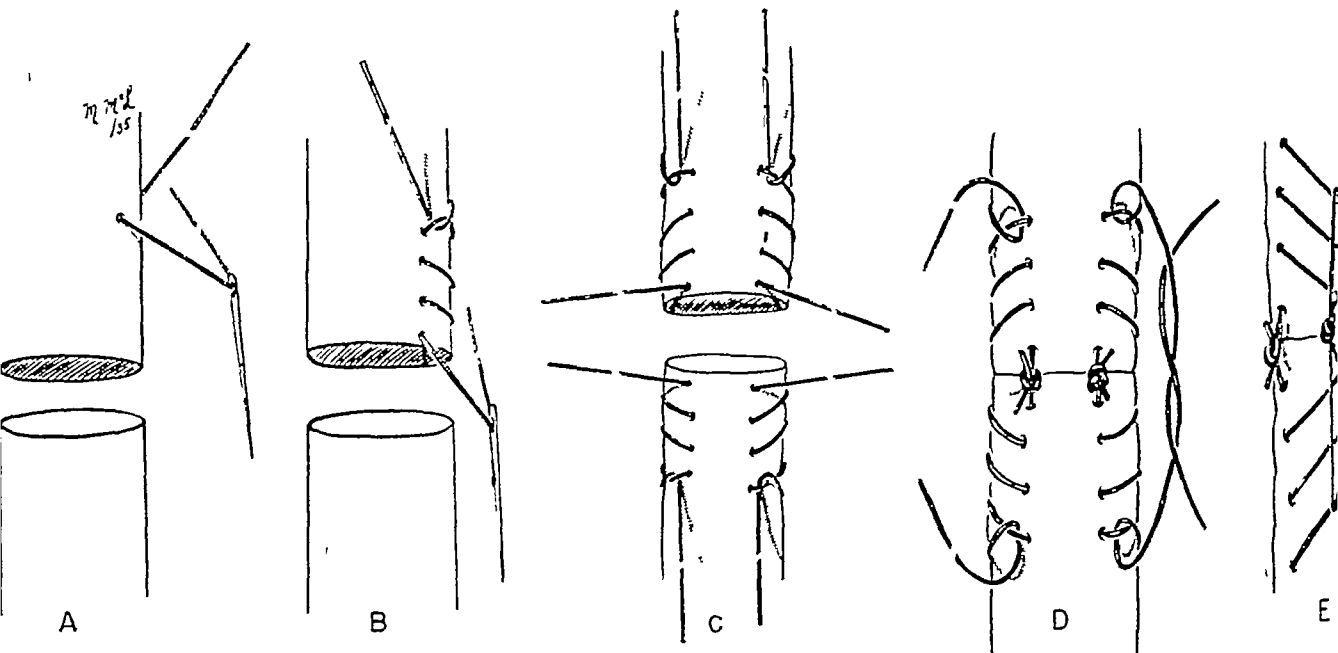


FIGURE 1

Tendon suture. The size of the silk has been exaggerated. A Start of stitch from under surface of tendon. B Single knot and overcasting down to severed surface which is not penetrated. C Both ends of severed tendon provided with stitches ready to tie. D Shorter stitch ends tied and longer ends being tied. E Side view of tendon with stitches tied. The upper surface of the tendon is to the left.

A few years ago Koch, Mason, and Shearon pointed out the disadvantages of sutures which pierce the core of the tendon end^{3, 4}.

The film will next illustrate devices for limiting antagonizing muscles, first, in the repair of flexors of the wrist with coincident nerve repair⁵. The film will show an aluminum splint covered with felt and provided with three buckle straps which encircle the forearm, wrist and palm. (See fig 2.) The splint maintains the wrist in flexion but permits active use of the fingers. Each phalanx is exercised separately as shown previously in the film. Tension on the sutured nerves, which would inhibit their regeneration, is however prevented by the flexed splint.

With the hand in repose the thumb is somewhat flexed. The flexors are stronger than the extensors. Following repair of the extensors, unless this steady pull is relieved, the repaired tendons will be stretched and complete restoration of function will not be attained. This may not be important in a laborer but may be an

The film will show a patient to illustrate the use of the banjo splint with rubber-band support. A fish monger of eighteen had severed the extensor pollicis longus of his right hand with a fish knife a few hours before I saw him (February 14, 1935). He presented a $\frac{3}{4}$ inch transverse incised wound over the metacarpophalangeal joint which severed the long extensor of the thumb and opened the joint. Immediate tenorrhaphy was done through a $2\frac{1}{2}$ inch posterolateral incision. The tendon-ends were found separated about an inch. Few interrupted 00 plain gut to fascia silk to skin, alcohol dressing, banjo splint with terminal phalanx held in hyperextension by a rubber band. February 16 active motions started. February 18 discharged from hospital. February 20 (six days after injury) film taken showing patient actively exercising the sutured tendon. March 12 discharged to Insurance Clinic. March 18 resumed former work at former pay.

Following the repair of the thumb extensors the banjo splint with rubber-band is worn for twelve or thirteen days. It is then replaced by a figure-of-eight adhesive strapping to support the proximal joint and a metal splint to support the distal joint in slight hyperextension. The metal splint is of aluminum and is removed each hour for active exercise of the sutured extensors. The strapping is changed once during the next ten days, when it is omitted. The metal splint is worn for another week or

3 Koch S L. and Mason M. L. Surg. Gynec. & Obst. 56: 1 1933

4 Mason M. L. and Shearon C. G. Arch. Surg. 25: 615 1932

5 Harmer T. W. S. Clin. North America (June) P. 822 1921

ten days. It may be worn at night for a longer period. (See fig 3)

The film will show a patient to illustrate the use of the removable aluminum finger splint. A dentist of thirty-two on January 10 1935 severed the long extensor of his left thumb with a saw. Immediate repair by a local physician was attempted but failed. I saw the patient on January 23 found the long extensor functionless and the wound still unhealed. February 1 incision along the radial border of the thumb and first metacarpal exposed the divided tendon bridged by a scar tissue band which was adherent to the surrounding tissues. Tenorrhaphy

the strain of hemolytic streptococcus from which the donor has recovered and that with which the patient is infected should be identical. Practically, in my experience, absolute specificity is not always necessary. If the bloods are compatible, even if the strain of hemolytic streptococcus is undetermined in either individual it is intelligent practice to use the recently recovered individual as a donor for a whole blood transfusion to the patient without delaying the transfusion until it is determined that the proposed donor has been and the recipient is infected with the same strain of hemolytic streptococcus. Hemologic studies may be started at the time which may prove profitable if the transfusion fails. The donor of the second transfusion to the first patient illustrated in the film was known to have recovered from a different

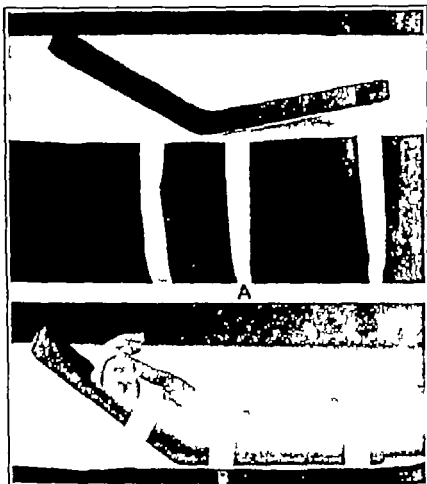


FIGURE 1

Felt-covered aluminum splint used following repair of nerves and flexor tendons at wrist. A. The splint has been properly angulated to receive the flexed wrist. B. Splint in use. Although thumb and fingers can be actively moved, extension of the wrist is prevented. The splint does not fit the subject; the forearm portion is too short and the hand portion too long.

closure dressing and banjo splint, as in previous case. February 3 discharged from hospital. Active exercises as in previous case. February 13 banjo splint removed. Figure-of-eight adhesive dressing applied to support proximal joint and removable metal splint to support distal joint. Distal joint to be actively exercised several times every hour. February 23 strapping removed. Use of metal splint continued till March 8. Obtained a perfect result.

The remainder of the film shows several stages in the treatment of two cases desperately ill with hemolytic streptococcus infections. Its purpose is to illustrate three principles in the treatment of such cases: 1, immune transfusion, 2, the feasibility and desirability of early active motions, 3 the preservation of tendons following the drainage of tendon sheaths and bursae. Theoretically in immune transfusion

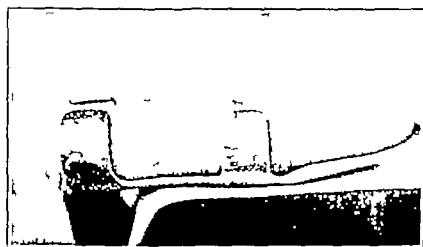
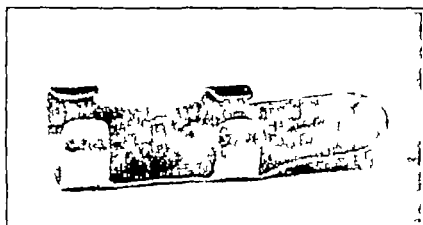


FIGURE 3

Readily removable aluminum splint used to hold terminal phalanx in extension (to eliminate the antagonistic pull of flexor) following repair of extensor of thumb (as described in text) and avulsion of extensor in terminal phalanx.

strain than that with which the patient was infected. In the second case the strain of the hemolytic streptococcus of the recipient was undetermined. From my experience with immune transfusion the benefit derived from the donor's blood may not be solely attributable to the specificity of the strain of the hemolytic streptococcus. It would seem that the whole blood of the donor may at times contribute actively phagocytic leucocytes and an opsonin which does not demand absolute specificity of strain. There may be other factors which con-

tribute to the efficacy of such nonspecific transfusions *

The first of the two streptococcus cases illustrated in the film showed the right hand of a young physician. I saw him twelve hours after the middle finger of the right hand had been widely opened. The finger was then completely gangrenous. The white count had fallen from 20,000 to 9,000 and he was desperately ill. The finger was disarticulated, the proximal portion of the flexor sheath opened and the flaps left wide open for dakinization. Two immune transfusions were performed using as donors individuals who had recovered from hemolytic streptococcus throat infections. I am indebted to Dr. Lyons, surgical resident at the Massachusetts General Hospital, for bacteriological studies in this case. The strain of hemolytic streptococcus was not the same in either of the donors or the patient. The patient's leucocytes showed practically no phagocytic activity. However, after the second transfusion the patient improved rapidly. Active motions of the thumb and remaining fingers were started ten days after the disarticulation. The film was taken nineteen days after disarticulation. Belt-knotting for finger exercise was started fourteen days after disarticulation. He resumed practice five weeks later. Subsequently a plastic will be done on the stump.

The second of the two streptococcus cases illustrated in the film shows the right hand of a butcher of fifty. He had sustained a punctured wound of the thumb two days previously. July 23, 1935, I saw him and performed an immediate drainage of the tendon sheath of the long flexor of the thumb, the radial bursa, and the wrist space. There was no evidence of involvement of the ulnar bursa. Culture showed hemolytic streptococcus. July 30 (one week later), the ulnar bursa became involved. The infection spread with such rapidity that within a few hours the little finger was gangrenous and the patient's general condition was alarming. The ulnar bursa was drained and an immune transfusion was given. The previous patient served as donor. Their bloods were compatible (Group II) but the strain of hemolytic streptococcus in the present case was unknown. However, improvement was immediate and the patient continued to make a satisfactory recovery. Active motion of the digits was started August 3 (ten days after the first operation and four days after the second operation). August 12 (thirteen days after the second operation) a film was made to show the incisions, motions, and the preservation of flexor tendons of the thumb and little finger. August 13 (the next day) the gangrenous little finger was disarticulated at the metacarpophalangeal joint and the flaps were left wide open for continued dakinization. August 31, discharged from hospital. September 7 (three weeks later) film was taken to show the condition of wounds, the degree of active motion, and the preservation of the flexor pollicis longus tendon. Subsequent progress was satisfactory.

In cases of infection of the finger sheaths and the radial and ulnar bursae the preservation of the involved tendons cannot be assured. If the mesotenon does not undergo necrosis or

if its vessels do not become thrombosed, the tendon will survive. The indications, therefore, are prompt adequate incision, and drainage in such a manner that the tendon blood-supply is not jeopardized in sheath infections. I never dislodge the tendon from its bed. I prefer to use multiple small gauze drains impregnated with boric ointment, laid lightly into the wound to hold the mouth of the wound open, *not* pushed down beside the tendon.

DISCUSSION

DR ALLEN G. RICE, Springfield, Mass. *Mr President and Gentlemen*—I think it has been eight years since we have listened to anything about the hand. It seems to me a rather important aspect of our work, especially in these days of industrial accidents.

After this very beautiful demonstration, I hate to say anything that would blur this excellent picture which Dr. Harmer has left us. All I feel confident to say is that I think there is a place for splints at times. I do not think you can make any hard and fast rule that splints are to be removed forty-eight hours or three days or five days later. I think it all depends on the case. It is pretty hard sometimes to judge just when the splints should be removed and when to start motion. I think perhaps the best criterion is the patient himself.

If the motion is slight, he will have very little pain. I am inclined to leave it to the patient himself, to make him start motion. If it hurts him too much, stop. Then begin again and let him move up to the point when it causes him pain.

Otherwise, I think I have very little to say, except to agree heartily with Dr. Harmer's points. He spent most of his time on tendon sutures. Some of us out in the crossroads see a lot of bad hand injuries. It is surprising to see the results that can be obtained if you let them alone. The tendency sometimes is to do some sort of surgery on them.

The very tip of the finger can, I think, best be treated with a celluloid cuff that projects beyond the end of the finger. Let it fill up with blood and leave it alone. That finger will mold itself a pretty satisfactory pulp.

Another instance where the pulp has been entirely cut away, I had a little while ago a young lady who played the violin. She was slicing bread and sliced the whole pulp off the end of her left finger. That left finger of hers was rather important.

In casting around for a place that had no hair and would look pretty well, I bethought me of the toe. I took the pulp off the toe and put it on the end of the finger, and, much to my surprise, it worked pretty well. Fingers that are cut off by saws with nothing left except perhaps one little artery on the side, can yet be saved. Wrists with not only tendons gone, but both arteries, can be saved. There is a little bit of an artery that runs down the middle. That is sufficient, lots of times to preserve that hand.

I have enjoyed this paper very much.

PRESIDENT JOHNSON: Is there any further discussion?

DR. JOHN HOMANS, Boston, Mass.: I am not quite sure that it is germane to this discussion, but it occurs to me to speak about a method of filling a considerable gap in a tendon which I have used in the case of one of the extensors of the thumb. It is perhaps a little clumsy but permits very early use. If a piece of fascia lata is taken, fairly narrow and split into two tails at either end, those two tails

*NOTE: My first immune transfusion was done in 1930. On April 14 I had operated upon a doctor desperately ill with a hemolytic streptococcus infection of his left index finger sustained by a needle prick. On June 11 I performed an appendectomy with drainage on a child. The culture proved to be a hemolytic streptococcus. Some days later the child went into collapse. I transfused the child with the doctor's blood. The immediate benefit was not less than spectacular. The strain of hemolytic streptococcus was unknown in either donor or recipient. I fully realize that this procedure was not scientific but the happy result in this case has been happily repeated in other cases since then.

can be wound around in a spiral manner one against the other so as to require very little sewing. Such an attachment can be made to each stump of the divided tendon with very few stitches and the harder the pull the tighter the lacing. So one feels very comfortable about making early use of such a union.

PRESIDENT JOHNSON Is there any further discussion? If not will you close the discussion Dr. Harmer?

DR. HARMER The title of my paper suggested the boundaries of some of the early grants of land in this country bounded on the east by the Atlantic Ocean and the west by the setting sun. I have tried to pick out just a few points to illustrate active motion or active motion with partial restriction of antagonistic tendons.

What Dr. Rice said is the same criterion which I use. If the flexor tendons are severed we will say at the wrist with nerve injury and coincident repair has been done I have the patient move the fingers in flexion up to the point of pain as Dr. Rice said

but prevent the fingers from being carried into extreme extension.

As for the practice of conservatism in hand injuries that cannot be too strongly emphasized. Hands which look desperate from crushes should have simple débridement done followed by daktinization even in the presence of fractures. Treatment of the soft parts may be more important than treatment of the bones. The fractures I think, at first should be disregarded and no primary effort made to align them. What we are more concerned with is the ultimate function of the hand rather than its appearance. Later work can be done to improve the appearance.

Dr. Homans' remark about the tendon graft is interesting. I have used fascia lata where I have had a good many tendons to repair. In short gaps I like to use tendon for the grafts rather than fascia lata although the fascia lata lace, as was said, gives you a feeling of security that it is not going to pull out.

I have been in the habit of using the palmaris longus when it was present or strips from the side of the tendo achillis or the plantaris when present.

THE ACTIVITY OF THE URINARY BLADDER AS MEASURED BY A NEW AND INEXPENSIVE CYSTOMETER*

BY DONALD MUNRO, M.D.†

IN an attempt to arrive at a better method of treating urinary bladders paralyzed as the result of spinal cord injuries it was soon demonstrated that cystometrograms were essential. A Rose cystometer¹ was tried but proved unsatisfactory for various reasons. In the first place the small graph did not show the individual contractions in sufficient detail. Secondly, the rapid fill inherent in this instrument masked the true contractile activity of the detrusor muscle and set up false levels of intravesical pressure. Finally these defects plus the limited amount of funds at my disposal made its cost prohibitive. At that time there was no other cystometric apparatus available except the experimental one devised by Denny Brown and Robertson.² I therefore adapted the tidal drainage apparatus which I had described before the New England Surgical Society in 1934³ for this purpose. I found that this provided a sufficient accuracy though crude home-made instrument. It was simple to operate and permitted the taking of observations at any desired rate of fill. Graphs made with its help were detailed enough to demonstrate minor as well as major variations in the contractile wave and it was constructed with the expenditure of about two hours of labor and \$5.00 worth of material. It was used at first in the study and treatment of abnormal bladder activity associated with spinal cord injuries. A preliminary report of these findings was made at the time the tidal drainage apparatus

was described as noted above. Since then this cystometer has been more widely used in a variety of normal and diseased conditions and in addition as a major therapeutic aid in the treatment of an increasing number of spinal cord injuries. This paper, however, is limited to a description of the cystometer and the presentation of the data derived from the study of the activity of thirty-one normal bladders. The observations were made on men, women and children and by a variety of operators.

With the antecedent tidal drainage apparatus, infection of the genito-urinary tract and the associated nursing problem of the constantly wet bed in spinal cord injuries of all types have been completely eliminated during the past two and a half years. With this additional cystometric modification and an associated graphic background of normal human urinary bladder activity the atrophic overdistended, and the hypertrophic shrunken bladders have also been eliminated. As a corollary, information is now available regarding the tonic response of the bladder muscle at the start of filling, the curve of increase of intravesical pressure with continuing distention and the frequency and type of reflex motor response initiated by a standard rate and amount of fill. By inference and because of the work of Denny Brown and Robertson,² the reflex activity of the two sphincters and the voluntary control over the external sphincter are also demonstrable. This should make obsolete any such inaccurate classification as is implied by the term 'neurogenic' and lead to a more intelligent understanding of the requisite treatment in certain types of bladder disease.

*From the Neurosurgical Service, Boston City Hospital. Read in abstract before a joint meeting of the Philadelphia Academy of Surgery and Boston Surgical Society at Boston, Massachusetts, February 3, 1934.

†Munro, Donald—Visiting Surgeon in Charge of Neurological Surgery Boston City Hospital. For record and address of author see "This Week's Issue," page 623.

*The Cystometer** (Figure 1) In its essentials the cystometer consists of a large U tube with a side opening in the proximal arm. The latter is connected with the bladder by a length of tubing attached at its distal end to an in-lying catheter. To the upper end of the former, and 70 cm above this side outlet, an air-tight "Murphy dropper" is attached to a 500 cc container graduated in 25 cc amounts. Above the

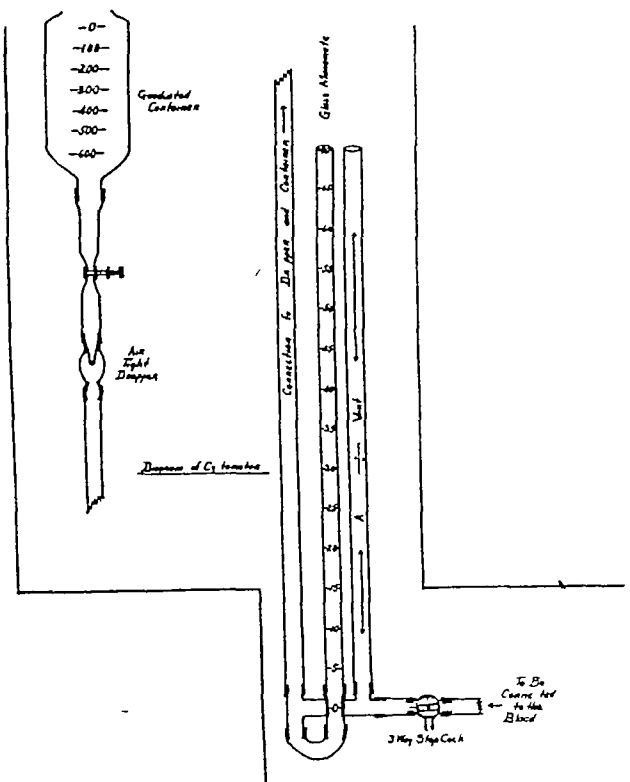


FIGURE 1

dropper an adjustable compressor surrounds the connecting tube. This regulates the rate of flow from the container to the dropper and permits its estimation in terms of drops per minute. The optimum rate has proved to be about 120 drops per minute. The other distal arm of the U tube is formed by a 70 cm glass tubing of 4 mm bore marked every $\frac{1}{2}$ cm from a zero point which is set close to the level of the bladder connecting arm. Introduced into the bladder connection is an air vent which is of the same length as the manometer together with a three-way stopcock which allows fractional emptying of the bladder.

With the patient as nearly as possible horizontal, readings are taken with the apparatus hung on a stand at such a height that the zero point on the manometer is at the level of the patient's pubis. Under aseptic precautions the patient is catheterized, the bladder emptied and the catheter fixed in the urethra with the eye

just inside the internal sphincter. In males it is preferable to use a soft rubber rectal tube of appropriate size because of the terminal opening. With the catheter attached and clamped off close to the meatus the cystometer is filled to the zero point with irrigating fluid from the graduated container. After making sure that the air is all out of the system the catheter is unclamped and the test filling started by adjusting the dropper so that the flow is at the rate of 120 drops per minute. Inasmuch as the system is air-tight and the bladder and manometer contents are in hydrostatic equilibrium, changes in the intravesical pressure will be registered on the manometer as rises and falls of the column of fluid contained therein. Contraction of the bladder wall or increase in this pressure will cause a rise in manometric fluid and relaxation the opposite. Respiratory excursions are visible constantly as are sudden alterations in intra-abdominal pressure when they occur. By starting the observations with the cystometer filled and the level of fluid in the container at 0 it is easily possible to make readings of intravesical pressure on the manometer scale simultaneously with notations of the amount of fluid that has emptied from the container into the bladder. These figures are recorded in parallel columns at the time of the observation. Later, they can, if necessary, be transferred to coordinate paper in such a way as to produce a graph which has for its abscissa or horizontal arm the fluid content of the bladder, and for its ordinate or vertical arm the intravesical pressure at a corresponding moment. This apparatus is admittedly much less accurate than that of Denny-Brown and Robertson but on the other hand is considerably more accurate than the Rose cystometer. Furthermore its accuracy is well beyond the requirements of daily practicality. Although there is a positive inflow pressure, the slow rate and the additional safety valve effect as provided by the open ends of the manometer and an vent prevent significant artificial alteration of the measurements. The readings of pressure are isometric below 70 cm or in accordance with the height of the air vent. In the presence of a leak about the catheter or overflow from the manometer or an vent above 70 cm they become isotonic. When recording, each change in intravesical pressure, as evidenced by a rise or fall in the column of fluid in the manometer, is noted. The corresponding increase in bladder content as evidenced by a fall in the level of fluid in the graduated container is also listed. Care must be exercised to make the recordings in such a way as to differentiate the step rises of pressure as seen in the normal bladder and the steady rise and fall to and from a peak as seen with uncooperative patients or in completely atonic bladders.

After completing the observations detailed

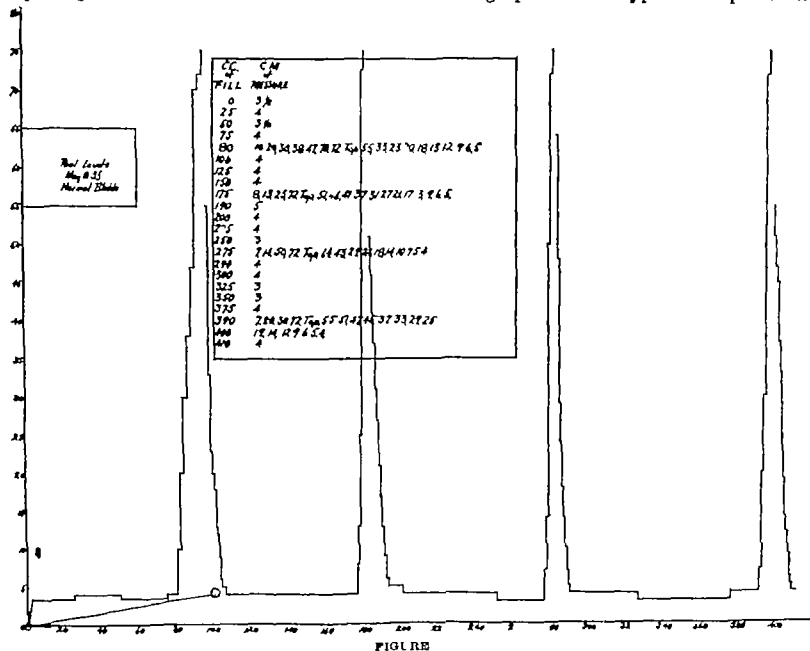
*A commercial form of this cystometer has been constructed by and is obtainable from the Randall Falchney Co. Inc. 123 Heath Street, Roxbury, Massachusetts.

above, if the stopcock in the bladder connection is set at any predetermined level *above* the zero point, the full bladder may then be made to empty against positive pressure. With the stopcock at zero and no further emptying a true picture of the residual urine in the given case may be obtained by then withdrawing by siphonage (with the stopcock *below* zero) and measuring any remaining bladder contents.

Observations Measurements as outlined above have been made with this apparatus on thirty one patients who had at the time no blad-

were ten of these observations of which one is illustrated. These were made on patients who, because of associated brain tumors (4), senility (1) or low intellectual level (5), were characterized by an absence of the psychological inhibitions commonly seen in the social relations of normal individuals. They were conscious, clean in their personal habits, completely cognizant of the need for a bedpan or urinal but their judgment in relation to such problems was conspicuous by its absence.

The graph in this type of response shows



FIGURE

der abnormalities whatsoever. Twenty four of these thirty one had never had before, nor did they have after the observation any subjective or objective vesical abnormality. Of the remaining seven three were made following presacral neurectomies for dysmenorrhea (through the courtesy of Dr Frank Pemberton), three after cervical hematomyelia with various degrees of fracture dislocation of the cervical spine and one three months after a compression fracture of the second lumbar vertebra.

In general it was possible to demonstrate three types of normal bladder activity as expressed in graphic form. The first may be considered as the true expression of the pure normal segmental reflex activity of the bladder in that the contractions were not inhibited by psychological influences. (Figure 2) There

that a fairly constant amount of stretch of the vesical wall as measured by cubic contents of the bladder produces a sudden sharp rise in intravesical pressure. Thus either ascends at once to an emptying peak or reaches there by the imposition of several increasingly stronger contraction waves one on the other. After a sufficient leakage has taken place the intravesical pressure descends again by steps to a slightly higher base than previously if the leak has been small, or to the original basic level if the leak has been larger. These peaks of contraction are uniphasic with a plateau at the apices and are more or less evenly spaced. The intervals between are given over to a succession of periods of distention against a constant resistance, interrupted at intervals by waves of contraction which do not produce emptying but slightly the level of resistance to

further distention. Because of the variations due to leakage it was impossible to include these figures in the average graphs made up from the other two series. Similar graphs (not reproduced here) have been obtained in cases with proved transection of the thoracic cord. Here there was necessarily an associated anatomical severance of the bladder from the influence of higher intellectual centres although detailed studies showed normal function and anatomy of all parts of the genito-urinary tracts. These graphs also correspond within

uses. This is associated with stretching of the detrusor muscle interspersed with contraction waves only large enough to increase the resistance to further distention until at a certain critical point any given wave may suddenly build itself up to emptying levels. Instead of subsiding to the former precontraction pressure level after partial emptying, other large waves immediately follow in rapid succession. This gives the appearance of tetany on the graph and in the manometer, a condition that in all probability is actually present. In my experience

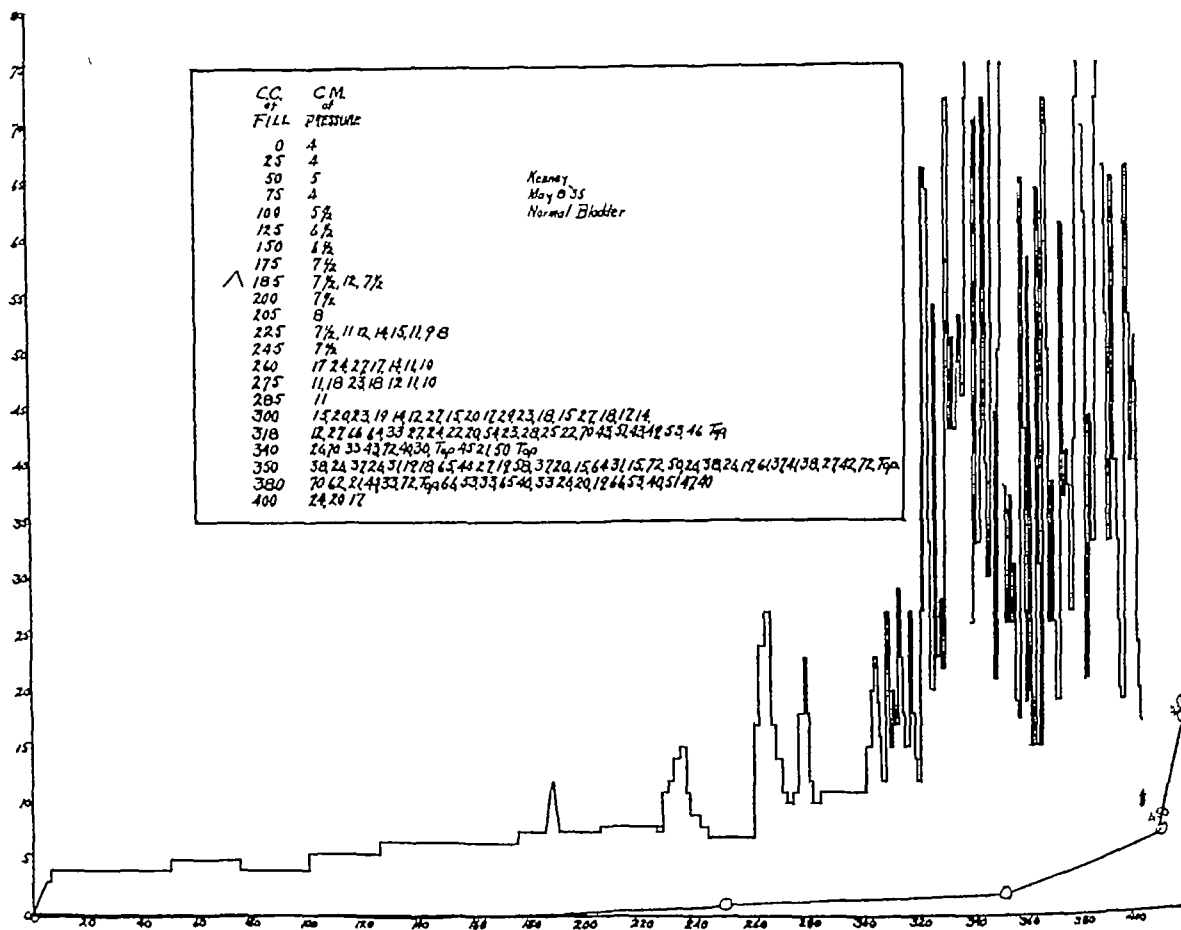


FIGURE 3

the limits of comparison of the two methods, to the observations of Denny-Brown and Robertson.

The second type of normal bladder activity is that in which inhibitions from higher levels act to prevent detrusor contractions until the tetanic level of stretch of the muscle has been reached (Figure 3). With slow filling and without mechanical obstruction of the outlet every bladder will undoubtedly sooner or later reach this level under these conditions. However, because in these observations the amount of fill of the bladder at any one test has been arbitrarily set at 400 cc or less, it has been possible to separate this group as those bladders which go into tetany within the limits of that fill. Here the intravesical pressure slowly

this type of graph has not been duplicated outside of a normal bladder and conforms as well to certain of the data obtained by Denny-Brown and Robertson. There were eight such patients. All had normal bladders, the graphs of which are represented by the one reproduced herewith (Figure 3) (Figure 5A).

The third type of normal bladder activity is that in which emptying contractions are totally inhibited until after 400 cc or more has been added to the empty bladder (Figure 4). There were eleven of these without previous bladder abnormality with an additional two in whom the graph was the same although made after pre-sacral neurectomy. These base lines duplicate those of the two other types of graph (Figure 5B) and also conform to certain of the

data elicited by Denny Brown and Robertson. From the combined data of these last two groups a high, low and average base line for normal intravesical pressure has been determined. (Figure 5C) Attention should be particularly directed to the shape of the curve and more especially to its rise through a series of steps. The degree of tonus set up in response to a minimum fill is also both characteristic and important. These factors together with uniphasic, more or less regularly spaced or tetanic contractions with plateau tops occurring in the

on the part of the patient especially if it takes the form of physical activity. This will produce sudden rises and falls of the fluid level in the manometer (figure 6B), which if observed carelessly may be interpreted as detrusor contractions. More careful study will demonstrate, however, that they lack the plateau at the apex which is an essential part of a true contraction and also do not show any steppage in either the rise or fall. They are due to sudden contractions of the muscles of the anterior abdominal wall and are the graphic evidence of

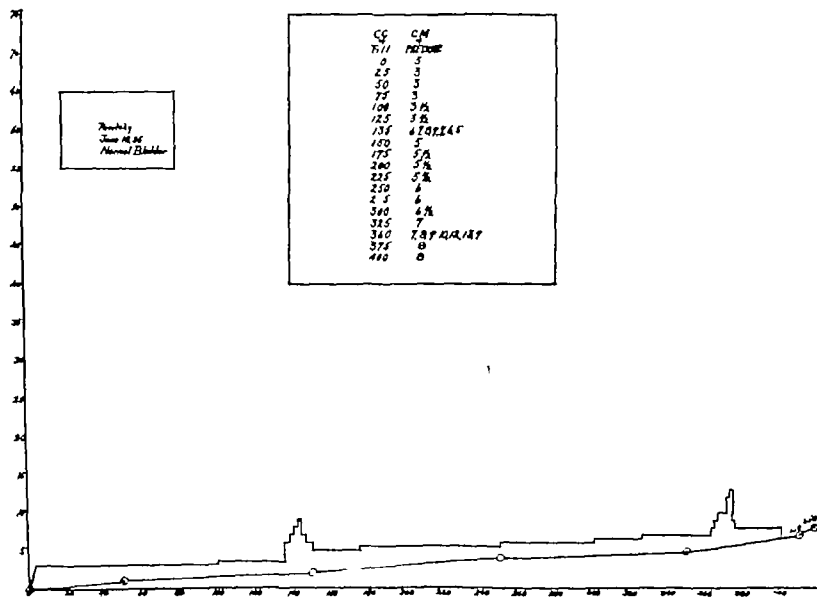


FIGURE 4

absence of postural or psychologic inhibitions characterize the normal human detrusor muscular activity

Artificial Variations There are two common artifacts that, unless recognized, may confuse the interpretation of the graphs. The first has to do with the rate at which the bladder is filled during the test. (Figure 6A) This may produce an artificially high level for the base line and will completely obscure the normal step appearance that goes with increasing fill. Inasmuch as these variations may both be symptoms of interference with the normal vesical neuromuscular reflex, particularly in certain spinal cord diseases or injuries, it is important to identify the cause of their appearance accurately. The second is due to lack of cooperation

an increase in intra abdominal pressure transmitted directly through the bladder and its contents.

It is not appropriate at this time to consider the various other graphs that are associated with bladder pathology. However for purposes of record it can be stated that with this apparatus it has been possible to differentiate acute cystitis, a contracted hypertonic bladder, a non contracted hypertonic bladder, a completely atonic bladder, destructive disease such as carcinoma of the wall of the bladder and finally the different stages of resumption of bladder function after spinal cord injuries.

Discussion A detailed review of the studies which have led to our present understanding of the physiology of micturition cannot

be undertaken in this place Suffice it to say that available knowledge is much greater than is commonly made use of Experimental and other work done by such men as Learmonth¹, Holmes⁵, Quinby⁶, Graves and Davidoff⁷, Graves⁸, Langworthy et al^{9 10} and many others have cleared up many of the broader problems Finally Denny-Brown and Robertson² with an ingenious and extraordinarily accurate apparatus have, with the help of normal human subjects, dealt with and settled many of the hitherto misunderstood details The result of all

sphincter serves in its turn as a sensory impulse which again travels to the sacral segments of the spinal cord to leave as a motor impulse by way of the efferent side of a second reflex arc which this time includes the pudic nerves This final impulse relaxes the external urethral sphincter This activity is all mediated through normal neurological connections that lie wholly in the lower segmental levels of the central nervous system It provides for the emptying of a given bladder in response to the purely automatic impulse elic-

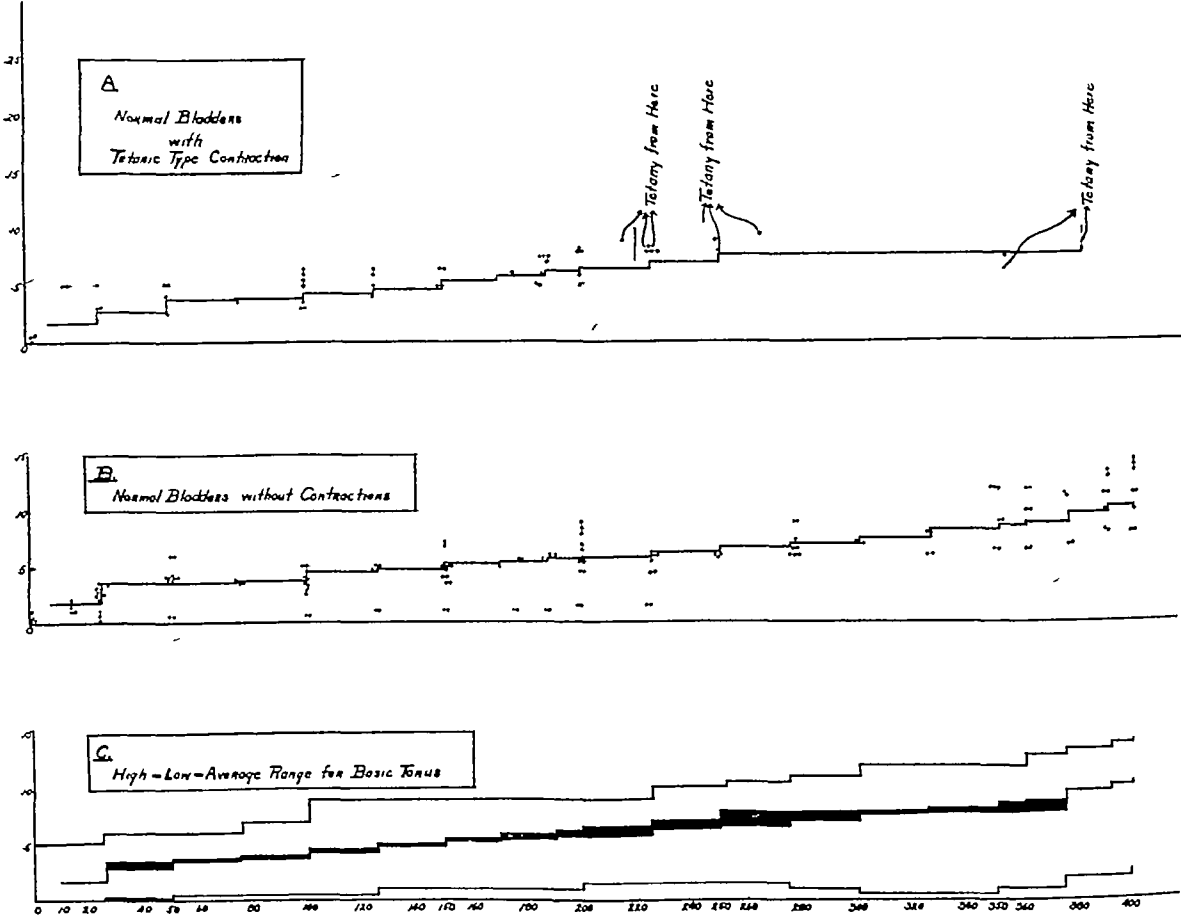


FIGURE 5

this work may be summed up as follows Micturition takes place because of the reflex contraction of the detrusor muscle accompanied simultaneously by a reciprocal relaxation of the internal urethral sphincter and followed by a further reflex relaxation of the external sphincter This succession of events is started by a sensory impulse derived from a given amount of stretch of the bladder wall This impulse reaches the sacral segments of the spinal cord by way of parasympathetic or pelvic nerves, is shunted in the cord to the motor neurone of this reflex arc and reaches the detrusor and internal sphincter musculature simultaneously as a motor impulse As noted above, this produces contraction of the former and relaxation of the latter This relaxation of the internal

is initiated by a given amount of stretch of that particular bladder wall If this constituted the whole story, however, the vesical storage facilities would be limited below known normal levels This greater storage capacity is provided through the control of what would otherwise be emptying contractions of the bladder wall, by the impact of inhibitory impulses originating at suprasegmental levels These impulses find their origin in unusual or inconvenient psychological or postural circumstances They pass down the cord to act probably on the afferent part of the parasympathetic reflex arc As a result, relatively great degrees of vesical distention may be reached before the urgency of the reflex detrusor contraction results in emptying This storage capacity may be still fur

ther increased by the voluntary contraction of the external sphincter. This can be imposed at will on the reflex relaxation that would otherwise take place. As a corollary to this it becomes apparent that facilitation of micturition is attained only by the control of the inhibitory impulses from the higher central nervous system levels. Only in this way can the underlying reflex activity leading to emptying resume its normal rhythm. It is furthermore true that relaxation of the external sphincter takes place only reflexly. The functions served by the

cause my observations were made with a method of fill that approximated the normal. They were both isotonic and isometric in type. On the other hand direct observations were made of the detrusor contractions only and do not include any sphincteric data that is other than inferential. They demonstrate again that the bladder distends by periods of stretch which are brought to a close by the imposition of contraction waves. This stretch occurs in the presence of a fundamental basic tonus, while the contractions raise the level of this fundamental

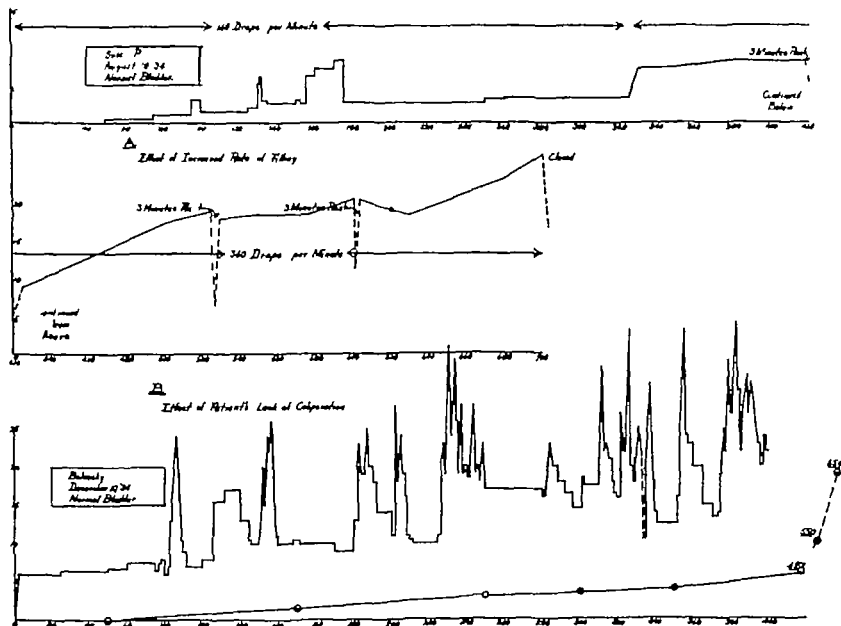


FIGURE 6

sympathetic connections are still in dispute with no final evidence available one way or another. Also in doubt is the presence of an autonomic plexus analogous to Auerbach's plexus and lying wholly within the limits of the vesical wall. What evidence there is, however, is to the effect that this structure if present, functions only in the event of an otherwise complete denervation of the entire bladder and its sphincters.

The data outlined above and obtained as described from the study of thirty one normal bladders strongly confirm this summary of the physiology of micturition. They also agree with that obtained with more accuracy though from fewer individuals by Denny Brown and Robertson. This is the more significant be-

tonus by steps until such time as the critical degree of distention for the individual bladder is reached. Here further action depends upon two factors. If inhibitory psychological or postural impulses are removed because of disease or by division of the connections linking up the suprasegmental intellectual levels to the bladder an emptying contraction will take place. This may take the form of a single large wave or that of a pyramid of successively greater waves. If on the other hand suprasegmental inhibitory impulses are allowed full play what would otherwise be an emptying contraction is flattened out and produces no more effect than the antecedent non emptying ones. The resulting distention will then continue until such time as the inhibition is removed by extravesical

cause or until, because of pain in or overdistention of the bladder, the motor response no longer remains under control. This is succeeded by a tetanic type of contraction which lasts until the excessive distention has been reduced to a level where the inhibitory factors can again assume control.

While no direct evidence of sphincteric action is available as the result of this work it can be assumed with safety that the similarity between these findings and those of Denny-Brown and Robertson as regards the detrusor action justifies the conclusion that here too detrusor contraction was accompanied by reciprocal sphincter relaxation. In addition it is certain that in all these cases voluntary control of the contraction of the external sphincter was easily demonstrable at the time of catheterization. Furthermore anal and glans reflexes, the pathways for which are known to lie in the pudic nerves, were also always active. This would seem to imply that the reflex which led to relaxation of the external sphincter following detrusor contraction was also normal and active inasmuch as the same anatomical connections with the spinal cord were involved.

These data give no information regarding the impulses that traverse the sympathetic system connections per se and offer neither confirmation nor denial of the presence of an autonomic intravesical plexus.

CONCLUSIONS

- 1 A simple inexpensive portable cystometer is described.
- 2 Simultaneous readings of approximate content of the bladder and intravesical pressure, when made with this cystometer, give sufficiently accurate information about the activity of the detrusor muscle and the internal urethral sphincter to identify any deviations from normal.
- 3 When properly charted on coordinate paper of a sufficient size these figures will provide a graph of this activity.
- 4 Normal involuntary reflex activity of the external urethral sphincter can be checked by the activity of the anal and glans reflexes. It parallels that of the internal sphincter.
- 5 The normal ability of the patient voluntarily to contract the external sphincter can be measured by his resistance to the passage of a urethral catheter.
- 6 Normal detrusor activity must approximate the following requirements:

- (a) The initial tonus of the detrusor muscle set up in response to less than 10 cc of content will vary from $\frac{1}{2}$ to 5 cm of water pressure.
 - (b) Distention of the bladder proceeds against a background of tonus which is constantly being increased by additional increments added by means of waves of contraction that vary from the lowest possible level to heights that will produce complete emptying.
 - (c) This basic level does not normally rise above 15 cm of water with the first 400 cc of fill.
 - (d) Emptying contractions are uniphasic with a plateau at their apices.
 - (e) While normal bladder activity is fundamentally a function of a pure spinal segmental reflex arc it can be inhibited up to the point of detrusor tetany by impulses from suprasegmental levels. These impulses are set up as the result of unfavorable postural or psychological influences, or by voluntary contraction of the external urethral sphincter.
- 7 Graphs of normal bladder activity made with this cystometer fall into three types: (a) one in which spaced emptying contractions occur throughout the experiment, (b) one in which emptying contractions occur toward the end of a fill of 400 cc in the form of unspaced, constant tetanic contractions, and (c) one in which during a fill of 400 cc there is a complete absence of emptying contractions.
- 8 Facilitation of micturition depends in part at least upon the repression of conscious and unconscious inhibitions. This permits the normal underlying reflex activity to resume its rhythm.

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NEW HAMPSHIRE MEDICAL SOCIETY

MANAGEMENT OF SKULL FRACTURES*

How Can the High Mortality Rate Be Reduced?

BY HARRY E. MOOK, M.D.†

IN a previous publication‡ the author has shown that at least 125,000 proved skull fractures occur annually throughout the United States. The mounting casualty rate from automobile accidents during the last five years has undoubtedly raised this number to more nearly 150,000 skull fractures per year. Wherever trains run, automobiles are driven, airplanes fly, horses are ridden or stairways are built, there you may have skull fractures. The victims of this trauma frequent our smallest as well as our largest, hospitals. In fact, I have knowledge of certain small but well equipped hospitals located near extremely busy through highways where the number of skull fractures treated exceeded the number in certain of our well established neurosurgical centers. Thus it is evident that skull fractures constitute a problem for the general physician and surgeon as well as for the neurological surgeon. It was this fact, combined with the location of our hospital, permitting the development of a large traumatic service that caused this problem to become my chief surgical hobby. The gradual but steady reduction in the mortality rate which is being reported from a constantly increasing number of clinics, both from neurosurgeons and general surgeons, shows that the campaign for better management of skull fractures is succeeding.

The term "skull fractures" rather than "head injuries" is used purposely by the author but it must be emphasized that *be it cranial, cerebral, or craniocerebral*, the treatment of the injury is identical. The fact cannot be overemphasized that a given head injury without any x-ray or other evidence of skull fracture, may require just as close observation just as pains taking management, and even then may prove fatal.

However, no uniform statistical study of this problem can ever be made if "Head Injuries" is the basis of reporting cases. One man's judgment as to the seriousness of a head injury before it should be included as a "possible clinical skull fracture" differs materially from another's judgment. The mortality rate is the best measuring rod for gauging the results of

treatment and whether advances are being made in treatment. Thus, if one author builds up his statistics on absolutely proved skull fractures, his mortality rate will be more favorable, because many head injuries which are practically positively proved skull fractures will die before absolute proof is obtained. Again, if an author includes a large number of head injury cases in his statistics because he feels that they are clinical skull fractures, his mortality rate will likewise be more favorable, because the death rate in several large series of head injury cases without fractures has proved to be considerably lower than when fractures existed. On the other hand, if an author includes in his statistical study not only his definitely proved skull fractures, but from 3 per cent to 10 per cent of cases dying before proof can be obtained but which are so positively clinical skull fractures that they must be thus classified, then it is evident that a truer, although higher, mortality rate will result.

In the years 1931 to 1934 inclusive the author presented a Skull Fracture Exhibit in the Scientific Exhibits of the American Medical Association. In the first Exhibit at Philadelphia in 1931 he presented 100 consecutive cases of proved skull fractures from his own clinic at St. Luke's Hospital. At that meeting and at subsequent meetings many physicians and surgeons throughout the country, many of them from your New England States, consented to cooperate with him by reporting their consecutive skull fracture cases on a common blank furnished by the author. Likewise several hospitals reported their cases and six hospitals allowed the author and his two associates, Dr. Reed Morrow and Dr. Charles Shannon, to study their consecutive head injury files for a period of five years, in order to select the proved skull fracture cases. The facts and impressions presented in this article therefore have been gleaned from a study of 2595 cases of positively proved or practically positively proved skull fractures collected from the following sources:

- 1 Two hundred cases of skull fractures entered on the author's service at St. Luke's Hospital. Ninety-two per cent of all these were positively proved skull fractures. The remaining cases were so obviously skull fractures that they had to be included although they raised the death rate 3 per cent.

Read at the Annual Meeting of the New Hampshire Medical Society at Manchester May 8, 1935.

*Mock, Harry E.—Senior Attending Surgeon, St. Luke's Hospital. For record and address of author see "This Week's Issue," page 662.

‡Management of skull fractures and intracranial injuries. J. A. M. A. 97:1139 (Nov. 14) 1931.

- 2 Eight hundred and fifty cases collected from approximately 100 individual surgeons and twelve hospital staffs reporting on a uniform blank prepared and sent to them, approximately 1250 cases were submitted as skull fractures, but 400 of these were ruled out, as they did not fulfill our requirements for positively proved or practically positively proved skull fractures
- 3 Thutteen hundred and fifty-four cases were obtained from a survey of the records of six hospitals covering a period of five years in each hospital Approximately 5,000 records were studied, and from these were culled the 1354 cases of positively proved or practically positively proved skull fractures
- 4 One hundred and ninety-one cases were submitted to us from the neurological service of a large hospital

These cases fulfilled the requirements for proved skull fractures

My address given before youi Society last May was built around forty-two lantern slides which enabled me to demonstrate my subject more cleaily Space will not permit the reproduction of all this material, therefore I wish to devote this article to that portion of my address which dealt with the question—“*How Can the Mortality Rate from Skull Fractures be Reduced?*” In order to develop this subject it is necessary to reproduce just two of those lantern slides

CHART A

HOW CAN HIGH MORTALITY RATE BE REDUCED?

A—IN FIRST 24 HOURS

45% of Deaths Occur in 1st 24 Hours

- 1—Greater knowledge concerning early management by rank and file of profession
 - a—Laity education—prevention and 1st aid
- 2—Treat shock first—everything else can wait
 - a—Don't suture lacerations at once
 - b—Don't reduce fractures at once
 - c—Exception—a severe life threatening hemorrhage
 - d—Least possible moving of patient chief essential
- 3—Every serious head injury is emergency case
 - a—Requires immediate attention of attending physician
 - b—Early skillful examination—blood and urine
- 4—Don't overlook less obvious, often more serious, associated injury
 - a—Two cases ruptured spleen—operated—lived

- 5—X-ray every head injury—but don't x ray
 - a—In presence of shock.
 - b—In presence of delirium or deep coma
- 6—Immediate operation of Skull Fracture seldom indicated
 - a—30 immediate operations—28 deaths
 - b—15 subtemporal decompressions in 1st 7 hours—15 deaths
- 7—Treat every head injury as serious until proved otherwise
- 8—Morphine lulls the surgeon, as well as the patient, to sleep

The following table shows the source of my figures for the above chart, as well as for chart B

TABLE 1				
Source	Num ber	Total Death Rate	Death Rate 1st 24 Hours	Death Rate 1st 7 Days
Mock's cases	200	18 2%	46%	38%
Collected cases	850	26%	44%	42%
Hospital Records	1354	40 5%	45 5%	41%

After all is said and done the answer to this question of, “How can the high mortality rate from skull fractures be reduced?” has been the chief concern of the Skull Fracture Exhibit, as well as the chief motive behind the efforts of all men working and teaching in this field of head injuries Recently I came across an unprinted monograph by Dr Nicholas Senn, written in longhand in 1896 In this article he stressed the fact that skull fracture was a wide spread condition which must more often be treated by the general physician rather than by surgical specialists He pointed out that the early management of these cases, before a special surgeon could arrive on the scene, often spelled life or death for the patient In other literature of his day there was a note of inevitableness in the discussion of the mortality rate from head injuries During the last decade the attitude toward this condition has been more hopeful and without question, many suggestions in management have been made which, if adopted and logically carried out, have been and will be life saving measures

In recent years, it seems that a note of pessimism has crept into some of the articles, and again the inevitableness of death in a certain percentage of skull fracture cases is being stressed For example, Dr Walter Dandy (J A M A 101 774 [Sept 2] 1933) states “Give nature a chance and 70 per cent of all patients with severe (head) injuries will recover spontaneously If left alone, the remaining 30 per cent will die From this group perhaps one

third (one tenth of the total injuries) can be saved by subtemporal decompression if well timed and properly performed. The remaining 20 per cent (of the total) must be regarded as beyond redemption by any rational means available.

If it were possible to pick out the inevitable deaths, or those that remain beyond redemption by any rational means, the situation would be ideal. It would then be simply a matter of concentrating upon the other 80 per cent. Time and again, in commenting upon one of our deaths from skull fractures, we have found ourselves saying "Well, that was an inevitable death, nothing could have saved him." Time and again we have thusly predicted concerning a certain patient but have continued to fight and, to our surprise, the patient has recovered. It is simply impossible for any man so to classify all skull fracture injuries that the profession can select the cases of inevitable death and the cases that might be saved. This being true our attitude must be hopeful watchful constantly searching for greater knowledge especially in the management of the early cases the time period in which the death rate is the highest.

There is great need here for education of the laity especially first-aid and prevention methods. Without question the states must develop uniform laws which will control the types of automobile drivers, standards of ability for the drivers, uniform traffic regulations, especially speed control, and compulsory insurance that will provide hospital and medical attention from the very minute an accident occurs. During A Century of Progress I gave an address on Skull Fractures for the College of Surgeons at one of their public meetings. I know from the testimony of two persons who heard the discourse that on two different occasions each prevented the dumping of an unconscious patient with a skull fracture into the rear seat of an automobile for the purpose of conduction to a hospital. They covered these patients up, kept them warm and insisted upon an ambulance for transportation. Talks of this nature should be given all over the country to lay audiences. Better and more complete ambulance service must be established everywhere. The profession must join with the laity in a fight, first, against accidents and secondly, for better emergency and subsequent care when trauma occurs.

The second point in Chart A viz treat shock first—everything else can wait is a commonsense but life-saving slogan where skull fractures are concerned. Not so often now as formerly, we have witnessed these skull fracture cases brought into the emergency room at the hospital unconscious and covered with blood which has oozed from the ugly scalp wound. The patient is cold and clammy and in coma or at other times

is fighting in delirium. The interne or doctor in attendance shows a one track mind when he pays attention to this laceration. Time and again we have witnessed such a patient in deep shock, with two or three people restraining him while the attending physician proceeds to shave his scalp and suture the laceration. After this is completed, the patient is moved to the hospital bed, occasionally to the x ray laboratory first, yet most of us have learned not to x ray these cases at once. It is of equal or greater importance not to delay the treatment of shock while the laceration is sutured. Formerly we had in Chicago a hospital devoted solely to emergency treatment. None of the patients were kept in this hospital all night. I have seen several cases transferred from this hospital to St. Luke's while in shock and coma but with their scalp wound sutured. Two cases thus transferred developed a marked erysipelas while several cases developed scalp infections from the immediate suturing of the scalp wound. It is not only the best treatment to treat the shock first and suture the laceration later but it is better treatment to suture the laceration after one has had a better chance to cleanse it and debride it and to make sure that a compound fracture does not exist.

The following case illustrates "b" under 2 in chart A viz., the immediate reduction of fractures in the presence of skull fracture and shock.

Mr. B. was admitted to one of our best hospitals in coma and apparently with a head injury and a fractured femur. For the shock he was given a hypodermic of morphine at once. He was then taken from the emergency room to the x ray laboratory where an x ray of both the skull and the femur were made. Both showed fractures. The fragments of the femur showed little displacement and would require little manipulation and anyway the patient was in coma and would feel nothing. He was therefore taken to the nearby plaster room where a body and leg cast was applied. He was then moved to his hospital room. He was then in even greater shock, likewise he was extremely restless. Therefore another hypodermic of morphine was given. When this patient was seen by one of our best neurological surgeons one hour later the patient had Cheyne-Stokes respiration, a rapid thready pulse and died shortly after the specialist completed his examination.

Fractures can so readily be immobilized in a pillow splint or blanket splint or a Thomas splint, or even by a board splint that immediate manipulation and reduction or more elaborate splintage is never necessary or indicated when a skull fracture is suspected or when the patient is in shock be it general shock from a fracture or cerebral shock from the head injury. Ob servance of this fact will save many lives.

Only occasionally is there a severe life threatening hemorrhage which requires the immediate attention of the surgeon, even in the presence of the shock. I have never observed a middle

meningeal or subdural hemorrhage that gave signs or symptoms of its presence to the extent that surgical intervention was necessary during the first few hours following the injury when the shock period is present

The least possible moving of the patient is the chief essential in the presence of head injury, and especially when cerebral shock is present. In the author's 200 cases of skull fracture, shock in varying degrees was present in 90 per cent of the cases. I have seen it recently written that shock was not usually present in head injuries. This is not true, for in head injury sufficiently serious to cause the least disturbance of consciousness, shock is usually present. Remember, that it differs from the general picture of shock in that, added to this are the cerebral disturbances which cause respiratory depression, fluctuations in pulse rate and blood pressure, as well as the anoxemia peculiar to both general and cerebral shock. The following example best illustrates this point concerning moving the patient.

A young Jewish girl was admitted to the ward at St. Luke's Hospital in coma and with a definite head injury. Most of these serious head injury cases are first admitted to the ward. Many of them can afford and insist upon being moved to a private room. This move is never made with my consent until the shock has been combated and until the moving of the patient will not add insult to the injury. In this case, the parents insisted upon immediate removal to a private room. Upon my refusal to move her the family surgeon was called in on the case. He immediately ordered an x-ray which was made. When she returned from the x-ray room she was extremely restless and a hypodermic of morphine was given. Meanwhile, the family had arranged for a private room and the patient was at once moved to a distant part of the hospital to this private room. She died one hour later. This was not a case that could even be classified as an inevitable death. Unquestionably, the early moving of this patient was responsible for the disaster.

A physician who visited the Skull Fracture Exhibit in Philadelphia in 1931 and again visited the Exhibit in New Orleans in 1932 told me the following story. He practiced in a small village fifteen miles from the county seat where the hospital was located. One of the busiest through highways passed through his village where many accidents occurred. Prior to 1931 he was in the habit of rushing these accident cases, including his skull fracture cases, over to the county seat hospital. After listening to the first Skull Fracture Exhibit he changed his tactics. He stated that during the last year he had treated six head injury cases in his home, from a few hours to several days, before subjecting them to the long trip to the hospital. All six of these cases recovered whereas in the previous year all of his skull fracture cases died.

At the Skull Fracture Exhibit in Cleveland, at least five surgeons told me of treating skull fracture cases in nearby farmhouses for two days to three weeks before moving them into

town to the hospital. One physician, discussing one of my early papers on Skull Fracture at Logansport, Ind. stated "It will please the essayist to know that I have a skull fracture case out here in the country about eighteen miles. The accident happened ten days ago and I moved her into the nearest farmhouse. She is still alive and everybody is happy except the farmer. I won't move that girl until I know it is safe."

The above examples led to the development of my slogan—"A LIVE SKULL FRACTURE IN A FARMHOUSE IS BETTER THAN A DEAD ONE IN THE HOSPITAL."

Every serious head injury is an emergency case. No conscientious surgeon today neglects to respond immediately to a call from a patient, or from his interne, concerning a case of acute abdominal pain radiating toward the right lower quadrant. We have become thoroughly imbued with the emergency nature of acute appendicitis. It is just as essential to respond to the call concerning an acute head injury. Yet in reviewing the skull fracture cases from the records of six hospitals it was noteworthy that many a case admitted at night was not seen by the attending man until some time the next day. Several cases died before the attending surgeon's visits—one as long as twenty-eight hours after admission.

When should a head injury be considered serious and therefore an emergency case? Several conditions are here involved, chiefly the following:

- (a) When the head injury, although apparently trivial, has occurred in a serious accident with potentialities of great damage.
- (b) When there has been a loss of consciousness.
- (c) When the case is sufficiently serious to be admitted to the hospital.

No matter what time of the day or night the call comes the physician or surgeon responsible for the case, or an experienced assistant if he has one, must immediately see that head injury case. He must make a careful, skillful examination without unduly disturbing the patient. He must look for associated injuries. The urine (catheterized specimen if impossible to obtain otherwise) and the blood must be examined. Why? Because occasionally the urine is bloody indicating the ruptured kidney or bladder, or the leucocyte count is high suggesting the possibility of an internal abdominal injury. The surgeon with his experience is better able to judge whether the trivial injury case needs to remain in the hospital. This decision should never be left to the interne. The surgeon should be the one to determine whether the case is able to be x-rayed at once. He should direct the treatment of the shock. He should remember that 45 per cent of his cases will die in the first

seven hours and therefore his close observation and direction of the treatment is needed most during this period. May the sleep of any of us be terribly disturbed if we fail to respond immediately to the call of the head injury case!

Many are the examples which I have collected, some in my own practice, illustrating the need of emphasizing these rules concerning the emergency nature of the head injury case.

- (a) There was the case admitted to my service at three A.M. This patient, male, forty-five was stuporous but the interne could smell alcohol on his breath and felt he was drunk. The slight bump on the head seemed trivial. He was new on the service and we had failed to instruct him in the rule to call one of us on every head injury case (mistake 1). I was signed up to operate at eight A.M. and therefore did not visit this patient as soon as I reached the hospital (mistake 2). A blood count was made early that morning but of course I did not know that it was 6000 whites because of failure to visit the ward (mistake 3). At eleven A.M. the nurse phoned the operating room that the patient seemed to be dying. We hurried to the ward and found the patient in extreme shock, blood pressure 48 and pulse barely perceptible. Examination showed a rigid abdomen, dullness in left flank. The leucocyte count was now 36000. A diagnosis of ruptured spleen was made. In spite of the serious condition of the patient I operated and removed a badly ruptured spleen. Preparations had been completed for a blood transfusion and this was done at once. A second transfusion was given at eight P.M. This patient made an excellent recovery. There were no signs of a skull fracture at any time other than the unconsciousness. However at the end of two weeks an x-ray of the skull showed an extensive linear skull fracture.

The failure to observe the "rules of the game" almost cost this patient's life.

- (b) A serious automobile accident occurred. A husband and wife and their five-year-old boy were in the car. They were brought to a hospital and hurriedly examined. The boy was not hurt apparently. He sat on a chair in the waiting room while x-rays were made of the mother and father, both of whom had minor fractures, one of the clavicle and the other of the hand. No one paid further attention to the boy. The father and mother had been treated and were about to depart when the boy suddenly fell off the chair unconscious. He soon regained consciousness but could not talk and soon developed a paresis in the right arm and later in the leg. I was called diagnosed a middle meningeal hemorrhage, operated and found the same. The boy recovered.

This case shows how easily the true condition in the boy's case was overlooked and the potentialities of a catastrophe which existed if he had been allowed to depart.

- (c) One of my senior medical students was externing at a small hospital at night. A boy was brought in about eight P.M. having been struck by an automobile and knocked completely across the street. He had a scalp wound but

otherwise seemed unharmed. The surgeon who ran this hospital examined the boy and then told the extern to suture the scalp and let the father take his boy home. It was a "hit and run" accident, the family was very poor and no one could be financially responsible for the case. The extern's suggestion regarding keeping the boy in the hospital under observation was therefore rejected with the excuse that "these kids are tough and be ten hurt." About three A.M. the father came to the hospital stating that his boy was acting and breathing abnormally. The extern went to the home found the boy stuporous, slowed pulse and with stertorous breathing. He helped the father carry him to the hospital and the surgeon was called. Because of lack of financial means a police ambulance was called and the boy was transferred to the county hospital. He died a few hours after admission from an obvious middle meningeal hemorrhage and without the benefit of surgical intervention.

Mistake 1 Failure to keep under observation the apparently trivial injury from a serious accident.

Mistake 2 Undue transportation of the case.

Mistake 3 The apathy of the public and of the profession in not long since demanding a commonsense law which would compel all county commissioners to pay these small, poorly endowed hospitals to keep such patients as this boy and similar emergency cases, until it was safe to transfer them to the county hospital. They could at least pay a rate commensurate to the cost of caring for the case in the county hospital.

- (d) There is the case of the airplane pilot who crashed with four passengers. He helped get the injured from the wreck and helped to take them to the hospital where all were admitted, treated, and recovered. He only had a scalp wound which was sutured and he was allowed to depart. That night he became unconscious in his hotel room and was not discovered until morning and died before they could get him to the hospital.

At least twenty examples have been collected of this type of head injury—scalp wound sutured, allowed to leave, later the cerebral damage manifested itself and death before anything could be done or death in spite of the efforts of delayed treatment.

If the reader is tired of examples remember that the author is endeavoring to emphasize how the high mortality rate from skull fractures can be reduced.

The skull fracture is often so obvious that it completely explains the extreme shock and deep coma that are present and persist until the patient dies. Even the coroner feels that the cause of death is quite obviously skull fracture and therefore refuses to do an autopsy. However in these days of terrific traffic accidents, with

their multiple injuries, one must never be satisfied with a diagnosis of skull fracture alone until by careful and repeated examinations he has ruled out the less obvious, but often fatal, injury. Many a case of so-called inevitable skull fracture death might have been saved if search for the less obvious injury had been made.

The author has had two cases of ruptured spleen occurring with proved skull fractures in which splenectomies were performed with recovery. Dr S W McArthur, at St Luke's Hospital, diagnosed a ruptured liver in a young lady four hours after admission with a skull fracture and with the patient in deep coma. He operated, found a badly lacerated liver, packed the wound, and this patient recovered.

A surgeon told me at the Cleveland convention of a skull fracture case which he treated for twenty-one days; the patient recovered and was allowed to go to his home in a small town twenty-eight miles away. A week later this patient suddenly became very ill and died within a few hours. The surgeon went to this home, performed an autopsy, and found a ruptured spleen as the cause of death. Delayed hemorrhage from a ruptured spleen is not uncommon.

There is no need to devote much space to emphasizing point 5 in chart A. I am convinced that in the past too many cases were sacrificed by the immediate rushing of the head injury case to the x-ray. No skull fracture, and for that matter no other fracture when the patient is in shock, should ever be x-rayed later, and as soon as safe, the x-ray should always be made, for it will prevent too early movement of an otherwise symptom-free patient, it will tell whether a depressed fracture is present and of a sufficient degree to warrant operative intervention, and it will show the location of the fracture, often a guide in both prognosis and treatment.

There are certain definite indications for operation in skull fractures as will be shown later. There are many borderline cases where it is extremely difficult to determine whether these indications are present. There are cases that are certainly nearing death where one feels that something surely can or must be done. The family is begging for action which fact often influences judgment. But from my own experience and from a review of the 850 cases reported to me and from a study of the 1354 hospital records one feels that this axiom holds true: *the immediate operation of a skull fracture, or the operation within a few hours, is seldom indicated.*

In my own experience there were three early cases operated, one five, and seven hours after injury, who were robbed of any chance they may have had for recovery.

From a study of the reports of cases sent me

by doctors from all over the country there were records of nineteen subtemporal decompressions, done within the first seven hours, with 100 per cent mortality.

From the hospital records, in spite of an exceedingly low operative rate, thirty cases of immediate operations were collected with twenty-eight deaths.

Dandy, who seems to favor operative treatment as the one definite thing that can be done in approximately 10 per cent of the cases, states emphatically that the longer the operation can be postponed the better the results.

Even in epidural or subdural hemorrhages the signs and symptoms of such conditions rarely develop within the first few hours. The author has had one case of middle meningeal hemorrhage that was definitely diagnosed and operated successfully six hours after the injury whereas in nine other cases, similarly diagnosed and successfully operated, the signs of this condition developed from two to thirteen days after the injury. As has been pointed out by Munro the signs and symptoms of subdural hematoma develop late as a rule.

Treat every head injury as serious until proved otherwise. This rule has been explained for the case which seems trivial and turns out seriously. On the other hand the rule does not mean that every head injury case must have a lumbar puncture or must be kept in the hospital for three weeks. In fact many of them are never hospitalized. But one should be quite positive, as a result of a careful neurological examination, that the patient is free of dangerous developments before deciding against hospitalization.

The majority of these questionable cases will turn out to be simple cases of concussion or possibly contusion—a differentiation often impossible to make. It is my habit to keep the less serious concussion case hospitalized and under observation at complete rest for one week, while the more serious, possibly contusion case is treated for ten days at least.

Morphine lulls the surgeon, as well as the patient, to sleep. This is just as true in skull fractures as in appendicitis where most of us have learned to avoid this drug. In addition morphine is a respiratory depressant and this effect added to the respiratory depression so often present in head injuries is sufficient to be disastrous. A survey among a great many brain surgeons has developed the fact that practically none of them ever use morphine either in skull fractures or other cerebral conditions. Experience has taught them its dangers. General surgeons should be governed accordingly.

It is noteworthy that in the author's cases as well as in a study of the entire remaining 2395 cases 40 per cent of the deaths occurred

in the first seven days. Concentrating his every effort to reduce the mortality rate during this period, one gains impressions concerning therapeutic effects which, with the accumulation of data, gradually merge into facts. Proof of the merit in these facts comes with the gradual lowering of one's mortality rate. Furthermore, it is noteworthy that every man who has concentrated upon the management of the skull fracture case has witnessed this same lowering in his mortality rate. This is true in the case

CHART B.

HOW CAN HIGH MORTALITY
RATE BE REDUCED?

B—AFTER 24 HOURS

40% of Deaths Occur from 2nd to 7th Day

1—Greater knowledge concerning general management

- a—Dehydration started early (after shock) and persisted in will reduce fatalities
- b—Examine frequently—certain signs and symptoms interpreted correctly require life-saving special treatment

2—The earlier lumbar puncture is performed when indicated, the lower the death rate

- a—Not indicated in presence of grave shock
- b—Increased intracranial pressure—persisting after early dehydration—requires lumbar puncture

3—Repeating lumbar punctures when operation is indicated increases fatalities

- a—One case—coma punctured conscious convulsions 3rd day punctures repeated death 4th day autopsy subdural hemorrhage
- b—Six cases—definite focal signs 2 to 14 days repeated lumbar punctures all died autopsies in 3—middle meningeal hemorrhages

4—8% of cases require operation

- a—Operative rate over 12% or below 6% in creases mortality rate
- b—The longer operation can be safely postponed the lower operative death rate
- c—Subtemporal decompressions seldom indicated—in 942 cases 27 such operations—22 deaths.

of the 150 physicians and surgeons who were sufficiently interested in the problem that they took the time to fill out the two-page skull fracture blank which we furnished them.

Temple Fay in his writings shows a reduction in his mortality rate from around 21 per cent to approximately 12 per cent in skull fractures and serious head injury cases.

George Swift in his writings and in personal communications shows a reduction in the mortality rate in the serious head injury cases cared for at Harbor View, Seattle, from around 35 per cent several years ago to 22 per cent five

years ago and finally to 12.1 per cent for the last three years.

The author, having built his statistics on proved or practically proved skull fractures, naturally has a somewhat higher death rate than the above authors. He has no statistics upon his death rate prior to 1925. But since that time concentrating upon the management of the skull fracture case, he published in 1931 a mortality rate of 20 per cent for proved skull fractures counting every case that entered his service even though death occurred one minute later. Now his mortality rate is down to 18.2 per cent for proved skull fracture cases. Counting skull fracture cases and some 500 serious craniocerebral injuries in addition his mortality rate is down to 11 per cent.

The author's experience as well as the testimony of many others working on this problem is sufficient proof that the serious head injury case need not be left to nature, that there are several well-defined therapeutic measures which can be applied to the management of these cases and finally that the high mortality rate can be reduced if greater knowledge concerning the general and special management of these cases is gained, especially by the rank and file of our profession who are seeing most of the cases.

Comparison of the above mortality rates with table 2 will soon convince one that there is need for greater knowledge concerning these therapeutic measures. In the six hospitals whose records were studied the cases were cared for by both neurological surgeons and general surgeons. In the 800 cases reported to the author the management was chiefly by general surgeons.

TABLE 2
FROM CHART FOR SKULL FRACTURE EXHIBIT
SHOWN IN 1934

Date and Source	No. of Cases	Mortality Rate
1927-1934 Mock's Series	171	19%
1928-1934 Collected Cases	800	26%
1928-1934 Hospital Records	1283	39%

What are the causes of death in these patients during the period between the second and the seventh days?

The great majority die from gradual respiratory and cardiac failure due undoubtedly to the cerebral damage. The next commonest cause for death is pneumonia. Meningitis in my experience causes less than 5 per cent of the deaths. Multiple injuries, diabetes, syphilis, alcoholism and old age are all marked contributing factors to the death rate.

In regard to meningitis, meticulous care of the bleeding ear avoiding antiseptic spraying or irrigation of the wound through any of the

sinuses and early, as soon as shock is over, débridement and cleansing of the compound fractures with loose closure of the wound will prevent many from developing this disease. When it does develop, early and frequent spinal drainage until the cell count is again practically normal, sometimes necessitating fifteen or more punctures, is the treatment to follow. The use of antimeningococcus serum in these cases is of no value unless the specific organism is the cause.

Don't mistake meningismus, from the irritation of blood the result of a subarachnoidal hemorrhage, for meningitis. When meningismus is present it is likewise an indication for repeated lumbar punctures.

One must always be on guard to detect the pneumonia case especially if the skull fracture patient is in the fifth decade of life or over. These patients, often stuporous or in coma, are left absolutely quiet on their backs for too long periods. Frequent change of position to avoid hypostatic congestion, often the forerunner of pneumonia, is important. The oxygen tent or inhalator is of the greatest value in many cases showing respiratory difficulty. I have seen patients who have been in coma for as long as two weeks and have not eaten a mouthful during that time. Patients have died from dehydration and starvation while in coma. This can be avoided and lives saved by the simple measure of passing a stomach tube and feeding the patient at frequent, regular intervals. Good nourishment is likewise a preventive of many complications including pneumonia.

The more specific therapeutic measures to prevent death from cerebral damage are outlined in chart B. The author has classified his cases in four groups according to signs, symptoms and treatment. These groups will be used to elucidate the therapeutic management.

GROUP I, or 5 per cent of the author's cases with proved skull fractures, required absolutely no other treatment except *rest in bed*. These cases were free of all signs and symptoms except the x-ray evidence.

GROUP II, or 55 per cent of the author's cases, required only general treatment. These were the cases requiring anything from shock treatment to a complete course of dehydration treatment except spinal drainage. All of these cases recovered except eight that died the first few hours in the hospital before any special treatment could be given.

Your attention is directed especially toward the cases requiring dehydration, a form of treatment in which the author agrees with many others. Its early (after shock has been overcome) and proper administration has undoubtedly saved many of these 55 per cent of cases from going over into the lumbar puncture or operative group.

The patient is usually in coma or extremely restless. His pulse and respiration are slowed but not usually below 55 and 16 respectively. The blood pressure, after the shock is over, is usually stable with a tendency for the diastolic reading to hover around 70. Of course in older individuals both systolic and diastolic may be elevated. The temperature is usually above normal, seldom above 101°. If a sedative is required chloral hydrate or sodium bromide per rectum is usually sufficient. Luminal or some similar preparation may be used. Morphine is avoided. It is surprising how many of these cases show a sedative response to the administration of a dehydrating dose of glucose intravenously.

Fifty cc of a 50 per cent glucose solution intravenously is administered to the patient with the above picture shortly after admission. It helps restore blood volume and thus aids in combating shock. If symptoms persist, this glucose solution is repeated in three to four hours. In addition, a saturated solution of magnesium sulphate, 4 oz., is now given per rectum providing shock is over. Many of these cases regain consciousness shortly after this and some require no further dehydration, while others will show periodical signs of returning increased intracranial pressure. To these, the dehydration methods are again applied.

A few of these cases will remain between coma and consciousness and will have persistently slowed pulse and respiration and often a lowered diastolic pressure. For these, the glucose solution and magnesium sulphate per rectum are administered every six to eight hours. Whenever dehydration is used, the fluid intake is limited to 20 or 30 oz. each twenty-four hours. If, in addition to this limitation of fluids, glucose and magnesium sulphate are repeatedly necessary, one must guard against overdehydration with its increased temperature, its restlessness, its headache and phenomena easily mistaken for cerebral damage symptoms. In 1931 the author pointed this out and offered the plan of easing up on the dehydration every forty-eight hours in order to *strike a balance*. More recently, Temple Fay has shown the need of guarding against overdehydration. Many cases have been carried along to recovery by this plan of dehydration treatment persisted in for two or more weeks. It is usually unnecessary to give other than the magnesium sulphate per rectum or by mouth once a day after the first week. Quiet surroundings, avoiding discussion of the case with the patient, good nourishment and rest in bed for three to four weeks complete the hospital care of this group. The period of convalescence will vary from six to twelve weeks.

GROUP III. Thirty per cent of the author's cases fell in this group, which is known as the Lumbar Puncture Group. It includes the

more serious skull fracture cases who, because of persistent coma, persistently slowed pulse and respiration, usually below 55 and 16, respectively, extreme restlessness, persistent, severe headaches, a lowered diastolic pressure, frequently down to 48, and any other signs suggestive of persistent increased intracranial pressure, do not yield to the usual dehydration procedures.

It requires the closest observation to detect the difference between the signs and symptoms due to cerebral edema and other causes of a milder form of increased intracranial pressure and the signs and symptoms of a threatened medullary compression due to more severe causes of increased pressure. A lumbar puncture done early, before medullary compression has developed, is often extremely spectacular in its results. Patients will frequently come out of a deep coma a few moments later and even converse with the doctor or nurse. In many of these cases, the puncture is only required once if the ordinary dehydration, above described is persisted in.

Cases which have developed deeper coma rapid, shallow respirations, with no grunt or Cheyne Stokes respiration and a rapid, bounding pulse, have definite signs of medullary compression. The lumbar puncture should have been performed before this stage was reached and certainly must be performed now. It is in these cases that this therapeutic measure is life saving, although many of these patients die in spite of this effort.

The importance of the pulse and respiration rate and of the blood pressure as a guide to treatment shows the necessity of hourly charting these, especially during the first day.

The lumbar puncture must be repeated if the signs and symptoms, which first indicate its need, recur or persist. In the case of a patient who remains alive for a few days, but is going downhill in spite of lumbar punctures and dehydration, one must search constantly for the least sign of an indication that operative intervention is needed. In the absence of all such focal signs, and where lumbar puncture has been thoroughly tried, it may be necessary to resort to an exploratory subtemporal decompression. Many lives are lost by persisting in lumbar punctures when indications for operative treatment are staring one in the face. (See 3 in chart B.)

GROUP IV, or the Operative Group. Ten per cent of the author's cases have fallen in this group. This may be a little high for the average run of cases, because several of these operations were performed in other hospitals when called in consultation.

The definite indications for operative intervention in skull fractures are the following

A—Definitely depressed fractures. Many slightly depressed fractures give no symptoms and do not need operations.

B—The compound depressed skull fracture often with brain substance exuding from the wound.

C—Middle meningeal hemorrhages. Often these extradural hemorrhages are contralateral to the site of injury. Rarely but it happens, the paralysis is on the same side as the clot. When such a phenomenon is present, and especially with the site of fracture shown by x ray opposite the site of the clot, the surgeon is presented with a condition requiring his keenest judgment. A bilateral craniotomy is usually the only answer.

D—Subdural hematoma. True blood clots are not always found at operation when this diagnosis is made. Frequently the condition is one of an encysted hematoma, containing only debris and serum. It is thought that the increased osmotic pressure within the thinly encapsulated cyst causes an increase of the fluid content, thus accounting for the late symptoms in subdural hematomas. Again, instead of a clot, one often finds a collection of cerebrospinal fluid. Sachs described this condition, explaining that it was due to a laceration in the arachnoid, thus allowing the escape of the fluid subdurally.

E—Subtemporal decompression. As a rule, this operation is now limited to those few cases with persistent symptoms, growing worse, not responding to lumbar punctures and with no definite focal signs. In my experience, it is not indicated in more than 1 per cent or 2 per cent of the cases.

It may be indicated to do the decompression at the site of the fracture. In such an instance, it is more in the nature of an exploratory craniotomy.

A fracture may be so severely depressed that an early x ray is indicated to evaluate the risk of delaying surgery. When the depression is extensive and the condition of the patient is such as to indicate that this pressure must be relieved, it may become necessary to operate even within the first few hours. Fortunately, such a situation seldom arises, but when it does, the operation may be life saving.

The operative rates in the various sources from which the 2,595 cases were collected were as follows:

A—In the 550 cases reported by surgeons to the author	11.6% operated
B—In the author's 200 cases	10.0%
C—In the 1,354 hospital records studied	3.3%

In the reported cases, it was evident that some surgeons were resorting to subtemporal decompression too readily, too early, and with a resulting higher mortality rate.

In a study of the hospital records, many cases were found where lumbar punctures were persisted in when signs and symptoms were present definitely indicating the need for operation. In one of the largest hospitals, the staff was proud of its conservative management of skull fracture cases, judged by its low operative rate. There was a time when the operative rate in skull fractures reached as high as 24 per cent (from author's study of the literature on head injuries from 1910 to 1920). In the following decade, many authors wrote on the conservative treatment of head injuries, stressing the non-operative treatment. They rendered a valuable service, because the reports in the literature from 1920 to 1928 showed the operative rate reduced to 12 per cent with a corresponding drop in the gross mortality rates reported in these articles from 49 per cent in the 1910-1920 period to 33 per cent in the latter period.

Today it would seem that the pendulum is swinging too far toward this so-called conservatism, and cases which definitely demand operative intervention are being neglected, with a corresponding rise in the mortality rate.

In conclusion, allow me to point out that during the last decade our medical literature has been so replete with controversial views concerning the management of acute craniocerebral injuries that the surgeon caring for only a few of these cases each year is left in doubt as to certain procedures. It has been said in condemnation that 90 per cent of the profession are using dehydration and lumbar punctures in head injuries. My studies lead me to believe that this is true. I am positive that 90 per cent of our profession would not persist in these methods if they were dangerous and of no life-saving value. Controversy concerning these two methods should be replaced by a united effort on the part of all workers in this field so to visualize conditions that the average surgeon in the average sized town will know when to use dehydration, when to institute spinal drainage, and when to resort to operative treatment.

The high mortality rate from skull fractures can be reduced by observing the commonsense principles herein set forth and by the proper

application of general and special therapeutic measures.

DISCUSSION

PRESIDENT LORD I shall ask Dr Emery Fitch to discuss this paper first.

DR EMERY M FITCH *Mr President and Gentlemen*—I am very glad that I was the one chosen from this Society to discuss Dr Mock's paper, because I have always breathed a sigh of relief when I felt the train pulling out of Chicago and I still had a whole head, and again because Dr Mock not only represents Chicago, but he represents a vast study of skull fractures all over the country and brings a message to us which we should heed. Another reason that I am glad to discuss this talk of Dr Mock's is because after going home from the New Hampshire Surgical Club last fall, having listened to Dr Munro, I felt that something definite should be done in our own little hospital, and other doctors who were there from our town felt the same way. So we corrected at once the bad habit of rushing head injury cases to the x ray room and rolling them over and over in our effort to get different views of the skull so that we could give a definite report to the newspapers as to whether that person had received a skull fracture. I should like to leave with you this message, that you work with your co-workers and try to head off this pernicious habit of rushing patients in shock to the x ray room just to get an accurate report to give to the newspapers. Really, it matters little what the newspaper knows about the condition of accident patients with head injuries, and we should treat them for shock before we take them to the x ray room.

We succeeded in getting an agreement among our men that before they tried to x ray the head injury cases, or the bad accident cases, whether head injury or not, they would first put them to bed and get them out of the initial automobile shock.

The matter of dehydration is enlightening to us all. It is something we can all do, regardless of whether we are surgeons, it is something that every doctor is now familiar with.

The matter of lumbar puncture, we feel, should be reserved for the time when the patient is not improving. We feel that the lumbar puncture should be checked by manometer reading and should not be persisted in just because we get bloody fluid.

I was glad that Dr Mock spoke about multiple injuries, because that, also, has been a pernicious habit in many of the hospitals, the doctors feeling that they must at once correct all the injuries, often at the expense of the patient's recovery. The other injuries can wait, we must get our patient out of the initial shock, if we are going to do them any good.

I was also glad to hear him speak of the cases that received a laceration of the brain, without necessarily a skull fracture. The fact that you are not able to read a skull fracture into your picture doesn't mean that you are permitted to neglect treatment of the head injury. You must take into consideration the symptoms and treat the brain laceration.

THE MECHANICS OF DELIVERY*

Especially As It Relates To Intracranial Hemorrhage

By FREDERICK C. IRVING, M.D.†

Mr. President and Members of the New Hampshire Medical Society

TO obtain an idea of the frequency of intracranial hemorrhage I have consulted the records for the past ten years of the Boston Lying in Hospital, as fairly representative of a large institution where about 2 000 infants are born annually. During this time there were 20,827 deliveries with an incidence of intracranial hemorrhage of 1 in 107 births. Since intracranial hemorrhage is not always a fatal disease, not all of these babies died. The diagnosis was made in many instances on the clinical signs alone, and could only be checked anatomically when an autopsy was performed. So far as the actual neonatal deaths from intracranial hemorrhage are concerned they have shown a steady drop from 1932, being 5.2 per 1000 in that year, 3.8 in 1933 and 2.5 in 1934.

A review of 182 autopsies on infants showed that 72 or 40 per cent, died from intracranial hemorrhage. Those who exhibited cerebral or cerebellar bleeding of a degree insufficient to cause death are not included in this number.

Intracranial hemorrhage may be due to trauma, intrauterine asphyxia or it may be a manifestation of hemorrhagic disease of the newborn. In the minds of many, however, the chief cause is violent or unskillful operative delivery either by forceps, internal podalic version or breech extraction. While deaths resulting from such procedures are far too frequent, they do not supply the entire casualty list in intracranial hemorrhage. In 40 per cent of our infants who presented at autopsy evidences of bleeding within the skull there were hemorrhages also in other parts of the body. The only logical inference then is that in almost half of these babies the intracranial hemorrhage was due not to trauma but either to asphyxia or to hemorrhagic disease of the newborn. Moreover, 25 per cent of our autopsy material showed petechial hemorrhages elsewhere in the body but none in the cranial cavity.

The production of petechial hemorrhages scattered throughout the various organs is a recognized pathological picture in asphyxia of the newborn. It is the duty of the obstetrician to recognize during labor the signs of approaching asphyxia and to take the proper steps to avoid the fatal results which may ensue to the infant. Auscultation of the fetal heart beats should be carried out at least every half hour

during the first stage of labor and at least every five minutes after the os is fully dilated and the expulsive phase has begun. Any marked slowing of the heart rate or any marked acceleration or any combination of the two or an irregularity in rhythm, is suggestive of disturbance in the gaseous exchange with the mother. Fair criteria of threatened asphyxia are consistent rates above 180 or below 100. Of the two a low rate is more important than a high one.

In the first stage of labor, especially if the membranes are unruptured, moderate alterations of the fetal heart rate are seldom of significance and do not call for interference. A notable exception, however, is prolapse of the cord. In the second stage of labor marked alterations in the fetal heart rate especially if accompanied by the passage of meconium, are of grave importance and indicate the termination of labor by the most appropriate and safest method which in the majority of cases, is by the low forceps operation. The passage of meconium stained liquor amnii on the other hand, is of no pathological importance.

Asphyxia may also result from a prolonged and unprogressive second stage of labor the fetal head being thrust for many hours against an unyielding perineum. In such cases a liberal episiotomy will often result in prompt expulsion of the fetus although in some instances it is necessary to supplement this small operation by the use of low forceps. The second stage of labor should never be made an endurance contest between the pelvic floor of the mother and the cerebral circulation of the infant.

The second cause of intracranial hemorrhage is hemorrhagic disease of the newborn. While the obstetrician can do nothing to prevent hemorrhagic disease he has the first opportunity to diagnose the condition and to begin its treatment. Bloody stools or vomitus may be present, as may petechial spots on the skin surface. A prolonged bleeding and clotting time are sometimes, but not always, found. Transfusion usually is of benefit but the intramuscular injection of blood usually exerts its influence too late to be of any aid.

The third cause of intracranial hemorrhage is trauma. Trauma may result from an attempt to deliver an infant which is too large through a pelvis which is too small. However cephalopelvic disproportion is not the most common cause of trauma since pelvic contraction occurs only about once in every 300 cases in New England. By far the most frequent source of fetal

*The second in a series of papers presented at the Symposium on Obstetrics at the Annual Meeting of the New Hampshire Medical Society at Manchester, May 7, 1935.

†Irving, Frederick C.—William Lambert Richardson Professor of Obstetrics, Harvard University Medical School. For record and address of author see "This Week's Issue" page 633.

cesarian section if the case had been followed by rectal examination. I do not believe in prolonged labor in the face of frank disproportion which may be detected by examination, nor do I believe in too prolonged labor against the rare intractable cervix, but I do believe that since the cardinal pathology of delivery infection is a septic focus in the split cervix, practically no operating should be done from below unless the cervix is fully dilated.

CONDITIONS CONTRIBUTING TO INFECTIONS

Certain general conditions in the patient and certain conditions specific to pregnancy seem to tend to increase the likelihood of infection. These are toxemia and nephritis, pyelitis, heart disease, and anemia, either that prone to occur in pregnancy or produced at delivery by blood loss as in placenta praevia and separation of the normally implanted placenta. Methods of delivery calculated to keep blood loss at a minimum, especially a deliberate and careful conduct of the third stage of labor, especially in these complications of pregnancy, is worth while. It is my opinion that even in well-conducted maternity centers too little attention is paid to the hemoglobin, red blood count and hematocrit. In the hospital after delivery each patient should have a count and hemoglobin. It is my belief that three million or less reds at this time calls for a transfusion, and that if the patient shows any elevation of temperature a transfusion should be given even though the count is three to three and one half million, and in some instances even if it is higher.

MASKING IN OBSTETRICS

It is considered that most epidemics of hospital sepsis and that most severe puerperal sepsis is the result of infection from the nose and throat. Very occasionally this appears to be autogenous, usually it is exogenous. It may take place at the time of labor or any time in the puerperium. It occurs equally by direct transmission of mouth and nose droplets, or by indirect digital transmission of the same. So it must be reasoned first that digital asepsis of a high order is as necessary for contacts—usually nurses giving perineal precautions—throughout the puerperium as in the delivery room. This is obviously an administrative problem. Incidentally it has often been found in puerperal hospital septic outbreaks that a failure to follow medical orders to the letter by the administrative heads of a hospital is completely or partially responsible for the epidemic. Secondly, Masking of the most effective type used faithfully over the nose as well as the mouth—and not around the neck, a place I have frequently seen the mask worn especially by pupil nurses—is absolutely essential both in the labor and delivery rooms and throughout the puerperium during contacts. It has been shown experimen-

tally that a mask becomes wet on the outside in about ten minutes and transmits organisms to petri dishes some distance away if the subject of the experiment talks or coughs. Therefore it is my practice to double mask if I have a cold at time of delivery and in any event to conduct delivery or abdominal section without talk. If orders or discussion or coughing are imperative, the face should be turned away for the time being. If a mask becomes visibly moist on the outside another may be tied over it. Nurses should be made to carry out perineal precautions in silence. It is usually true that nurse-borne epidemics of throat-borne sepsis may be attributed to an individual who has had a fairly recent *acute* upper respiratory attack sufficient to put her off duty for a few days. Hence such nurses must not be allowed to return to obstetrical duty until cultures show the throat and nose negative for hemolytic streptococci. The wider use of throat cultures should be used in so far as it is practical, but dry masking and silence will prevent much present-day severe puerperal infections from the nursing service.

EXPERIENCE WITH OTHER METHODS OF INFECTION

We have seen two patients die infected apparently by perineal icebags supposedly sterilized after contact with a case of streptococcus uterine sepsis of undetermined origin who recovered, showing the commonly seen increased virulence of the organism as it is passed through other victims. For this reason we have abandoned the use of the perineal icebag entirely. We have some reason to believe that solutions of one sort or another used to paint perineal stitches for comfort or supposed antisepsis have transmitted infection so the use of these we have abandoned. We use opium suppositories $\frac{1}{2}$ to 1 grain in the rectum for perineal comfort.

We have seen two cesarian sections die of peritonitis, operated the same summer week in the same institution with the same rare infecting organism apparently from dropped perspiration of one man who took part in both operations. No other sepsis was present at the time. We therefore set the rule that one nurse in the operating room is assigned to "watch for and mop sweat" on sight—irrespective of the momentary feelings of the operator, and make her entirely responsible for this. It is not reasonable to expect the surgeon and others in the operating room to do "sweat detection" in addition to other duties.

TREATMENT

The scope of this paper calls for little or no comment in respect to treatment of puerperal infection. In the future and where at present available, "immune transfusion" gives the only specific hope ever offered to these patients except the difference in virulence of the various

organisms and the patient's own individual resistance. Simple transfusion, especially in relation to the blood picture, often repeated, general supportive measures including rest, and the drainage of frank pus when it reaches the surface per vaginam or otherwise are at present our only remedies. Therefore prophylaxis should be our aim.

SUMMARY

Digital asepsis in labor and throughout the puerperium, dry masking and silence throughout the same periods, cultural watching of nasopharyngeal suspects, *an object respect for the integrity of the cervix by the physician* care of the potentialities for infection at time of delivery from the urinary tract, an accurate knowledge of the blood picture after labor and at other times if it seems wise, appropriate and immediate correction of this picture if it is a poor one abandonment of perineal icebags and "perineal solutions," and a scrupulous regard of operating room technique including the 'sweat risk' constitute the sum of this prophylaxis. Carried out in careful detail I believe a highly creditable reduction in maternal mortality and morbidity from puerperal sepsis can confidently be expected.

MISCELLANY

LEONARD JARVIS M.D.

Dr Leonard Jarvis, for fifty-two years a practicing physician in Claremont, as were his father and grandfather before him died on January 28 1936 at his suite at the Hotel Moody. He was eighty-three years old and for several years had been in failing health continuing however up to within a few days of his death the practice of the profession to which his life had been devoted. Taken critically ill the previous week he failed to rally and death claimed Claremont's best loved citizen.

Dr Jarvis was born in Claremont on July 29 1853, son of Dr Samuel and Sarah Jarvis and grand son of Dr Leonard Jarvis. He was graduated from Kimball Union Academy in 1869 from Dartmouth Medical College in 1873 and received his medical degree from Harvard in 1882. After serving internships in Boston and Providence he returned to Claremont in 1884 to engage in practice there.

On June 25 1893 he married Miss Mabel Howard of Providence R. I. To them were born two children, a daughter Caroline who died in 1906 and a son Samuel Gardiner Jarvis.

Dr Jarvis was a member of the American Medical Association and of the New Hampshire Medical Society being publicly cited by the latter organization in May 1932 as one of the five Granite State physicians who had served continuously for half a century. Two years later on May 16 1934, he was

the recipient of the Society's highest award the fifty-year gold medal.

Dr Jarvis was for many years a director of the Claremont National Bank. He was for thirty-four years a warden of Union Church at West Claremont and, in April 1934 was named senior warden-emeritus of this church.

Dr Jarvis is survived by his widow Mrs Mabel Jarvis and son, Samuel Gardiner Jarvis of Quincy Massachusetts.

THE APPOINTMENT OF DR. MILLER

Dr Ralph E. Miller assistant professor of pathology at the Dartmouth Medical School has been appointed assistant dean of the school and promoted to the rank of associate professor of pathology. He has been granted sabbatical leave for the second semester of the current academic year in order to study pathology under Professor Pick in Berlin—Science 83 228 (Mar 6) 1936.

HOSPITALS

The Woman's Board of the Littleton Hospital aided by the Baldwin Fund, purchased early in December an oxygen tent and a portable x-ray machine complete with a fluoroscope.

NURSES

The quarterly session of the New Hampshire Graduate Nurses Association was held in Manchester December 11 1935. Under the direction of Mrs. Alma VanPelt, Superintendent of Nurses at the Elliot Hospital, Manchester the League of Nursing Education met separately during the morning to consider general business and to listen to a reading of nursing school records.

The principal speaker of the afternoon was Miss Ella E. McNeil of New York City Assistant Director of the National Organization for Public Health Nursing who discussed "Broader Aspects of Community Responsibility for Nursing."

Miss Rose Griffin, President of the Association and Superintendent of the Mary Hitchcock Memorial Hospital in Hanover presided at the afternoon session. The New Hampshire Board members of the organization for Public Health Nursing met with Miss Ruth Whitcomb of Concord.

Dr Warren Butterfield of Concord spoke to the delegates on "The First Aid and Accident Prevention Program of the Red Cross."

The officers of the organization are Miss Rose Griffin President Miss Vernice Patterson 1st Vice-President Miss Alice E. Russ 2nd Vice-President Mrs. Melaine R. Proulx, Secretary and Miss Loretta Landry Treasurer.

The quarterly meeting of the Executive Board of the Keene District Nursing Association was held January 9 1936. The total number of visits during the last quarter was 1,287. Of these there were 538 medical 229 surgical 1.6 obstetrical 164 newly born 120 welfare. The Association has recently purchased an auriscope for the use of the

nurses in examination of babies and young children
The monthly meeting of the Portsmouth Nursing Association was held January 2, 1936 The Association enters upon its thirty first year

CANCER

A series of radio broadcasts, sponsored by the State Cancer Commission, have been given over Station WFEA, Manchester, recently Speakers were Dr James W Jameson, Concord, Dr Deering G Smith, Nashua, Dr Emery M Fitch, Claremont, Dr Harold J Connor, Concord, Dr Clifton S Abbott, Laconia, Dr Howard N Kingsford, Hanover, Dr Walter H Lacey, Keene, and Dr Alfred J Leary, Manchester

PERSONALS

Dr Melba Stewart Perley of Laconia spoke on January 23 to the Mothers' Department of the Lakeport Women's Club She based her remarks upon her experiences at the hospital in the x ray department, illustrating her points with x-ray pictures of children

Dr Ezra A Jones of Manchester was the guest speaker recently of the Laconia Rotary Club and the Keene Rotary Club, speaking of his work among crippled children

Dr Walter H. Lacey of Keene gave an instructive talk on "Carcinoma" before the Keene Fortnightly Club, January 11, 1936

Dr Robert B Kerr of Manchester was elected President of the New England Tuberculosis Association at its meeting at the Hotel Statler, Febru-

ary 7 Dr Kerr is Medical Director of Pembroke Sanatorium and Executive Secretary of the New Hampshire Tuberculosis Association

MEETINGS

Members of the new State Commission for the Study of Occupational Diseases in New Hampshire held their first session on Wednesday, December 12, 1935 at the State House Members of this Committee are Dr Robert J Graves, Concord, Chairman, Eugene J O'Neil, Concord, Secretary, Dr Emery M Fitch, Claremont, Peter Tsiales, Manchester, Daniel Fein del, Berlin, Frederick Graf, Keene, Major A Erland Guyotte, Peterborough, Charles E Greenman, Hampton, and Dr David W Parker, Manchester

The Belknap County Medical Association sponsored a skin clinic on January 17 Dr R E McDonnell of Yale Medical School addressed the clinic in the afternoon, illustrating his talk with slides

The annual meeting of the Hillsborough County Medical Society was held at the Derryfield Club in Manchester on November 15, 1935 The following officers were elected to serve for the year Dr Henry H Dearborn, Milford, President, Dr Charles F Nutter, Nashua, Vice-President, Dr Deering G Smith, Nashua, Secretary-Treasurer Dr Dudley Merrill of Boston spoke on "Dangers Inherent in the Clinical Diagnosis of Cancer"

The Belknap County Medical Society held a meeting at the Laconia Tavern, February 11, 1936 The speakers were Dr Clifton S Abbott, President of the New Hampshire Medical Society, and Dr Carleton R Metcalf, Secretary of the New Hampshire Medical Society The program was in charge of Dr Laura Jacques

VERMONT STATE MEDICAL SOCIETY

THE CAUSES OF SUDDEN BLINDNESS*

BY ARTHUR J BEDELL, M D †

WHEN a patient suddenly goes blind he usually consults his family physician before going to the ophthalmologist

The causes of rapid impairment of sight are numerous Many are easily recognized and often prompt treatment restores function At other times the blindness is part of a constitutional condition for which little or nothing can be done

A differentiation should be made of partial and complete loss of sight To do this best we must adopt a reliable method for determining the degree of visual loss This examination

is divided into two parts, one the central vision and the other the field of vision The general practitioner can very readily and accurately determine the latter by taking the finger field

Acute congestive glaucoma is one of the most frequent, most serious and yet most easily diagnosed causes of sudden blindness The eye condition is so frequently masked by the acute gastrointestinal upset that the picture should be so indelibly impressed upon the minds of all physicians that no case is neglected In glaucoma one or both eyes present an intense cyanotic congestion of the globe and conjunctiva The cornea is hazy, the anterior chamber shallow, the pupil ovoid and dilated with a definite increase in the intraocular tension This last is easily diagnosed by palpation By placing

*Read at the Annual Meeting of the Vermont State Medical Society at Rutland October 18 1935

†Bedell Arthur J—Attending Ophthalmologist St. Peter's and Child's Hospitals and Old Ladies Home Albany N Y For record and address of author see "This Week's Issue" page 653

the index fingers in apposition under the upper margin of the orbit a delicate ballottement indicates the degree of resistance. When the eye ball is hard and it is not possible to dent it, increased intraocular tension is diagnosed. In every case of gastrointestinal upset which occurs in an adult the eyes should be most carefully inspected for if acute congestive glaucoma is overlooked, the patient will eventually become blind, although after a variable time the eyeball whitens, the pupil remains widely dilated and some vision may remain but only for a comparatively short period. The process further continues until finally the eye becomes so painful that enucleation is necessary. As soon as the diagnosis is made the patient should be given a hypodermic injection of morphin without atropin, eserine 1 per cent solution instilled in the eye, hot compresses applied and arrangements made for an early operation. Delay is dangerous. The operation of choice is an iridectomy and incidentally if you are not doing special work, I urge you to transfer your patient with acute congestive glaucoma to a competent ophthalmologist, not only to protect the patient, but also to save you many regrets for the treatment of glaucoma is an extremely technical one.

Another type of glaucoma comes on so insidiously that there is a steady, imperceptible loss of sight which is frequently not recognized by the patient until there is a very great impairment. In this type the interior of the eye must be examined the field of vision must be frequently charted on the perimeter and the intraocular tension not only measured by gross palpation but also by the exact instrumental means. This form must be treated with the greatest skill sometimes eserine and pilocarpin will retard the process, at other times operations are indicated.

Vascular accidents cause the largest group of cases of rapid failure of sight, and although we may become suspicious of a blood vessel disease, we cannot be certain of the diagnosis until an ophthalmoscopic examination is made. Most of our patients have hypertension but some have low pressure, therefore, the blood pressure reading must not be considered as making the diagnosis but only pointing the way.

Two lesions frequently encountered are sudden closure of the central artery of the retina which may come from an embolus thrombus or endarteritis and the rapid occlusion of the central vein. The fundus picture of the artery obstruction is diagnostic. There is widespread edema. The arteries are either narrow or closed the veins are small and the macular region red. There is very little that can be done for this sudden plugging of an artery. We massage the eyeball, administer vasodilators by mouth or give amyl nitrite by inhalation. Opening the

anterior chamber has been proposed but I have never seen any good result from this dangerous procedure and, therefore discourage its use. At times there is canalization of the thrombus with some return of vision. Occasionally there is an auxiliary blood vessel system which furnishes blood to the macula and central vision is preserved.

Thrombosis of the central retinal vein may be complete or limited to one branch. Obviously, the amount of visual loss depends upon the extent of the vein disease. In many cases of partial thrombosis the retinal blood flows over the macular region and the patient complains of blindness. There is often a very considerable improvement. In some cases the blood cells fill the filtering angle of the eye and secondary glaucoma develops causing total blindness and often necessitating the removal of the painful globe.

Complete thrombosis of the central retinal vein may or may not be an evidence of a general vascular disease, and a very exhaustive clinical investigation may fail to disclose the reason for the vein occlusion. The blindness is sudden and unaccompanied by any external evidence of disease or by pain. The fundus picture is characteristic the veins are large and distended there is some retinal edema many hemorrhages and frequently white patches. The absorption of the blood and the restoration of circulation does not follow any definite order and subsequent changes are bizarre. Treatment is directed to any discoverable bodily ailment and if the intraocular tension is increased, attempts must be made to control it. Again I repeat that it should be distinctly remembered that both of these serious vascular accidents are found in hypotension as well as hypertension.

Arteriosclerosis of the fundus is so well known and so clearly described by words and photographs that little need be said regarding the various changes which constitute the general picture. A patient with arteriosclerosis may speak of sudden blindness, although in reality the examination will show that he has a full peripheral field of vision and has only lost the central part. This of course means that the patient is unable to read. The disease is usually found in those who are senile, and by senility I do not necessarily mean age. It is caused by an obstruction in the perimacular vessels with a hemorrhage in the choroid cystic degeneration of the macula and the end result is a pale partially depigmented scar. It is usually bilateral although one eye may be involved long before the other. Little or nothing can be done to alleviate the symptoms. The patient is always happier if he understands that he will never become blind as a result of the disease. There is an arteriosclerotic optic atrophy. Fortunately

this is uncommon for it means complete loss of vision in the eye that is involved

When the retina becomes detached from its choroid base there is always a partial loss of visual field. Some detachments are spontaneous and develop without any discoverable reason. On the other hand the retina may be separated as a result of a direct blow upon the eyeball or the stretching of the globe in high degrees of myopia.

An intraocular growth may push the retina forward. Occasionally the separation is caused by nephritis, particularly that which accompanies pregnancy. Examination in the primary type shows that the gray retina moves as the eye changes position. If a choroidal tumor is present the retina may be adherent to the growth or there may be so much fluid surrounding it that at one stage the retina waves as it does in the subretinal fluid detachment. The diagnosis of detachment of the retina is not difficult but the differentiation between the secondary and primary types is sometimes most confusing and the patient must be observed for some time before an accurate diagnosis can be given. We have three diagnostic methods which are of considerable help in such cases. One is the slit-lamp, an intense, brilliant beam of light is thrown into the eye which is then examined with a binocular microscope. Another is serial stereoscopic photographs of the fundus and the third is transillumination. If the detachment is so located that a small lamp can be placed behind it, the light is readily transmitted through a simple detachment, but where there is a tumor the dense growth prevents the light from being seen in the pupil.

The detachments in acute nephritis and in pregnancy are usually so thick that there is little motion of the retina. They are often bilateral and the general condition of the patient is sufficient to guide one to the correct diagnosis. The retina usually becomes spontaneously reattached in these diseases.

Detachment of the retina has for years been looked upon as a hopeless condition and, although patients have been subjected to all sorts of rest and dehydration methods, little success has attended the physician's efforts. But now, thanks to the work of many ophthalmologists scattered over the world, and especially to the late Gonin of Lausanne, Switzerland, operations can be performed upon certain types of detachment. The hole in the retina can be seen and then sealed by means of high frequency or galvanic electricity. This is a technical operation, but the restoration of vision in such a patient gives the ophthalmologist great satisfaction. It is important to remember that if a patient with detachment is to recover his vision by operation, the operation must be performed before the retina has lost its function. When the retina is displaced by a growth, the eye should be

enucleated, for usually the tumor is a sarcoma of the choroid which has a predilection to metastasize in the liver and orbit.

Impure alcohol, wood alcohol and various drugs can cause sudden and complete bilateral blindness which is often ushered in by an acute gastrointestinal upset, sometimes with coma, and unless the eyes are carefully examined the vision may be totally destroyed before the patient becomes conscious. Here again prompt action is imperative. The stomach should be washed out several times a day, saline purgatives administered, lumbar puncture immediately performed and a small dose of salvarsan injected intravenously. If the patient survives, strychnin should be given internally and positive galvanism applied to the eyes. Destructive blindness has been caused by large doses of quinine and more recently by the application of thallium in the form of a depilatory. Since the introduction of dinitrophenol many patients have presented with beginning blindness. In the cases that I have seen the earliest changes have been in the lens, a curious wide spread opacification. Some have progressed to complete cataract, others have remained immature.

Partial blindness follows the prolonged use of tobacco in those who are susceptible to nicotine poisoning. There is a definite loss in the field of vision and the history of tobacco consumption. By the inhibition of tobacco and the use of strychnin, many are cured.

There seems to be decidedly less use of quinine sulphate as an abortifacient. I have seen a patient after the ingestion of a cupful of the drug. The uterus was emptied but the patient remained totally blind, the nerve atrophic and the retinal vessels small.

With the more extensive use of the automobile, and the increased manufacture of storage batteries, lead poisoning is more prevalent than formerly. In some parts of the world, where they still use lead pipes, children are frequently affected, the optic nerves are involved and the sudden blindness almost total. Lead poisoning is often difficult to diagnose. Not only must we have a history of the occupation of the patient but the diagnosis must be confirmed by chemical studies. In the cases that we have seen, the removal of the source of the poisoning, change of occupation, the institution of elimination measures such as the drinking of large quantities of milk, the ingestion of potassium iodid and fresh air have resulted in a favorable outcome.

Sudden blindness may come from an infection of the nasal sinuses. The patient has a head cold and notices that his vision is at first blurred and then becomes suddenly lost.

One of the earliest signs of multiple sclerosis is a rapid loss of sight in one or both eyes. As this disease has periods of remission, a patient

may be treated for a time and as a result of constitutional treatment show a very great improvement but, unfortunately eventually he becomes sightless.

Injury to the head may cause blindness either by a hemorrhage in the optic nerve sheath, a hemorrhage in the orbit, a fracture of the orbit or a severance of the nerve itself. Every case of trauma to the head should be thoroughly examined by a competent ophthalmologist.

Puncture wounds of the eyeball may cause sudden blindness either from infection or primary destruction. Compression of the eyeball may produce a hole in the macula or a rupture of the choroid. These conditions can only be discovered when the ophthalmoscope is correctly used. A severe compression of the chest can result in blindness by extravasation about the optic nerve leading to subsequent atrophy of it. The degenerative changes in the retina, choroid and optic nerve may cause a rapid loss of reading power and the patient speaks of blindness. This defect is partial and can only be diagnosed by the use of the ophthalmoscope.

Tuberculosis syphilis and focal infections cause much blindness. Multiple small thrombotic hemorrhages in the retina may come from the various blood dyscrasias such as leukemia or may be an ordinary allergic reaction. If the hemorrhages do not involve the macula we frequently have restoration of central vision. In

diabetes the patient may have a very great increase in the amount of blood sugar without any change in sight. He may on the other hand have a slight increase above the normal with very intense retinal and choroidal destruction, or only a central scotoma.

In chronic nephritis the patient loses sight as a result of retinal degeneration. The changes in the fundus found in this disease as well as in hypertension, are illustrated by the slides. There may be a marked decrease in sight after exposure to bright light such as in those who have stared at the sun during its period of eclipse, prolonged exposure in the snow and those who use the arc for welding. Blindness may also follow the use of certain drugs like atoxyl and ethylhydrocuprein. Brain tumors may cause partial or complete loss of vision. And finally sudden blindness may be complained of by an hysterical patient at which time the physician must use all of his professional skill and native ingenuity to distinguish between it and some of the obscure brain diseases which it simulates.

Sudden blindness is sufficiently common and its causes sufficiently varied to warrant your attention to the problem so that you may be prepared when the emergency arises. By concerted effort on the part of all of us, much blindness can be prevented and much relieved.*

Illustrated by black and white and colored photograph of the fundus and external conditions.

SYPHILIS IN PREGNANCY

SUMMARY AND CONCLUSIONS*

1 A report is made of the effect of treatment on the outcome of pregnancy in syphilitic women. The data show that congenital syphilis is practically a preventable disease. Its prevention is dependent upon the routine early and repeated use of the serologic blood test on every pregnant woman and upon adequate early treatment once the diagnosis of syphilis has been made.

2 A positive blood reaction during pregnancy is a serious matter to the fetus. Ten times as many syphilitic children were born when the syphilitic mother's blood was positive during pregnancy as when it was negative.

3. The pregnant syphilitic woman was found to tolerate anti-syphilitic treatment as well as or better than the syphilitic woman who had not been pregnant since infection.

4 There is evidence that habitually aborting syphilitic women are capable of producing living apparently nonsyphilitic children when given specific treatment throughout each pregnancy.

5 Many more nonsyphilitic living children were born when anti-syphilitic treatment was begun before the fifth month of pregnancy than when therapy was delayed. This advantage was increased if

the treatment during pregnancy was not only early but adequate that is at least 10 preferably 15 injections of arsphenamine and appropriate heavy metal.

6 If an early syphilis appears late in pregnancy some treatment begun at this period and continued up to termination of pregnancy even though it is only a small amount, will be of value in the production of a living child. To those women with early syphilis who were treated after the fifth month of pregnancy only 7.6 per cent of the children were born dead whereas among a similar group of women with early syphilis to whom no treatment was administered during pregnancy the loss of life was 46 per cent.

7 Treatment during a preceding pregnancy is in sufficient protection for the present pregnancy even though the syphilitic woman has a negative blood reaction. It is necessary to treat her throughout each pregnancy to insure a living nonsyphilitic infant.

8 The important factors in controlling clinical progression and relapse in the syphilitic woman are the stage of syphilis on beginning treatment and the amount of therapy administered rather than the pregnancy. The possible exception is the apparent protection pregnancy affords the early syphilitic in avoiding an involvement of the central nervous system.

*Adapted from the February Bulletin of the United States Public Health Service.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22131

PRESENTATION OF CASE

First Admission A white married unemployed fifty-three year old Syrian male entered complaining of pain over the sternum.

His illness began eleven weeks previously with dyspnea, a sensation of precordial constriction and wheezing respiration. The onset was gradual and these symptoms persisted with varying intensity for about three weeks. During this time he also had knifelike pains in the small of his back and stated that there was swelling of all parts of his body which persisted for about six weeks. This had subsided before admission and his only complaints then were residual weakness and nocturia.

Physical examination showed a well-developed and nourished man in no acute distress. The fundi showed tortuosity of the retinal arterioles. The heart was enlarged and there was a systolic mitral murmur and an accentuated A_2 . The blood pressure was 210/140. The liver edge was just felt.

The temperature, pulse and respirations were normal.

The urine contained a large trace of albumin and an occasional granular cast and red blood cell, but was otherwise negative. Examination of the blood showed a red cell count of 6,300,000, with a hemoglobin of 75 per cent. A phenol-sulphonephthalein test showed 60 per cent excretion and the nonprotein nitrogen of the blood was 36 milligrams per cent. There was a normal urea clearance. A Hinton test was negative.

X-ray studies showed dullness of the right antrum with thickening of the lining membrane. There was also slight clouding of the right ethmoid cells. Measurements of the heart were within normal limits. The apex was blunt-ended and the aorta tortuous.

He was discharged in eleven days.

Second Admission, two years later.

He was followed in the Outpatient Department where his urine was found to show a large trace of albumin persistently and his blood pressure remained elevated at about 220/120. Systolic and diastolic murmurs were audible at the left sternal border. Two months before admission a gradually progressive weakness be-

came so pronounced that he was unable to continue his work. There was occasional swelling of the ankles, dyspnea with very slight exertion, and a nocturia of two to three times. An occasional twinge of pain behind his sternum was readily relieved by nitroglycerine. Three weeks before admission he began to suffer from a "tight pain" behind the middle of the sternum following the slightest effort. Rest, nitrates or a warm local application relieved his distress within five minutes. Two weeks later, following an emotional upset, the pain became much more severe and was not relieved so readily even with continued bedrest. Four days prior to admission the pain became quite intense and persistent. He had a queer tingling sensation in both hands and sweat profusely. The discomfort was at first unaffected by hypodermic medication but later he was able to sleep fitfully. Two days later the pain became unbearably stabbing in character and radiated from the third and fourth interspace at the right parasternal line directly to the back. He coughed up some bloody sputum. There was cyanosis and dyspnea which were relieved somewhat by hypodermic injections and dry cupping. Repeated emesis at the onset of this episode subsided in two days and an annoying cough productive of a small amount of yellow sputum developed and persisted. The cough caused considerable discomfort in a region situated a little above the left nipple.

The past and family histories are non-contributory.

Physical examination showed a well-developed and nourished middle-aged man sitting upright in bed complaining of constant precordial pain. There was flattening of the occiput. The fundi were not examined. There was dullness in the right chest from the sixth rib anteriorly and the eighth posteriorly to the bottom. Tactile fremitus and vocal resonance were increased in this region. Fine râles were audible at both bases and there was a pleural friction rub at the right bottom posteriorly. The heart did not appear to be enlarged. The sounds were regular and of good quality. A_2 was accentuated and greater than P_2 . The blood pressure was 100/85. The abdomen was soft although there was some tenderness in the right upper quadrant. The liver and spleen were not palpated. The remainder of the physical examination was negative.

The temperature was 100.2°, the pulse 100. The respirations were 28.

Examination of the urine showed a specific gravity of 1.010 to 1.018 with a large trace of albumin. The sediment contained an occasional white blood cell and a rare granular cast, but was otherwise negative. The blood showed a red cell count of 4,900,000, with a hemoglobin of 70 per cent. The leukocytes numbered 16,500,

with 80 per cent polymorphonuclears, 2 per cent eosinophils, 2 per cent basophils, and 16 per cent lymphocytes. Blood cultures were negative. The nonprotein nitrogen of the blood was 50 milligrams per cent. The sputum contained pneumococcus, not types I, II or III. An electrocardiogram exhibited a prominent P₁ and P. There was high ST takeoff with a humping of T₁ and a very low T₂. Q R-S₃ was inverted. Lead 4 exhibited an absent Q deflection and ST₄ took off from the descending limb of R, 3 millimeters below the isoelectric level. T₄ was inverted.

The pain and dyspnea persisted with very little change despite the administration of morphin. A pleuropericardial friction rub was reported to be audible over the third right inter-space close to the sternal border. This however, was not confirmed by other examiners. The râles became more pronounced at both bases and pitting edema appeared at the sacrum. On the eighth day the electrocardiogram revealed a slight left axis deviation with a prominent S. ST₁ was convex with a slightly high origin and inversion of T₁, T₂, and T₃ were likewise inverted. Lead 4 exhibited an absent Q, a tall R and a low origin of ST with a diphasic T. Throughout the hospital stay his temperature remained normal, the pulse ranged from 80 to 90 and the respirations were 20. His condition remained essentially unchanged until the fourteenth day when he developed very severe precordial pain and dyspnea while his bed was being made and expired within fifteen minutes.

DIFFERENTIAL DIAGNOSIS

DR PAUL D. WHITE: "During this time he also had knife-like pains in the small of his back and stated that there was swelling of all parts of his body which persisted for about six weeks." One would like a report of the physical examination at that time. It is evident that we cannot be sure of the diagnosis of this attack without further information. There are a number of things we should think of: congestion or heart failure associated with or due secondarily to luetic aortitis with aortic valvular disease or coronary mouth involvement, chronic hypertension with a hypertensive heart which had failed at this time, coronary thrombosis with failure ensuing chronic valvular disease, perhaps with aortic stenosis which is often found in middle and in old age at the beginning of heart failure, acute pericarditis with effusion, and even pulmonary embolism, although we would not expect edema with that. Also if the edema was widespread we should have to think of the possibility of uremic involvement.

The edema subsided. We would like to know what treatment he had had during this time because if he had had very little treatment in

the way of digitalis and rest we could rule out most of the conditions mentioned above. An acute attack of pericarditis or an acute attack of coronary thrombosis may result in symptoms and signs that will subside spontaneously with out much treatment. You would hardly expect luetic aortitis severe enough to cause failure to subside in this way. Coronary thrombosis is the best bet.

Evidently we have hypertension on recovery from the acute illness and an enlarged heart with a systolic murmur at the apex. What are the causes of such a murmur at the apex? The best and most likely explanation is that the heart is still somewhat dilated and that the murmur is a functional murmur due to enlargement of the left heart. Second in likelihood would be aortic stenosis with the murmur heard best at the apex. A number of times in the past ten years we have been misled by such a murmur, later discovering that the murmur became louder at the aortic valve area. The least likely possibility is mitral disease causing this systolic mitral murmur. The fact that the liver edge was felt is important and favors an acute illness complicating hypertensive heart disease. An acute illness that would explain the precordial constriction followed by this wheezy respiration would be coronary thrombosis, so that the history to this point somewhat favors the combination of hypertensive heart disease with acute coronary occlusion. Hypertensive heart disease itself may be complicated by failure, but we would not expect precordial constriction or pain to be a prominent feature if that were so.

We cannot apparently blame the albuminuria on congestive failure. It does seem as though there must have been some degree of nephritis quite likely secondary to the hypertension.

The Hinton reaction is very important in a middle aged man with heart symptoms. In such a patient we must think of the possibility of luetic aortitis which may show itself by the symptom of oppression under the sternum or by dyspnea. This negative Hinton test is of value; it is against the diagnosis of syphilitic aortitis by about four to one.

The heart was probably slightly enlarged but not dilated at this time, or if it was dilated, not enough so to cause abnormal measurements by x-ray examination, but there is a suggestion in the x-ray report that the apex was blunted and the aorta tortuous that would be in keeping with aortic stenosis or with hypertension plus aortic sclerosis.

It would be of interest to know if an electrocardiogram was obtained on the first admission.

"Systolic and diastolic murmurs were audible at the left sternal border." This is the only statement about the diastolic murmur. I would

like to know if the diastolic murmur was heard constantly, and if anybody heard it at the time of the first admission, there is no note later on that it was present or that it was only a temporary finding

All these symptoms can be explained by progressive congestive heart failure

"Three weeks before admission he began to suffer from a 'tight pain' behind the middle of the sternum following the slightest effort" That is angina pectoris certainly. I wonder if at the first illness two years before he might have had the same story. The story, of course, makes one think of acute block of the coronary vessel due to infarction. The prolonged pain was similar in character to the angina pectoris pain

It hardly seems as if he had congestive failure enough to cause him to raise bloody sputum, but that is a possibility. One should also think of pulmonary infarction with pleurisy complicating the coronary thrombosis as a possible explanation for the pain in the right chest, the cough and the raising of blood. The findings on physical examination support our opinion that there was some involvement of the right lower lobe, probably infarction

There is no statement of murmurs found in the physical examination at the second admission, we would very much like to know about the aortic diastolic murmur that he had had

"The blood pressure was 100/85" That is a striking drop in blood pressure and would be consistent with coronary thrombosis or with any other condition in which there was an acute heart or circulatory failure

There is some importance in the statement that the spleen was not palpated. No note is made of the clubbing of the fingers. Later on blood cultures were taken. Apparently there was a thought of bacterial endocarditis

The classical leads of the electrocardiogram were not very striking at first although there was stated to be a high origin of T_1 , low T_2 and rather low origin of T in lead 3. From lead 4, the precordial lead, however, we received much more help. The so-called Q wave which ordinarily is well marked was absent, so far as we know that is fair evidence of an established infarct, not necessarily an acute infarct, in the left ventricle. Also the T arose from the descending limb of the R wave, very low down. This change was probably associated with the acute illness

"A pleuropericardial friction rub was reported to be audible over the third right interspace close to the sternal border" That was due to pleurisy associated with the pulmonary infarct or to pericarditis secondary to the coronary thrombosis if such was present

In the second electrocardiogram the three classical leads present much more evidence than we had before of what seems to be an acute process. The T wave in lead 1 has become in-

verted, which is an important change, and the T in lead 2 has become inverted, which is also important. Thus, T_1 and T_2 are now definitely inverted, while in lead 4 the Q is still absent and the T rises farther up on the descending limb of the R

We cannot diagnose with certainty secondary coronary occlusion, or rupture, or angina pectoris, the last-mentioned possibility is least likely because he lived fifteen minutes after the pain began. There are many remote possibilities as to the exact cause of death

I believe that the diagnosis here is hypertensive coronary heart disease with an old myocardial infarct and probably a fresh one, a complicating pulmonary infarction, and congestive failure, the heart being unable to stand the extra strain. I do not think that luetic aortitis is present, it cannot explain the whole picture, particularly the electrocardiogram, as it is given. We have no proof of valvular disease. Aortic stenosis and regurgitation would have to be thought of and possibly careful repeated examinations might have confirmed those murmurs heard at first, but the chances are against such a diagnosis. From the evidence we can have a hypertensive complication of aortic stenosis, but that is not likely either. Remote possibilities of dissecting aneurysm, bacterial endocarditis, and such a rarity as dissection of the coronary artery, I think we can rule out

DR. GERALD BLAKE. This patient's symptoms of angina recurred about three weeks before his second admission and then only following exertion. Four days before admission he had what we thought was coronary occlusion and he came in with the picture of coronary occlusion with signs of myocardial failure. He described his pain as burning during the first day or two, "pain like fire", and, following that, as a stabbing pain at the root of the sternum, going through to the back. The signs in the lungs were as described and could be explained as chronic passive congestion, with probably an infarction on the right. His final attack was accompanied by a slight increase in dyspnea, slight increase in cyanosis and slightly more rapid breathing, and we thought that that was probably due to occlusion of the main left coronary vessel rather than to a rupture of the myocardium

DR. HOWARD SPRAGUE. I saw the patient once in consultation on the ward. I agreed at that time that the diagnosis was the one that Dr. White has outlined. I did hear at that time what seemed to be a pericardial friction rub. The electrocardiogram certainly suggests the apical type of coronary occlusion

CLINICAL DIAGNOSES

Coronary thrombosis
Generalized arteriosclerosis

Chronic vascular nephritis.
Pulmonary infarct.

DR. PAUL D. WHITE'S DIAGNOSES

Hypertensive, coronary heart disease
Coronary thrombosis (anterior descending branch of the left coronary artery)
Infarcts of apex of left ventricle, old and new
Pulmonary infarct.
Congestive failure
Angina pectoris (history)

ANATOMIC DIAGNOSES

Coronary thrombosis, right descending branch
Myocardial infarction
Pericarditis, acute fibrinous.
Mural thrombi left ventricle
Pulmonary edema, bilateral
Hydrothorax, right.
Pulmonary atelectasis, right.
Arteriosclerosis Coronary and cerebral marked, aortic, moderate.
Perihepatitis
Perisplenitis.
Chronic vascular nephritis
Oxycephaly
Obesity
Parathyroid hyperplasia, slight

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY The autopsy showed a large area of infarction in the heart at the apex of the left ventricle involving nearly two-thirds of the interventricular septum. The area of infarction was soft, the muscle entirely different in color from the remainder of the myocardium. It was evident that it had been present long enough to get a considerable degree of reaction but not long enough for complete scarring. From the myocardial infarct itself we were not able to make out any clear evidence of successive infarctions, though the degree of muscle cell degeneration varied slightly from place to place. There were, however, two quite separate thrombi overlying the infarct on the endocardium of the left ventricle. These were evidently of different age, one was firmly and almost completely organized the other showed only the very slightest trace of organization so I feel pretty sure we are dealing with two successive infarcts occupying almost exactly the same spot in the myocardium. The coronary that was involved was the descending branch of the right. Particularly enough, the left showed marked sclerosis but was not occluded.

DR. WHITE The area involved was the apex of the left ventricle?

DR. MALLORY Yes. One feature that impressed me particularly at the autopsy was the extent of the pericarditis. The entire pericardial cavity was involved in a very severe

fibrinous pericarditis showing early signs of organization.

DR. WHITE I meant to have said that a pericarditis could account for some modification of the electrocardiogram but not to the extent found here.

DR. MALLORY The average case of coronary thrombosis will almost invariably show localized pericarditis over the area of infarction but diffuse pericarditis such as this is really quite unusual and I think it might explain the very marked radiation of pain through to the back.

A PHYSICIAN Was the pleura involved too?

DR. MALLORY The right pleural cavity contained about half a liter of pleural effusion and there was collapse of the lower lobe on the right, no pulmonary emboli, no infarcts.

The other organs showed grossly only marked arteriosclerosis, particularly of the abdominal aorta and of the vessels of the circle of Willis. Microscopically there is an early arteriolar sclerosis such as one would expect in hypertension showing up most markedly in the kidneys.

DR. WHITE May I add one note about the electrocardiogram evidence? The classical leads, that is, leads 1, 2, and 3, were not wholly convincing in the first record but the fourth or chest (precordial) lead gave a great deal of help through the absence of the so-called Q wave. This is an illustration of the occasional value of the routine chest lead.

CASE 22132

PRESENTATION OF CASE

A thirty six year old white Portuguese rayon mill worker was admitted complaining of epigastric discomfort and loss of weight.

About a year and a half prior to entry several hours after his evening meal the patient felt dizzy and shortly afterward had a desire to defecate. He passed a very black stool and fainted. Upon recovering consciousness after four or five minutes he found himself lying in a pool of dark blood which he believed he had vomited. He was sent to a hospital where x ray studies were said to be negative. A Sippy diet was instituted and the patient was discharged much improved after three to four weeks. He felt well for about six months, whereupon he observed some pallor, weakness, and slight dyspnea with exertion. Suddenly one evening he had a sensation of fullness in the chest and expectorated a cupful of dark blood which was streaked with red. For two succeeding days there again were tarry stools. The Sippy régime was reinstituted and he continued well except for a sensation of epigastric fullness which occurred after meals. This was relieved by eructation. About ten months before admission he began to have a tight gripping sensa-

tion in the midepigastrium. This usually occurred immediately after breakfast and persisted throughout the day with an exacerbation of intensity following each meal. Relief was spontaneous after rest at night but medication had no effect. A milk and cream diet resulted in relief from this symptom after about two months. At this time a new symptom manifested itself: all ingested food appeared to stop momentarily behind the xiphoid, cause a slight pain and a feeling of fullness, pass with a rather sharp pain, and leave a residuum of burning pain for about ten to fifteen minutes. Dry solid food, such as toast, caused the discomfort to persist for the entire day. Another x-ray at this time was negative. During the succeeding months he became progressively weaker, short of breath, and his weight decreased from about 130 pounds to 105 pounds. There were no further fatty stools. He continued to work up to three weeks before his entrance to this hospital. The skin of his face and forearms had become slightly browned during the last two years. This he attributed to the action of sulphuric acid fumes with which he had considerable contact.

Physical examination showed a poorly nourished white male in no acute distress. An acneiform eruption was noted over the upper arms and back. The mouth exhibited extensive pyorrhea with brownish-blue pigmentation of the upper and lower gums. The pharynx was injected and there were three small hemorrhagic spots upon the mucosa of the hard palate. The lungs were clear and the heart normal. The blood pressure was 94/78. The liver extended four fingerbreadths beneath the costal margin. It was not tender but felt hard and nodular. Rectal examination elicited only a single small thrombosed hemorrhoid.

The temperature, pulse, and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 5,080,000, with a hemoglobin of 90 per cent. The white cell count was 10,000, 69 per cent polymorphonuclears. A Hinton test was negative.

A gastrointestinal series showed a circular mass lying on the left side of the lower end of the esophagus forming a lobulated margin. There was rigidity of the upper third of the lesser curvature including the fundus with bulging in this region. The entire stomach was slightly displaced to the left and there were pressure defects in the lower end of the antrum, on the cap and the upper flexure of the duodenum.

One week after entry the patient suddenly complained of severe upper abdominal pain which was most severe on the left side. The pain rapidly became generalized and the abdomen became rigid, tender, and a tympanic note was obtained by percussion over the liver area.

An x-ray of the abdomen showed free air beneath both leaves of the diaphragm. A laparotomy was performed.

DIFFERENTIAL DIAGNOSIS

DR. ARTHUR W. ALLEN: Will you demonstrate the x-rays, Dr. Schatzki?

DR. RICHARD SCHATZKI: Here is the area where a temporary stop in the barium column was described about two inches above the diaphragm. This is the outline of the esophagus, the left margin is irregular, whereas the right side is fairly regular. This irregularity continues down to here, involving the upper third of the stomach. This region was rigid. There was displacement of the stomach to the left. It was very difficult to fill the cap and second portion of the duodenum, apparently due to pressure from outside. On this spot film the defect in the lower end of the esophagus is better demonstrated.

DR. ALLEN: This case is that of a young man whose first symptom is that of severe gastrointestinal hemorrhage. The fact that he had no great pain at the time of the onset of the hemorrhage would not be particularly noticeable if you were going to try to explain the severe bleeding from the most common cause, that is, duodenal ulcer. A certain number of duodenal ulcer patients do not have any pain before they have a rather severe hemorrhage. The fact that his x-rays were negative after this massive hemorrhage would not necessarily rule out a bleeding duodenal ulcer as a cause, because these are usually on the posterior wall of the duodenum and it takes a rather special technique to demonstrate a lesion in this region. Or if the lesion which caused his hemorrhage was at the cardia or high on the lesser curvature of the stomach, near the esophagus, the x-ray examination might be negative. It is, I believe, a difficult place to show by some of the ordinary routine gastrointestinal methods.

The fact that the Sippy diet relieved him of his difficulty for a while is not particularly significant because if he had a lesion in his lesser curvature or in the duodenum I think he might have been relieved by such a diet, any bland diet would have helped him temporarily, particularly with the rest that went with it. The new symptom of discomfort after he ingested food, which developed about eight months prior to admission, is strongly suggestive of some actual narrowing of the opening of the esophagus into the stomach.

He comes in with loss of weight, with a brown skin. One wonders how much you can tell about the color of the skin in a man of this nationality because a great many Portuguese are dark. I am sure I have no idea what possible bearing the sulphuric acid fumes could have on this case. He does have very low blood pressure of

94/78 which with his brown pigmented skin might suggest Addison's disease or something of that nature, but I believe in emaciated patients, particularly with malignancy we also see, in the terminal stages, a type of skin with low eroded blood pressure, and so forth, that is not unlike this.

The fact that his red blood cell count was normal is a little disturbing. One would expect a man with this amount of loss of weight with the amount of difficulty he had had ingesting proper food and with a lesion that is as large as this involving the lower end of the esophagus and stomach, to show a certain amount of anemia. It is a little confusing that we have such a perfect blood picture.

Now as to the various causes of severe gastrointestinal hemorrhage, the commonest is duodenal ulcer and after that I presume we must put gastric ulcer, then an esophageal varix, then polyp of the stomach, and lastly carcinoma. These are the things that can and do commonly account for massive hemorrhage from the upper gastrointestinal tract. Now can this man have had a bleeding duodenal ulcer in the beginning and an associated lesion high in the stomach or lower end of the esophagus, and could hemorrhage come from the duodenal ulcer and his symptoms be relieved by Sippy diet? We do not get any help from the type of bleeding which he had as to where it came from particularly, because in the duodenal ulcer cases about one third vomit the blood, about one-third pass it entirely by rectum and the other third pass the blood in both directions, which is what this man did.

The final admission with exitus occurring as it did would mean he had a perforation of a hollow viscus, most likely his stomach or the lower end of the esophagus, producing gas under the diaphragm. With the history as it is given there can be no doubt but that he had a perforated hollow viscus and it is most likely in this neighborhood. Operation was performed which I would anticipate as being unsuccessful, because if a lesion of this size and character perforates one could never hope to close such a perforation surgically. Perforation of a malignant lesion of a hollow viscus is usually fatal. It almost invariably is fatal regardless of what portion of the gastrointestinal tract it involves. It is not always fatal in the colon but it is very apt to be.

I should suppose that we would have to be prepared to find that this man had an old scar in the duodenum which might have accounted for his first hemorrhage. On the other hand I am inclined to try to explain it all on the basis of this lesion at the lower end of the esophagus and the upper end of the stomach and I believe that he had a malignant lesion

here possibly developing upon ulcer which finally perforated, causing his death.

Dr Rackemann has called my attention to the big liver. I should have mentioned that I suppose a large, hard, nontender, nodular liver is perfectly consistent with a malignant growth of this size and we might expect to find that the liver was full of metastatic cancer.

CLINICAL DIAGNOSES

Carcinoma of the stomach with metastases
Bronchopneumonia
Perforation of the stomach.

DR. ARTHUR W ALLEN'S DIAGNOSES

Carcinoma of the lesser curvature of the stomach and the lower end of the esophagus.
Perforation of the malignant growth
Metastasis to the liver
Peritonitis

ANATOMIO DIAGNOSES

Carcinoma of the stomach with perforation and metastases to the liver, regional lymph nodes and pelvis
Bronchopneumonia, bilateral.
Pulmonary edema and congestion, bilateral
Pleuritis, chronic fibrous, bilateral acute fibrous, left.
Hydrothorax, left, slight.
Peritonitis, acute fibrinopurulent, and chronic fibrous
Subphrenic abscess, left.
Perisplenitis.
Arteriosclerosis, slight.
Emaciation, marked

PATHOLOGIC DISCUSSION

DR. TRACY B MALLORY The autopsy showed a carcinoma which involved the last two and a half centimeters of the esophagus and the upper three and a half centimeters of the stomach. Whether it was primary in the base of the esophagus or in the cardia of the stomach is pretty difficult to say. I, personally, am inclined to think it was primary in the stomach. It had perforated of course. We found the perforation on the anterior surface of the stomach close to the cardiac orifice but only with some difficulty since it proved to be not much over a millimeter in diameter.

The case interested us a good deal from the character of the metastases. You will remember that a few months ago we presented a case of cancer of the esophagus in which nodules of metastatic cancer ran upward from the primary growth, a considerable distance up the esophagus, so that an x ray characteristic of esophageal varices was produced. This man showed the same thing to a somewhat less degree.

There was a whole string of submucosal nodules running up the esophagus. Another point of some interest was that the metastases to the liver were all of them in the left lobe. The liver was adherent to the growth and it is possible that it was involved by direct extension. The other possibility is that it is to be explained on Graham's theory, that blood from certain parts of the portal system tends regularly to go to the left lobe while that from other areas goes to the right lobe. The cardia of the stomach would be in the area which tended to drain into the left lobe.

There was a well-marked subdiaphragmatic abscess on the left, a little reactive irritative

pleuritis in the right pleural cavity and a terminal bilateral pneumonia.

A PHYSICIAN: Was there any effusion in the chest?

DR MALLORY: A few cubic centimeters of turbid fluid.

A PHYSICIAN: Was there anything in the adrenals?

DR MALLORY: No.

A PHYSICIAN: Was the perforation successfully closed at operation?

DR MALLORY: No.

A PHYSICIAN: And you found the diaphragm normal?

DR MALLORY: Yes.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1825

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS: \$8.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$3.50 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 5 Fenway.

The Journal does not hold itself responsible for statements
made by a contributor.

Communications should be addressed to The New England
Journal of Medicine 5 Fenway Boston Mass.

JOHN SCOTT HALDANE

THE death of John Scott Haldane on March 15, 1936, removes a great international figure in physiology and scientific medicine—a personal life as remarkable in some respects as Professor Pavlov whose death was announced three weeks ago in these columns. J. S. Haldane came of the Haldanes of Gleneagles, a family long distinguished for its brilliant intellectual attainments. His father Robert Haldane, was a well known Scottish barrister (writer to the Signet) his mother Mary Burdon Sanderson was a sister of John Burdon Sanderson the first incumbent of the chair of physiology at Oxford. His sister Elizabeth Sanderson Haldane, a woman of high attainment in philosophy and letters, is a foremost authority on Descartes, his brother Viscount Haldane (Richard Burton Haldane, 1856-1928) was the well known British statesman and War Minister, and finally his son Professor J. B. S. Haldane and daughter Naomi Mitchison also exemplify the versatility and remarkable talent of their line.

After his preliminary education at the Edinburgh Academy, J. S. Haldane went to Oxford where he received training in physiology under his uncle Burdon Sanderson, after a short period in London, during which time he received his medical qualifications, he returned to Oxford as Demonstrator in Physiology (being later appointed Reader), and he remained at Oxford until the end of his life. The facilities of the Oxford Laboratory were so meager that Haldane erected a private laboratory in his house, and during the last twenty five years most of his investigations were carried out under his own roof, and unfortunately students seldom had contact with him.

Haldane will always be remembered for his pioneer studies upon the physiology of respiration, he introduced a simple method for analyzing the constituents of expired air, his apparatus for gas analysis now being found in every physiological laboratory in the world. Haldane's most celebrated paper was published with J. G. Priestley in 1905. It bore the title 'Regulation of the lung ventilation' (*Journal of Physiology*, 32, 225-266, 1905). In an ingenious series of experiments carried out upon themselves they proved that

'The respiration centre is exquisitely sensitive to any rise in alveolar CO_2 pressure, a rise of 0.2 per cent of an atmosphere in the alveolar CO_2 pressure being for instance sufficient to double the amount of alveolar ventilation during rest (See table)'

"When the oxygen pressure in the expired air falls below about 13 per cent of an atmosphere, the respiratory centre begins to be excited by want of oxygen and the alveolar CO_2 pressure begins to fall.'

This is a classical study in the history of physiology, a landmark not only in the field of respiration but in the larger field of clinical science since it illustrated in a beautiful manner how well-controlled physiological studies might be carried out on human beings. Haldane's abiding interest in respiration continued until the end of his life. His Silliman Lectures given at Yale in 1916 culminated in a monograph bearing the title *Respiration*, originally published by the Yale Press in 1922 and just reprinted after complete revision with J. G. Priestley in 1935. It would be impossible to comment fully on the importance of this book, many felt that it had rather glaring shortcomings, which arose out of Haldane's philosophical turn of mind. In the first edition the chapter on oxygen secretion by the lungs caused some who had done far less work than Haldane to shrug their shoulders and while there is room for disagreement concerning this phase of Haldane's work there are few scientific expositions which have so sharpened the critical faculties of students and

the book itself remains as the only comprehensive monograph in English on the physiology of respiration

Subject and number of experiment		% of CO ₂ in inspired air	Average depth of respirations in cc.	Average frequency of respiration per minute	Depth of respirations normal=100	Frequency of respirations normal=100	Volume breathed per minute normal=100	Ventilation of alveoli with inspired air normal=100	Calculated CO ₂ % in alveolar air
J S H.	2	0.79	739	14	112	100	111	116	5.5
	2	1.47	978	13	147	93	137	149	5.0
	2	1.52	793	5	15	120	107	128	5.55
	1	1.97	849	13	5	150	84	128	5.7
	2	2.02	864	15	130	107	139	153	5.6
	4	2.28	911	15	142	100	141	161	5.8
	3	2.31	919	14	5	155	91	140	5.7
	2	2.84	1154	16	178	107	191	227	5.3
	4	3.07	1216	15	189	100	186	226	5.5
	4	3.11	1232	15	192	100	191	230	5.5
J G P	3	3.73	1330	14	224	88	196	273	5.9
	3	4.84	1662	14	284	88	245	322	6.5
	1	5.14	1771	19	313	120	373	498	6.2
	3	5.48	1845	16	311	100	311	411	6.8
	1	6.03	2104	27	372	169	631	857	6.6
	5	0.60	516	15	103	100	103	104	6.6
	2	1.64	605	19	116	112	130	136	6.2
	1	1.65	540	15	5	121	94	114	6.7
	5	2.53	664	16	133	107	141	155	6.5
	6	2.62	747	15	150	94	140	158	6.6
	2	2.63	760	18	144	106	152	170	6.3
	1	2.71	570	17	128	103	132	144	7.0
	6	3.22	922	15	185	94	168	203	6.3
	2	3.23	760	17	144	100	144	160	7.1
	5	3.42	791	16	159	107	168	192	6.6
	3	3.47	465	17	5	144	107	154	6.8
	1	3.51	724	20	162	121	197	231	6.2
	4	3.89	698	18	168	106	178	215	6.8
	2	4.16	935	18	179	106	190	218	7.0
	1	4.16	895	21	201	127	255	314	6.1
	4	4.66	969	19	5	233	114	267	6.3
	3	4.68	575	20	5	177	126	223	6.6
	3	4.88	760	20	234	123	288	413	6.35
	3	5.22	910	21	281	129	362	540	6.3
	4	5.23	1094	19	5	263	114	301	6.8
	4	5.67	1331	20	5	320	121	385	6.8

Haldane and Priestley's original table showing the relation between CO₂ tension in alveolar air and lung ventilation

Haldane rendered great service to his country and to applied physiology generally through his studies of respiratory hazards e.g., in mines, tunnels, caissons, and various other conditions of altered atmospheric pressure or contamination of the atmospheric air. The distinguished work of Henderson and Haggard in this country was largely influenced by Haldane's pioneer studies as was that of many physiologists on the continent.

Philosophically Haldane has generally been referred to as a vitalist. He was exceedingly impatient with the naive postulates of behaviorism, tenaciously maintaining that living matter could never be accounted for by physics and chemistry alone. His many efforts to harmonize philosophy, science and religion will be found in *Essays and philosophical criticisms*, 1883, *Mechanism of life and personality*, 1913, *Organism and environment*, 1917, *The New physiology*, 1919, *The sciences and philosophy* (Gifford Lectures), 1929, *The philosophical basis of biology*, 1931, *Materialism*, 1932, *The philosophy of a biologist*, 1935.

Personally Haldane was a man of unusual charm. For some years he had become progressively stooped and had to cock his head in a curious manner in order to make his face visible to an audience, but when his eye caught yours it seemed to penetrate your soul. In manner he was detached and, as with Burdon Sanderson, the stories are legion of his absent-minded ways. Students of Oxford saw him more frequently catching a train a second or two before it was due to depart than they did in his laboratory, but those who were privileged to see him in his house found him a gracious and most fascinating host.

“THE OLD DOCTOR’S ALMANAC”

CLIMATOLOGY has long been suspected of having its alliance with medicine, and climate its influence upon disease, rickets is less florid in the sunny South than in our fog-bound northern climes, and is practically unknown among the rank verdure of the tropics, rheumatic fever hides its face in sunny latitudes and sufferers from asthma find relief in the dry highlands of Arizona.

It has remained for an Austrian physician, however—a member of the Vienna Board of Health, according to our esteemed contemporary, the *New York Times*—to elaborate a calendar of diseases corresponding to the alternations of climate with variations of temperature, humidity and barometric pressure. This Almanack, recently published, represents a labor of eight years and a study of some 20,000 cases.

According to this calendar, “January is the month of measles, February brings snowdrops and hay fever, March is the month of pneumonia, the appearance of the lily of the valley in May corresponds with the increase in asthma and appendicitis.

“June roses herald the troubles connected with the gallbladder and liver, July increases the sufferers from heart trouble, August is the month of unclassified malaises, September sees the beginning of the ‘cold in the head’ season, which reaches its height in November.

“December is the month of digestive troubles, which are largely caused by the lack of fresh vegetables.”

Perhaps with this almanac, synoptically printed, a vade mecum may be available which will do away with many a bulky textbook of disease, and a new era of more precise diagnosis will be inaugurated. Who knows but that, given a few years of trial—and years are fleeting—and the sling psychrometer and the aneroid barometer will replace the stethoscope and the sphygmomanometer, and the relief of abdominal distention will be measured in terms of wind velocity?

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

HABMER, TORR WAGNER A.B, M.D. Harvard University Medical School 1907 F.A.C.S. Instructor in Anatomy, Harvard University Medical School Assistant Visiting Surgeon, Massachusetts General Hospital Consulting Surgeon, Arlington Symmes Hospital, Massachusetts Ear and Eye Infirmary, Somerville, Waltham and Winchester Hospitals His subject is Certain Aspects of Hand Surgery Page 613 Address 416 Marlborough Street, Boston, Mass

MUNRO, DONALD A.B, M.D. Harvard University Medical School 1916 F.A.C.S. Visiting Surgeon in Charge of Neurological Surgery Boston City Hospital Assistant Professor of Neurological Surgery, Harvard University Medical School His subject is The Activity of the Urinary Bladder as Measured by a New and Inexpensive Cystometer Page 617 Address Boston City Hospital, Boston Mass

MOCK HARRY E. B.S., D.Sc., M.D. Rush Medical College 1906 F.A.C.S. Senior Attending Surgeon St. Luke's Hospital Associate Professor of Surgery, Northwestern University Medical School His subject is Management of Skull Fractures. How Can the High Mortality Rate Be Reduced? Page 625 Address 122 South Michigan Boulevard, Chicago Illinois

IRVING FREDERICK C. A.B, M.D. Harvard University Medical School 1910 F.A.C.S. William Lambert Richardson Professor of Obstetrics Harvard University Medical School Visiting Obstetrician, Boston Lying in Hospital Consulting Obstetrician Newton Hospital His subject is The Mechanics of Delivery Especially as it Relates to Intracranial Hemorrhage Page 635 Address 221 Longwood Avenue, Boston Mass.

KELLOGG FOSTER S. A.B. M.D. Harvard University Medical School 1910 Associate in Obstetrics, Harvard University Medical School Assistant Visiting Obstetrician Boston Lying in Hospital His subject is The Prevention of Puerperal Infection Page 636 Address 19 Bay State Road, Boston, Mass.

BEDELL, ARTHUR J. M.D. Albany Medical College 1901 F.A.C.S. Attending Ophthalmologist St. Peter's and Child's Hospitals and Old Ladies Home Consulting Ophthalmologist Anthony N. Brady Maternity Hospital Albany Physicians Hospital, Plattsburg Vassar Brothers Hospital, Poughkeepsie, Little Falls Hospital Little Falls, and Moses Ludington Hospital Ticonderoga. Fellow of the American Ophthalmological Society and of the Academy

of Ophthalmology and Oto Laryngology His subject is The Causes of Sudden Blindness Page 640 Address 344 State Street Albany, New York.

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DYSMENORRHEA

There are two types of dysmenorrhea, primary and secondary. Primary dysmenorrhea is uncomplicated by any pelvic pathology capable of causing uterine pain. Secondary dysmenorrhea is due to accompanying inflammations, tumors, etc. It is with primary dysmenorrhea that we are concerned. The symptoms and diagnosis need no elaboration, for the term itself is sufficiently descriptive.

The treatment of primary dysmenorrhea is difficult and often disappointing but if general rules of procedure are laid down and followed, the patient will obtain relief in the end. The outline should proceed from the simplest method to the most difficult or serious. All possibilities of a psychic cause for dysmenorrhea must be ruled out before any other treatment is instituted. The anxious mother or older sister should be eliminated.

Psychiatric treatment is successful infrequently but it must be tried if there is any suspicion, for other methods will fail if the main cause is psychogenic.

Primary dysmenorrhea may in some instances be assumed to be of endocrine etiology and if this is true some hormone should be of aid in the treatment. Many patients with dysmenorrhea have an accompanying underdevelopment of the uterus and to develop such a uterus should be the aim of the physician. In experimental animals and in some instances in human beings the use of estrogenic substances has proved successful in enlarging the underdeveloped uterus. The use of estrin is therefore justifiable. It is also true that estrin causes a marked sensitization of the uterine smooth musculature to the posterior pituitary hormone pituitrin (oxytocic principle). The corpus luteum hormone progesterin is known to neutralize estrin and thus desensitize or prevent the sensitization of the uterine musculature. Progesterin can therefore be used with some hope of success in patients with an oversensitive uterine

A series of short selected articles by members of the Section is being published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

musculature Urinary prolactin (luteinizing factor) or pituitary prolactin (luteinizing factor) can be utilized in the same way. The hormone should cause luteinization of the follicles and thus the patient's own progesterin will neutralize the sensitizing estrin. It is known that estrin will inhibit the pituitary from secreting prolactin. If therefore there is an excess of estrin estrin can be given the patient with the hope of preventing further secretion of prolactin and therefore less secretion of the patient's own estrin. The estrin should be omitted a few days before the onset of the menstrual period and it is assumed that in the time left between omitting estrin and menstruation the patient's prolactin will not have had time to cause enough estrin secretion to sensitize the uterine musculature. The above are the theories for the use of hormones in dysmenorrhea.

If endocrine methods of attack fail, the simplest surgical procedures should be tried. Sometimes it is noticed that, after taking an endometrial biopsy in the office, the next menstrual period is less painful. In taking an endometrial biopsy there may be a slight stretching of the internal os and it can be assumed that this procedure relieved the pain. It seems logical then to try further dilatation in the office. By infiltrating the os with novocain or using cotton pledgets of local anesthetics (nupercaine, pontocaine) in the os or by using evipal in small doses moderate dilatation can be done without much discomfort. If the dilator is well lubricated it is surprising how easily a fairly satisfactory dilatation can be accomplished.

When this type of treatment has proved unsatisfactory the external os should be thoroughly dilated under an anesthetic. This dilatation should be careful, slow, and very thorough. It is not sufficient simply to pass the dilators, but a real dilatation must be kept up for at least fifteen minutes. Often when doing the rectal examination a widening of the uterocervical segment is noted. This thickening is similar to the hard area noted about the pylorus in pyloric obstruction in children. It is sometimes difficult properly to dilate this area and it is safe and proper to section it. With a finger in the rectum and a long pointed knife this area can be cut through longitudinally and a piece of gauze packed in the split area to keep it open. After regular dilatation and dilatation with incision the internal os should be kept open by dilatation with a lubricated dilator in the office. This method insures a longer and more satisfactory result from surgical dilatation.

Some dysmenorrheas cannot be relieved by these methods and if, in a virgin, a retroflexion is found or if in a multipara a large boggy retroverted uterus is found, suspension of such a uterus combined with dilatation of the internal

os is justifiable. Suspension of the retroverted vaginal uterus or of the anteverted vaginal uterus is not so frequently followed by relief of pain.

Lately presacral or superior hypogastric neurectomy for relief of pain has been advocated. Without doubt this method of treatment is eminently satisfactory. If at any abdominal operation sufficient reason for the dysmenorrhea is not found it should be performed. No ill effects to the bladder, bowel, libido, or pregnancies have been reported. It will not cure all patients. In some the pain which seems organic will be found to be psychogenic and no relief obtained from the operation. In others aberrant nerves or lack of sufficient radical excision of the nerves will not relieve the pain as expected. It is not a 100 per cent cure but is successful in about 80-90 per cent of cases.

Last of all if the pain is intractable and no method can relieve it hysterectomy is justifiable. This is especially true in older women who have had children and in older virgins who understand what hysterectomy means to them. In youth it should never be necessary and should be reserved for later life.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning March 29

Berkshire

Thursday, April 2, at 4 30 P M, at the House of Mercy Hospital, Pittsfield. Subject: Dermatology—Ten Common Skin Diseases—Diagnosis and Treatment, (1) Impetigo Contagiosa, (2) Scabies, (3) Acne Vulgaris, (4) Psoriasis and Seborrheic Dermatitis, (5) Epidermophytosis, (6) Herpes Simplex and Zoster, (7) Eczema, (8) Erythema Multiforme, (9) Verruca Vulgaris and (10) Dermatitis Medicamentosa and Dermatitis Venenata. Instructor J H. Swartz. Melvin H. Walker, Jr., Chairman.

Bristol North

Wednesday, April 1, at 7 30 P M, at the Morton Hospital, Taunton. Subject: Kidney and Bladder Diseases A and B (Medical)—Acute and Chronic Nephritis. Instructor E M. Chapman. Arthur R. Crandell, Chairman.

Bristol South (New Bedford Section)

Friday, April 3, at 4 00 P M, at the St. Luke's Hospital, New Bedford. Subject: Kidney and Bladder Diseases A and B (Surgical)—Hematuria, Its Significance in Surgical Diseases of Kidney and Bladder. Prostatism and Related Diseases. Cystitis and Pyelitis. Instructor G G. Smith. Harold E. Perry, Chairman.

Norfolk*

Friday April 3 at 8 30 P M at the Norwood Hospital, Norwood Subject Arthritis—
(a) Medical Care of Patient in the Home
(b) Orthopedic Treatment in Hospital and Aids in Home Treatment Instructors A. A. Horner and J S Barr H B C Klemer Chairman.

Worcester (Milford Section)

Wednesday April 1 at 8 30 P M at the Milford Hospital, Milford Subject Kidney and Bladder Diseases A (Medical)—Acute Nephritis — Etiology Diagnosis and Treatment, Nephrosis and its Treatment Instructor L B Ellis, Joseph I. Ashklus, Sub-Chairman

The Course previously given at the Faulkner Hospital will be combined with the group at the Norwood Hospital

MASSACHUSETTS LEGISLATIVE NOTES

Senate 321 which provides for an investigation of the desirability of the creation of a State Hospital for the treatment of infantile paralysis and arthritis has been favorably reported in the House

Senate 51 which was designed to provide a division of the North Reading State Sanatorium for the treatment of cancer cases has been given leave to withdraw

House 35 designed to provide for the annual registration of physicians has been referred to the next annual session.

House 949 designed to abolish compulsory vaccination has been given leave to withdraw

MISCELLANY

THE APPOINTMENT OF DR. HANS ZINSSER

Dr Hans Zinsser professor of bacteriology and immunology at the Harvard Medical School since 1923 has been appointed Charles Wilder professor of bacteriology and immunology He succeeds Professor Milton J Rosenau—*Science* Vol. 38 No 2151

THE MASSACHUSETTS CENTRAL HEALTH COUNCIL

With no paid officers or executive the Massachusetts Central Health Council has recently held an election and has appointed a legislative committee This Council has worked to aid the passage of the medical education bill of this session and had much to do previously with the successful launching of the present Massachusetts State Health Commission, now engaged through its fourteen committees in a study of the health needs and laws of the Commonwealth After the forthcoming report of this Commission in 1936 the Council hopes that its constituent health agencies will render important service in promoting indicated changes in health work procedure and to win legislation.

The elected officers are Miss Sophie C Nelson of

the John Hancock Mutual Life Insurance Company President Dr Gaylord W Anderson of the State Department of Public Health Vice-President, and Arthur J Strawn, of the Massachusetts Tuberculosis League Secretary Treasurer

The constituent agencies of the Council each represented by two administrative board members, are as follows Dental Hygiene Council of Massachusetts Massachusetts Public Health Association Massachusetts Organization for Public Health Nursing Massachusetts Department of Public Health Massachusetts Medical Society Massachusetts Department of Labor and Industries Massachusetts Society for Mental Hygiene, Massachusetts Society for the Control of Cancer Massachusetts State Nurses Association Massachusetts Tuberculosis League Massachusetts Veterinary Association Massachusetts Society for Social Hygiene New England Heart Association, Metropolitan Chapter of the American Red Cross New England District of the American Association of Hospital Social Workers and New England Health Education Association.

DR. H. W. SCHOENING NEW ASSISTANT CHIEF OF BUREAU OF ANIMAL INDUSTRY

Appointment of Dr Harry W Schoening, chief of the Pathological Division of the Bureau of Animal Industry as an assistant chief of the Bureau is announced by the U S Department of Agriculture Dr Schoening will continue as chief of the Pathological Division, but will devote time also to administrative duties dealing with general Bureau research in livestock diseases

He was named chief of the Pathological Division in 1933 to fill the vacancy created by the death of his predecessor Dr J S Buckley

Dr Schoening is a native of Philadelphia Pa. and holds a commission as a major in the Reserve Corps of the Army Veterinary Corps He was a second Lieutenant of the Army Veterinary Corps in 1918. He also is a member of the American Veterinary Medical Association the Society of American Bacteriologists the National Association of the Bureau of Animal Industry Veterinarians and the Academy of Science

SMOOTH OLIVE OIL RACKETEERS FOILED BY FEDERAL FOOD MEN

It was a good racket while it lasted—the olive oil" racket with cheap tea seed oil substituted for the more expensive olive oil. But a Federal chemist has at last found a way to identify the tea seed oil, and the Food and Drug Administration has started legal action to confiscate thousands of gallons of the adulterated oil. The salad oil racketeers will now have to abandon tea seed oil as a source of illegitimate profits just as in the past they have had to abandon cottonseed oil peanut oil, sesame oil sunflower seed oil and others as adulterants of olive oil.

It is a long story with the racketeers shifting

from one cheat to another trying to keep ahead of the Government and the Government chemists working in their laboratories to devise methods of exposing the cheats, methods so conclusive that they would stand up in court and cause conviction of the cheaters. Time and again the laboratory men have caught up and the test tube has exposed one variety of adulteration, forcing the racketeers to a new dodge—*Bulletin, U S Department of Agriculture*

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR FEBRUARY, 1936

	Feb, 1936	Feb, 1935	5 Yr Average*
Anterior poliomyelitis.....	2	2	2
Chickenpox	1220	1202	1135
Diphtheria	32	39	116
Dog bite	503	506	288
Epidemic cerebrospinal meningitis	23	2	5
German measles.....	424	1908	461
Gonorrhea	396	360	442
Lobar pneumonia	799	475	547
Measles	2477	2097	3095
Mumps	2213	290	638
Scarlet fever	1095	723	1354
Syphilis	426	379	339
Tuberculosis, pulmonary.....	214	316	279
Tuberculosis, other forms.....	28	38	34
Typhoid fever	9	1	8
Undulant fever	4	3	
Whooping cough	310	817	852

*Based on the figures for the preceding 5 years

RARE DISEASES

Actinomycosis was reported from Boston, 1

Anterior poliomyelitis was reported from Lowell, 1, Malden, 1, total, 2

Anthrax was reported from Peabody, 1, Pittsfield, 1, total, 2

Diphtheria was reported from Athol, 1, Boston, 12, Dracut, 1, Fall River, 3, Haverhill, 2, Lowell, 5, Malden, 1, Melrose, 1, North Attleboro, 1, Revere, 1, Somerville, 1, Tewksbury, 2, Worcester, 1, total, 32

Encephalitis lethargica was reported from Townsend, 1

Epidemic cerebrospinal meningitis was reported from Boston, 14, Lynn, 1, Newburyport, 1, Newton, 2, Rockland, 1, Spencer, 1, Webster, 1, Winchester, 1, Worcester, 1, total, 23

Pellagra was reported from Nahant, 1, North Adams, 1, total, 2

Septic sore throat was reported from Beverly, 1, Billerica, 1, Boston, 5, Chicopee, 1, Easton, 1, Fitchburg, 1, Gardner, 2, Haverhill, 1, Marshfield, 1, Milton, 1, Newton, 1, Stoneham, 1, total, 17

Trachoma was reported from Worcester, 2

Trichinosis was reported from Agawam, 1, Cambridge, 1, total, 2

Typhus fever was reported from Boston, 2, Peterham, 1, total, 3

Undulant fever was reported from Beverly, 1, Norfolk, 1, Sheffield, 1, Weston, 1, total, 4.

Diphtheria was reported to a lower figure than for February, 1935, after a poor start in January due to a local outbreak

Although most of the increase in reported epidemic cerebrospinal meningitis is due to outbreaks in two institutions, it would appear that the incidence in the State as a whole will be greater than usual throughout the year

Typhoid fever shows as yet no decrease over last year's record low incidence

The reported incidence of lobar pneumonia was higher than it has been for February since 1929

Tuberculosis morbidity is running somewhat lower to date than in 1935

Mumps continues to be reported in record breaking figures

Scarlet fever continues to run higher than for the past two years

Whooping cough had its lowest reported February incidence

The incidence of anterior poliomyelitis, chickenpox, measles, German measles, and tuberculosis other forms was not remarkable

COMMITTEE FOR THE STUDY OF SUICIDE

An organization to be known as the Committee for the Study of Suicide, Inc., was incorporated last December under the laws of the State of New York and began its activities early in January. The Committee may in time increase its present membership of ten to a total number of twenty. The Board of Directors and the officers of the new corporation are the following: Dr. Gerald R. Jamieson, President, Mr. Marshall Field, Vice-President, Dr. Henry Alsop Riley, Treasurer, Dr. Gregory Zilboorg, Secretary and Director of Research, Miss Elisabeth G. Brockett, Dr. Franklin G. Ebaugh, Dr. Herman Nunberg, Dr. Dudley D. Schoenfeld, Dr. Betina Warburg.

The Committee plans to undertake a comprehensive study of suicide as a social and psychological phenomenon. To achieve this the following general outline was adopted:

1 *Intramural studies* of individuals inclined to suicide in selected hospitals for mental diseases. These will embrace constitutional, neurological, psychiatric and psychoanalytic investigations of the phenomenon with special reference to therapy and prevention. This part of the study will include the investigation of suicidal trends or ideas of death emerging in organic deliria.

2 *Extramural studies* of ambulatory cases afflicted with suicidal trends or with obsessional wishes for their own death. These studies will be primarily therapeutic in nature, the cases to be treated in especially selected out-patient clinics and by qualified psychiatrists and psychoanalysts. Regular "control seminars" to follow and to supervise the course of the cases under treatment will be held.

under the guidance of the Committee. The medical and neurological status of all cases will be a prerequisite of each case record.

3 *Social studies* of suicide will be undertaken along the following general lines. Various attempts at suicide will be followed up by experienced psychiatric social workers all cases will be studied from the standpoint of social background and history and those who failed in their attempts or have recovered from injuries following a partially successful attempt (prolonged unconsciousness or physical illness) will be urged to submit to psychiatric and psychoanalytic treatment in the hands of the intra or extramural therapeutic agencies which will be available to the Committee.

4 *Ethnological studies* i.e., comprehensive investigation of suicide among primitive races will be one of the first concerns of the Committee for suicide is a rather frequent occurrence among many primitive races still extant and when studied may throw some light on suicide as a psychobiological phenomenon. It is planned that an expedition headed by a psychiatrically schooled anthropologist, a psychiatrist and a psychoanalyst should work for a time in a region such as the Melanesian Islands or the Gulf of Papua, and in the interior of the Mexican North West as well as among some of the North American Indian tribes. Further details of this plan will be elaborated.

5 *Historical studies* of suicide will be pursued systematically under the auspices of the Committee so as to make available a scientific history of the phenomenon as a social and medicopsychological problem.

The Committee was organized under the guidance of its first chairman the late Dr Mortimer Williams Raynor Medical Director of Bloomingdale Hospital who died on October 5, 1935.

Dr Henry E. Sigerist, Professor of the History of Medicine at Johns Hopkins University and Dr Edward Sapir Professor of Anthropology at Yale University are consultant members of the Committee. They will advise and guide in that part of the work which touches their respective fields.

The Executive Offices of the Committee are located at Room 1404 the Medical Arts Center 57 West 57th Street, New York City and will be in charge of an executive assistant.

CORRESPONDENCE

SENATE BILL 394

Board of Registration in Optometry
State House Boston

March 18 1936

Editor *New England Journal of Medicine*

In your issue of March 12 there is an article calling attention to the danger inherent in Senate Bill 394. I do not question the sincerity of the writer but his article shows a complete misunderstanding of the bill, even as it is printed. I would

greatly appreciate the courtesy if you will publish this statement of fact.

The sponsors of this bill have no desire to encroach upon the privileges of the medical profession in their desire to correct an abuse which has crept into the practice by virtue of the exemption of application of the law to physicians. The language of the original bill was such that physicians would be subject to the rules of optometric procedure in an examination of the patient. We can see just cause for protest on the part of physicians to this regulation on principle alone and since the matter was called to our attention after consultation with some of the leading ophthalmologists of Boston we have eliminated the objectionable phrase "subject to rules or regulations governing the practice of optometry" and inserted in its place "subject to rules pertaining to advertising." This phrase is necessary to take care of the situation where a few unethical physicians are prostituting the profession by the use of their certificates in the practice conducted by these unscrupulous commercial concerns and surely no ethical physician would protest at the regulation of bait advertising by anyone but the physician, optometrist or optician. The bill in every other particular does not affect physicians; they are exempt from the provisions of the bill in the original law and in these proposed amendments they are also exempt from all of the provisions of the law save this one pertaining to advertising. I would respectfully refer any physician who questions the accuracy of the above statements to consult with some of the leaders of the New England Ophthalmological Section for verification of these statements. There will be a hearing on March 19 and we would welcome the attendance of any physician to hear our presentation of the case with an open mind and thus be reassured of our honesty of purpose, and of the fact that no ethical physician has reason to protest the enactment of his legislation. Thanking you for the courtesy of your columns I am

Very truly yours,

JOHN E. CORBETT Chairman

Massachusetts Board of Registration
in Optometry

EDITORIAL NOTE: An agreement has been reached at a meeting of physicians and optometrists for an amendment to this bill which is satisfactory to both parties.

COEXISTENCE OF APPENDICITIS AND MEASLES

March 17 1936

Editor *New England Journal of Medicine*

The current increase in the normal average number of cases of measles reported from certain communities in Eastern Massachusetts together with a recent experience prompted me to call attention again to the coexistence of acute appendicitis and measles.

In this Journal for April 12, 1934, a letter was published in the correspondence section in which I reported several personal experiences with measles and appendicitis. A month after this letter appeared I saw another child, aged five, who was taken ill on May 7, 1934, with measles. On the evening of May 10 she vomited. On May 11 she seemed more ill than she had been during the preceding three days. On May 12 she complained of abdominal pain and there was more vomiting. On May 13, the day on which I saw her, she again complained of abdominal pain. Her examination at that time revealed the presence of an appendix abscess. She was operated upon that day and a retrocecal perforated appendix with abscess formation was found. The appendix was removed and the abscess drained. She made a gratifying convalescence.

At about this same time a five-year-old boy was seen by one of my friends. This child complained of abdominal pain and had been vomiting for several days. His examination was suggestive but not diagnostic of appendicitis. There was a leucopenia, and Koplik spots were seen on his mucous membranes. He was observed for twenty-four hours during which time he developed signs of peritonitis. He was operated upon and the peritonitis found to be of appendiceal origin. This patient died.

On March 14, 1936, I saw a girl of eight who was taken ill early in the morning with vomiting. She vomited throughout the morning and the early afternoon. There was no complaint of abdominal pain. When seen by her physician at one-thirty P.M. on March 14 her temperature was 99° and the physical examination was considered negative except for slight redness of the throat and slight injection of one ear drum. At four-thirty P.M. she complained of abdominal pain for the first time. At six-thirty P.M. she was seen by her physician who made a diagnosis of acute appendicitis. Operation was performed at nine-thirty P.M. and an acutely inflamed appendix removed. The lumen of the appendix was distended with pus. Following operation on March 14 her convalescence has been satisfactory except for the presence of slight fever. She vomited once the evening of March 15 and once the afternoon of March 16. This afternoon a diagnosis of measles was established.

As pointed out in the letter of 1934 this experience has been noted by others, chiefly in foreign literature. A review of the subject with six reported cases appears in the *Archives of Pediatrics* for January, 1933.

This letter is written in the hope that practitioners seeing children with measles who present signs suggestive of appendicitis will give consideration to the latter as a probable diagnosis, as in the eight cases of which I have personal knowledge all but one had perforated before operation, with the result that two of the eight children died.

HENRY W HUDSON, JR

1101 Beacon Street,
Brookline, Mass

SURGICAL OPERATION FOR HIGH BLOOD PRESSURE

March 16, 1936

Editor, *New England Journal of Medicine*,

Your editorial of March 12, "Surgical Operation for High Blood Pressure," is timely and justifiably conservative in regard to this new therapeutic approach to a very common disease. Your plea for more experimental work and less surgical trial is, in general, appropriate. However, the employment of certain surgical procedures in my opinion is justified in carefully selected cases after all the resources of a thorough medical régime including psychotherapy have been exhausted.

To date the surgical procedure of choice is dorsal sympathectomy or possibly as suggested by the Mayo Clinic¹ splanchnic resection and partial adrenalectomy. Laminectomy and anterior root section appear to carry too great a mortality and too great a risk of postoperative complications. Some experimental work² has been interpreted as demonstrating that surgery of the sympathetic nerves will not be effective. The work of others³, and the experience of Dr. R. H. Smithwick and myself, as yet unreported, nevertheless show that operative procedures are effective in lowering the blood pressure in certain cases during postoperative periods of months up to slightly over two years.

The selection of cases is most important. After the menopause in women and over forty-five years of age in men, essential hypertension pursues a long and benign course lasting ten to twenty years, during a large part of which the disease is either asymptomatic or symptoms are favorably influenced by simple measures. Essential hypertension in young males, or vasomotor instability with transient rises in blood pressure often spontaneously subsides or is readily controlled. On the other hand, rarely in young males, but more often in young females before the menopause, in certain constitutional types, observation reveals an intensity, a rapidity of progress, and a failure to respond to treatment which suggests the approach or onset of the malignant phase of essential hypertension. If abnormal catamenia, sterility, or toxemia of pregnancy occurs in the anamnesis one is more inclined to a grave prognosis. If such a patient under careful treatment shows progress of the disease I believe the use of a relatively safe surgical procedure with a reasonable prospect of success may be offered with full explanation to the patient.

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1. Adson A. W., Craig W. McK., and Brown G. E. Surgery in its relation to hypertension. *Surg. Gynec. & Obst.* 62: 314 (Feb.) 1936.
2. Prinzmetal M. and Wilson C. The nature of the peripheral resistance in arterial hypertension with special reference to the vasomotor system. *J. Clin. Investigation* 15: 63 (Jan.) 1936.
3. Page I. H. and Hauer G. J. Surgical treatment of essential hypertension. *J. Clin. Investigation* 14: 22 (Jan.) 1936.

ROBERT S. PALMER, M.D.

330 Dartmouth Street,
Boston

BIOLOGICAL PROBLEMS OF STERILIZATION
To the Editor of *The New York Times**

Without entering into the controversy on sterilization in any direct sense, let me state briefly the fundamental facts uncovered by the committee of the American Neurological Association and its conclusions and recommendations.

We find the claims of most eugenisists as to the incidence of mental disease and mental defect unwarranted. There is no evidence of an actual increase. The entire biology of the situation is opposed to any real increase. Thus, it is not true that the feeble-minded have large families or are more prolific than the general population, nor is this true of the insane.

All the facts indicate quite clearly that there is a low marriage rate, a relatively low birth rate, a high death rate and even a high divorce rate. This is not only our opinion but also that of the British commission. That the biological setting is directly against any increase of the incidence of mental disease and mental defect is brought out by an actual analysis made not only for the United States but the world by Dr. Ellen Winston. The only present increase in mental disease in any of the cultural countries relates to the incidence of the senile mental diseases and this is undoubtedly due, first to the greater age of the population accounted for by the lower birth and death rate and second to the fact that as hospitals grow better people are more ready to send their aged sufferers to institutions for mental disease.

MYTHICAL MONSTROSITIES

The Names Kallikake, Jukeses and similar families are in the opinion of the British commission and of the American committee, more or less mythical monstrosities which are probably largely social in origin.

Certain physical and mental diseases may be stated to have a hereditary basis. A few rare bodily diseases such as Huntington's chorea, hereditary blindness and deafness, are unquestionably of genetic origin. The main mental diseases with which eugenic legislation is concerned are manic-depressive psychosis, dementia praecox, epilepsy, feeble-mindedness and, by a stretch of the term, mental disease, criminality.

While there is a hereditary basis in the case of manic-depressive psychosis and dementia praecox, it can safely be stated that the mechanism of heredity is entirely unknown. The inheritance of these conditions is not classically Mendelian, probably some environmental factor is at work as well as the hereditary one. The attempt to prevent these diseases by sterilizing those who themselves are not sick would be futile. Furthermore, sterilization would not greatly reduce their incidence. In a certain sense, dementia praecox sterilizes itself. Those who suffer from it have a low marriage and birth rate and tend to early incarceration in hospitals.

Of feeble-mindedness it can be directly stated that

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a large proportion is of hereditary origin. Yet the mechanism of inheritance is debatable and does not conform to Mendelian ratios or any modification thereof.

THE CARE OF EPILEPSY

Epilepsy can be practically speaking eliminated from consideration as hereditary. At the last meeting of the international neurological bodies in London the statement was made directly by several of the readers that environmental difficulties could be assumed to create the disorder.

As to criminality none of the important geneticists believe that sterilization would have any effect that, whatever constitution is involved, criminality is so linked up with culture, economics, tradition and the pressure of the complex social environment as to preclude sterilization as a defensive weapon.

Our committee takes note of the fact that considerable genius is associated with mental disease, that especially is the manic-depressive temperament closely related to superior ability and that any sterilization procedures which operate blindly and without taking into account the total assets of the personality may do more harm than good. It becomes quite obvious from a study of literature that much genius would have been lost if drastic sterilization laws had been enacted in times past.

This committee therefore recommended in essence as follows:

1. That on the American scene compulsory sterilization is futile and only voluntary selective sterilization laws can be recommended, this to apply to inmates not only of State institutions but of private institutions and to individuals in the community at large. This might reasonably apply to those cases of feeble-mindedness of definite hereditary origin but even here the assets of the personality in other directions might well be considered.

SELECTION URGED

2. That in the case of manic-depressive psychosis there should be a very careful weighing of the individual case and of the total personality assets and liabilities. In other words we recommend strongly selective sterilization as the only legitimate legislation here to be considered.

3. This applies although in lesser degree to dementia praecox.

4. In so far as epilepsy is concerned we are strongly opposed to any sterilization on the basis of heredity although there may be a reason why an individual who has epilepsy should be voluntarily sterilized because of other difficulties he encounters. The committee is opposed to sterilization for social reasons or social difficulties largely because of the danger of forging a weapon which would be used by the unscrupulous for punitive and prejudicial purposes.

5. In so far as crime is concerned this committee is wholly opposed to sterilization believing that it is only a form of punishment, a sort of dodging

of the issue, and a shifting of the responsibility from society to the germ plasm

The crying need of eugenics, as this committee sees it, is not legislation but real research. There have been no researches which fully merit the term scientific. The difficulties are great and they require a large organization with a systematic study, especially control studies, carried over a period of fifteen to twenty-five years. While we recommend a limited legislative program, our main recommendation lies in the direction of more fundamental, more thorough and more impartial research.

ABRAHAM MYERSON, M.D.,

Chairman, American Neurological Association Committee for the Investigation of Sterilization.

Boston, Mass., March 10, 1936

RECENT DEATH

McALLISTER—FREDERICK DANFORTH McALLISTER, M.D., of Methuen, with an office at 301 Essex Street, Lawrence, died at the Lawrence General Hospital, March 17, 1936.

Dr McAllister, the son of Dr John D McAllister, was born in Lawrence in 1872, attended Amherst College and graduated from the Harvard Medical School in 1898. His internship was served at the Worcester City Hospital.

He was a Fellow of the Massachusetts Medical Society and the American Medical Association and had been prominent as a surgeon and consultant.

His widow, a daughter, two sisters and a brother survive him.

NOTICES

THOMAS WILLIAM SALMON MEMORIAL LECTURES

The Salmon Committee on Psychiatry and Mental Hygiene invites the medical profession and their friends to the Fourth Series of Thomas William Salmon Memorial Lectures to be given by Samuel T. Orton, M.D., Friday evenings (8:30), April 10, 17, 24, 1936 at the New York Academy of Medicine, 2 East 103rd Street, New York City.

Developmental Disorders of the Language Faculty and Their Psychiatric Import

Lecture I. Language Losses in the Adult as the Key to the Developmental Disorders in Children (April 10)

A discussion of the physiological background of the language faculty as revealed in the aphasias. The problem of unilateral cerebral dominance. Reports of studies indicating that all degrees of intermixture occur between right and left-sidedness. Such intergrading between the hemispheres is suggested as the background for many language disorders in children.

Lecture II. The Syndromes of Disorder in the Development of Language (April 17)

Six syndromes are discussed from the point of view of their symptomatology: Reading Disability (strophosymbolia), developmental word deafness, congenital apraxia, motor speech delay, writing disability, and stuttering.

Lecture III. Treatment and Psychiatric Interpretation (April 24)

A brief review of the general principles of treatment of the various syndromes, together with a discussion of the relation of these conditions to emotional and mental development.

BOSTON DISPENSARY

25 Bennet Street, Boston
Medical Conference Program
9:10 A.M., April, 1936

Wednesday, April 1 — Hospital Case Presentation.
Dr S. J. Thannhauser

Thursday, April 2 — Endocrine Clinic. Dr C. H. Lawrence

Friday, April 3 — Lobectomy and Pneumonectomy for Bronchiectasis and Tumors of the Lung. Dr Richard H. Overholt

Saturday, April 4 — Hospital Case Presentation.
Dr S. J. Thannhauser

Tuesday, April 7 — Diseases and Injuries to the Hip Joint. Dr John D. Adams

Wednesday, April 8 — Recognition of the Early Psychoses, Their Differentiation from Neuroses (Continued). Dr A. Warren Stearns

Thursday, April 9 — Development of Method in Psychopathology. Prof. Elton Mayo

Friday, April 10 — Rheumatic Fever. Dr Clifford L. Derick

Saturday, April 11 — Hospital Case Presentation.
Dr S. J. Thannhauser

Tuesday, April 14 — Etiological Factors in Anemia.
Dr William Dameshek

Wednesday, April 15 — Hospital Case Presentation.
Dr S. J. Thannhauser

Thursday, April 16 — Seasonal Hay Fever. Dr Joseph Kaplan

Friday, April 17 — Certain Aspects of the Thyroid.
Dr David Rapport

Saturday, April 18 — Hospital Case Presentation.
Dr S. J. Thannhauser

Tuesday, April 21 — X-Ray Demonstration. Dr Alice Ettinger

Wednesday, April 22 — Pericarditis. Prof. G. Klemperer

Thursday, April 23 — Social Service Case Presentation. Miss E. R. Canterbury

Friday, April 24 — Autonomic Pharmacological Experiments on the Human Being. Dr Abraham Myerson

Saturday, April 25 — Hospital Case Presentation.
Dr S. J. Thannhauser

Tuesday, April 28 — Pediatric Case Presentation. Dr Francis McDonald.

Wednesday April 29—Hospital Case Presentation
Dr S J Thannhauser
Thursday April 30—Some Practical Aspects of Tuberculosis
Dr C H Whitehurst.

REPORTS AND NOTICES OF MEETINGS

FORTY YEARS OF XRAY

On Thursday January 23 1936 the fortieth anniversary of Professor W K Roentgen's discovery of the x-ray was commemorated in the Moseley Memorial Building of the Massachusetts General Hospital. Dr W B Breed presided and commented on the modesty and sincerity of Professor Roentgen and on his enormous capacity for work.

Dr Francis T Hunter reviewed the main events of Roentgen's life. He was born in 1845 and it is not definitely known whether he was a citizen of Holland or Germany. He was not particularly brilliant, and because he was refused entrance to the gymnasium, he gained his early education in the Polytechnic School of Zurich. He received his doctorate of philosophy from the University of Würzburg in 1871 but could not gain academic promotion in that school because of his unfamiliarity with Latin.

He moved to the new University of Strassburg in 1876 where he was an instructor in physics and performed important researches on gun metals. Because of his excellent work he became well known academically and was offered the chair in physics at the University of Utrecht, a school which had refused him entrance as a student. He declined this appointment, and in 1888 accepted the professorship of physics at the University of Würzburg where he had previously been denied advancement because of his lack of knowledge of Latin. In 1895 he began his experiments on cathode rays which were to lead to his discovery of the x-ray.

On December 20 1895 his paper *Eine Neue Art vor Strahlen* appeared in the *Beiträge zur Physik der Würzburger Physik-medizinischen Gesellschaft*. Even before this periodical was distributed, reprints had been prepared and news of his discovery had reached the press, and been widely publicized over the whole of the civilized world. It was not until January 23, 1896 that he delivered his paper before a large audience of academics and high government officials.

In 1900 he became professor of physics at Munich and was awarded the Nobel Prize in physics in 1901. He received some fifty honorary degrees from various universities all over the world before his death in Munich on February 10 1923 at the age of seven ty-eight years.

The discovery of the x-ray must be considered with the discovery of ether anesthesia, and the bacterial etiology of disease as one of the three greatest contributions to the medical knowledge of the world to be made in the nineteenth century.

Dr E. A. Codman spoke on *Reminiscences of Early*

X-Ray Work in Boston. The announcement of the x-ray and its properties aroused a vast amount of skepticism and the first review of the work in the *Boston Medical and Surgical Journal* of February 13 1896 was extremely conservative in its comment. Dr Codman published an article in this Journal March 20 1896 with reproductions of x-ray plates of a full-term fetus, showing the varying calcification of different bones and the ossification centers. Four months elapsed after Roentgen's announcement of his discovery before practical application of the rays were made in Boston when on April 13 1896 Dr Codman took an x-ray photograph of a hand in which a shoemaker's brand was imbedded.

A double focus roentgen tube was secured from England in May 1896 which greatly aided in photography of the deeper structures and studies of the heart and lungs were made by Dr Francis Williams in October of that year. Investigations of the effects of x-rays on tissues were first made in September by Dr Seabury Allen, and Dr J C White first reported x-ray burns in December of 1896. The story of the earliest use of the x-ray in Boston, the first description of x-ray dermatitis, the first report of the effect of radiation on the tissues are all contained in the 1896 volume of the *Boston Medical and Surgical Journal*.

Mr Joseph Goodson who worked in the x-ray department of the Massachusetts General Hospital from 1896 to 1909 spoke of his experiences with the various forms of apparatus in use at that time and paid tribute to Dr Walter Dodd one of the first martyrs to the advancement of x-ray.

Dr George W Holmes roentgenologist at the Massachusetts General Hospital since 1911 spoke on *The Present Status of Radiology in the Treatment of Cancer*. Dr Holmes reported a case of carcinoma of the lip which he treated in 1910 with fractional doses of radiation over a considerable period of time. This patient was followed for ten years, with no signs of recurrence. In the application of radiation therapy it is important to consider the age of the patient, the size, location and malignancy of the lesion to be treated. The problem in treating lesions lying beneath the surface of the body is to give these lesions the greatest possible dosage with as little damage as possible to the overlying tissues. The dosage to the surface is always greater than the depth dose, with increasing voltage there is an increase in the depth dose with increasing distance between the patient and source of the rays, the radiation received by the deeper tissues approaches the amount received at the surface. The upper limit of increased penetration due to voltage increase is reached at about 500 KV., and 80 cm. is the maximum distance at which treatment is practical.

When extremely high voltages are employed in treatment, the character of ionization within the tissues is changed and as a result the therapeutic effects may be different from those obtained with lower voltages. The data at present available do

not indicate that these results will be superior, however

The degree of malignancy is of importance in determining the value of radiation therapy, in a given case. Many highly malignant tumors are easily destroyed with but slight injury to surrounding tissues. They are prone to metastasize early, however, and are seldom cured. Tumors of low malignancy are more radioresistant, and effective radiation does more damage to surrounding tissues, but due to the relatively late occurrence of metastases, results obtained in treating such lesions are often better than those in the more radiosensitive group.

Clinical experience is of the utmost value in applying radiation therapy. No tumor should be treated with massive dosage until absolutely proved to be malignant. Consultation service is considered necessary in every case, and only after the diagnosis has been established, the consultant has expressed his opinion, and a definite course of procedure has been adopted, should therapy be instituted. A plan of treatment once adopted should not be varied without further consultation, and thorough consideration. The tumor clinic with a staff of physicians of several different specialties each seeing the case is of distinct value.

It must be remembered that the tissues of children and youthful persons are more easily injured by radiation than those of elderly persons, and that growth processes may be permanently arrested by radiation.

Treatment may be undertaken with the hope of curing the patient, or as a means of palliation, that is relief of distressing symptoms. Treatment should be refused in cases with incurable disease which do not suffer disturbing symptoms, since radiation may only make such patients more uncomfortable, and is unjustified.

The question of preoperative radiation treatment with the hope of making more cases operable has recently been revived. If a case is inoperable, radiation will not make it operable. Cases which are inoperable because of their inaccessibility to surgical approach may be benefited and sometimes cured by radiation. Occasionally a case can be made "safer" for operation, e.g., large kidney tumors may be reduced in size, or the danger of rupture and peritoneal implantation of certain ovarian tumors may be minimized.

Postoperative radiation treatment is not logical. If the lesion cannot be removed by surgical means it should not be operated upon but treated with radiation alone, and if it can be removed completely there is no reason for postoperative radiation. If an attempt at complete removal fails and tumor tissue is left behind, treatment should be carried out as though there had been no operation.

Preradiation care is of importance. Local treatment should eradicate infectious processes, especially in the mouth. Bad teeth should be removed before radiation is begun, and not after, since radiated tissue is peculiarly susceptible to serious infection. The general condition of the patient should

be improved as much as possible. Food and fluid intake should be adequate, and anemia should be alleviated. Necessary postoperative radiation should not be instituted until sufficient time has elapsed to allow complete recovery from the ill effects of operation. During treatment a high carbohydrate diet, and sufficient fluid intake, should be maintained, and every effort made to prevent the psychic suggestion of possible radiation sickness. If, in the treatment of the lesion, epilation is produced, skin ointments should be used only with caution, since they prevent the evaporation of perspiration, elevate the skin temperature, and aggravate the reaction. If heavy treatment is directed to tumors in the upper respiratory passages, facilities for the performance of tracheotomy must be at hand.

There are three types of "roentgen sickness." The first is of psychic origin, and is often eliminated by the substitution of radium for x ray, or vice versa, or by referring the patient to another laboratory. The second type is due to "intoxication" from tissue breakdown, and can be treated in the manner employed in the treatment of other "toxic" conditions. "True" roentgen sickness, which is of unknown etiology, has many features suggestive of liver dysfunction. Treatment of this condition with a high carbohydrate diet definitely aids some cases.

The belief that high voltage is more likely to cause radiation sickness than low voltage is false. The development of roentgen sickness is independent of the voltage used for the treatment, and depends upon the total area treated, the location of this area and the dose administered.

Dr Holmes believes that advance in the field of roentgen therapy will be made through variations in the duration of treatment, and fractionation of dosages, rather than by use of extremely high voltages.

THE BOSTON PATHOLOGICAL SOCIETY

The stated meeting of the Boston Pathological Society was held in the Pathology Laboratories of the Infants and Children's Hospitals on Wednesday evening, February 19. The first part of the evening was devoted to an exhibition and demonstration of interesting pathological specimens obtained at the Infants' and Children's Hospitals and from members of the society.

Following this, the meeting was formally called to order by Dr Monroe J Schlesinger, President, and a series of papers was read. Dr Robert Fienberg of the Pondville Hospital in Wrentham discussed his recent work in determining the actual mechanism of the Smith-Dietrich lipoid stain, as well as further studies he is conducting in staining various members of the lecithin phosphatide groups. Then there were four papers on various unusual and bizarre types of tumors. The first presentation was by Dr B Earl Clarke of the Rhode Island Hospital, Providence, on "Retinal Tumors in Tuberous Sclerosis." Dr Clarke reviewed the literature and showed lantern slides demonstrating the microscopic ap-

pearance of a case of retinal tumor in this disease. The nature of the tumor cell was discussed in some detail but its exact origin was not definitely determined. Perhaps it is related to the primitive cells from which the rods and cones originate.

Dr Paul Harris of the New England Deaconess Hospital reported a case of onkocytoma of the parotid gland. In discussing this particular tumor Dr Harris pointed out that so-called onkocytes which are large granular swollen cells occur in the mucous and serous glands in the mouth in older persons only. While the exact nature of the cell is not known, it may represent the result of the process of so-called dedifferentiation. Rare though the cells are it is even more rare for them to become malignant.

Dr John Egoville presented a very interesting case of pheochromocytoma of the adrenal gland from the Rhode Island Hospital. The patient a young woman had had paroxysmal symptoms of hypersecretion of adrenalin and a tumor of the adrenal medulla was found and removed. Unfortunately the patient died following operation. The last case was a presentation by Dr Edward Bosworth of the Rhode Island Hospital, in which there were primary mesothelioma cells studded throughout the pleural pericardial and peritoneal cavities.

Following the scientific meeting members and guests adjourned for refreshments.

CARNEY HOSPITAL CLINICAL MEETING

The next meeting will be held Friday evening April 3 at 8 30

Subject Chronic Nephritis Dr James P O'Hare
Physicians and medical students are invited

FAULKNER HOSPITAL CLINICAL MEETING

The next meeting will be held on Thursday April 2 at 5 00 P.M.

In addition to the usual clinical pathological conference Dr Frederic J Cotton and Dr Henry C Marble will talk on Reconstruction Surgery—Joint, Bone and Tendon.

All physicians are invited.

THE NORFOLK DISTRICT MEDICAL SOCIETY

A regular meeting of the society will be held in Hotel Kenmore Boston Tuesday evening March 31 1936 Tel Ken. 2770

Business Meeting 7 30 P.M. Chairmen of committees are asked to bring in reports

Communication 8 15 P.M.

Cauterization of the Cervix Uteri Using Various Electrical Methods Illustrated Dr Benedict F Boland.

Discussion.

Conclusion.

FRANK S CRUICKSHANK M.D. Secretary

136 Beacon Street
Brookline Mass.

BOSTON HOSPITAL COUNCIL

The first Annual Meeting of the Hospital Council of Boston will be held in the Lower Amphitheatre of the Out Patient Department of the Massachusetts General Hospital on Monday April 6 1936 at 4 30 o'clock.

The business to come before the meeting is

- 1 Election of officers
- 2 Adoption of proposed amendments to the Constitution and Bylaws a copy of which is presented below
- 3 Report of the Treasurer
- 4 Report of the President of special activities during the past year
- 5 Dr Willmsky will report on his personal impressions of the Medical Economic Security Council of Washington

Since this is the first opportunity the Officers and Executive Committee have had to make a report of their activities to the entire Corporation it is hoped that all members will make a special effort to be present.

J B HOWLAND M.D. President

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BYLAWS OF THE HOSPITAL COUNCIL OF BOSTON TO BE ACTED UPON AT THE ANNUAL MEETING ON MONDAY APRIL 6 1936

Article VI Elections shall be amended as to read Article VI Elections

Section 1 (Amendment.) The officers and members of the Executive Committee to be elected at the Annual Meeting shall be nominated by a Nominating Committee appointed by the President one month before the Annual Meeting but at the Annual Meeting nominations may also be made.

Section 2 (Amendment.) All vacancies for office shall be filled at the Annual Meeting election to be by ballot unless otherwise ordered.

Section 3 The representatives of the organizations in the Council membership shall be elected or otherwise designated annually by their respective organizations and notification of their selection sent to the Secretary of the Council at least seven days prior to its annual meeting.

Section 4 (Amendment.) In case a vacancy occurs in any of the offices or in the membership of the Executive Committee, the Executive Committee shall by ballot elect a person to fill such vacancy who shall hold office until the next Annual Meeting when such vacancy shall be permanently filled at the annual elections.

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY MARCH 30 1936

Tuesday March 31—

9 15 A.M. Boston Dispensary, 55 Bennett Street,
Boston. Pediatric Case Presentation, Dr Francis
McDonald.

- *12 M Boston Dispensary, luncheon meeting of the Clinical Staff Auditorium, second floor, Dispensary Building
- 2 30 P M Pediatric Ward Visit. Massachusetts Eye and Ear Infirmary
- 7 30 P M Norfolk District Medical Society Hotel Kenmore Boston

Wednesday, April 1—

- *9-10 A M Boston Dispensary 25 Bennet Street, Boston Hospital Case Presentation Dr S J Thannhauser
- †12 M Clinico-Pathological Conference Children's Hospital.

Thursday, April 2—

- *8 30-9 30 A M Clinic, Surgical Staff of the Peter Bent Brigham Hospital, at the Peter Bent Brigham Hospital
- *9-10 A M Boston Dispensary, 25 Bennet Street, Boston Endocrine Clinic Dr C H Lawrence
- 5 P M Faulkner Hospital Clinical Meeting

Friday, April 3—

- *9-10 A M Boston Dispensary 25 Bennet Street Boston Lobectomy and Pneumectomy for Bronchiectasis and Tumors of the Lung Dr Richard H Overholt
- *8 30 P M Carney Hospital, Clinical Meeting

Saturday, April 4—

- *9-10 A M Boston Dispensary 25 Bennet Street, Boston Hospital Case Presentation Dr S J Thannhauser
- *10-12 Staff rounds at the Peter Bent Brigham Hospital

- *Open to the medical profession
- †Open to Fellows of the Massachusetts Medical Society

March 26—Medical Clinic, Peter Bent Brigham Hospital, 3 30 P M

March 26—Massachusetts General Hospital, Clinical Meeting, 8 15 P M

March 30—Springfield Medical Association 8 30 P M at the rooms of the Springfield Academy of Medicine 20 Maple Street. The Development of Surgical Practice in Springfield Dr John M Birnie

March 31—Boston Dispensary Clinical Staff Meeting, at 12 M

April 1—Wachusett Medical Improvement Society Holden District Hospital Dinner 6 30 P M Business session and scientific program, 7 30 P M

April 1 30—Boston Dispensary, Medical Conference Program See page 660

April 2—Faulkner Hospital Clinical Meeting See page 663

April 3—Carney Hospital Clinical Meeting See page 663

April 6—Boston Hospital Council See page 663

April 8—Joint Meeting of the Massachusetts Tuberculosis League and the Hampden County Tuberculosis and Health Association See An address by Dr Kendall Emerson Page 498, issue of March 5

April 10—William Harvey Society Beth Israel Hospital 8 P M

April 10, 17, 24—Thomas William Salmon Memorial Lectures See page 660

April 20 24—A Postgraduate Institute in Philadelphia See page 497, issue of March 5

May 1, 2, 3, and 4—The American Association on Mental Deficiency See page 610, issue of March 19

May 12 16—The International Congress of Physical Medicine See page 443, issue of February 27

June 15 19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory, Baltimore, Md

June 16-July 28—Summer Course in Bacteriology See page 385, issue of February 20

September, 1936—First International Conference on Fever Therapy See page 1325, issue of December 26, 1935

September 7 10—International Union against Tuberculosis See page 554, issue of March 12

October 19 23—Clinical Congress of the American College of Surgeons See page 180, issue of January 23

DISTRICT MEDICAL SOCIETIES**ESSEX SOUTH DISTRICT MEDICAL SOCIETY**

April 1—Wednesday Essex Sanatorium, Middleton Clinic 5 P M Dinner 7 P M Speaker Dr Richard H Overholt of the Lahey Clinic Subject Chest Surgery
May 7—Thursday Censors Meeting

May 13—Wednesday Annual Meeting Salem Country Club Dinner at 7 P M Speaker Dr Paul White Subject to be announced later

R E STONE, M D, Secretary
88 Lothrop Boulevard, Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

May 12—Weldon Hotel, Greenfield, at 11 A.M.

CHARLES MOLINE, M D Secretary
Sunderland

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 6—Bear Hill Golf Club, Stoneham, at 12 15 P M

K L MACLACHLAN M D, Secretary
1 Bellevue Avenue, Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

March 31—See page 663

May—Annual Meeting (Place, date and subject to be announced)

The censors meet for the examination of candidates
May 7, 1936 November 5, 1936

FRANK S CRUICKSHANK, M D, Secretary
1236 Beacon Street, Brookline

PLYMOUTH DISTRICT MEDICAL SOCIETY

April 16—Brockton Hospital

May 21—Lakeville State Sanatorium

G A MOORE, M D, Secretary
167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

April 29—Annual Meeting at the Boston Medical Library The Treatment of Septicaemia Dr Champ Lyons. The Pleurality of Scarlatinal Streptococcus Toxin, Dr Sanford B Hooker Discussion Dr Hans Zinsser

The medical profession is cordially invited to attend this meeting

ROBERT L DeNORMANDIE, M D, President,
CHARLES C LUND, M D, Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

April 8—Wednesday evening Hahnemann Hospital, Worcester, Mass Dinner and scientific program

May 13—Wednesday afternoon and evening Annual Meeting of Society Time place and details of program to be announced in an April issue of the Journal

ERWIN C MILLER, M D, Secretary
27 Elm Street, Worcester

BOOK REVIEW

Human Pathology A Textbook Howard T Karsner Fourth Edition, Revised. 1013 pp Philadelphia and London J B Lippincott Company

The fourth edition of Dr Karsner's textbook maintains the standard of excellence set in the first. The well selected and up-to-date references are a useful feature of each chapter. The newer knowledge of various phases of the subject is well incorporated, particularly in the sections dealing with the ductless glands, the nervous system, and the hematopoietic system. The section on the general pathology of tumors has been very extensively revised and is one of the best discussions that it has been the good fortune of the reviewer to read. A number of illustrations, particularly of microscopic sections, are line and stipple drawings, inferior to good photomicrographs. The drawings of gross specimens, on the other hand, maintain an excellent standard. The division of the book into chapters in general pathology as compared with special pathology is a satisfactory one, which fits in well with most medical school courses.

The New England Journal of Medicine

VOLUME 214

APRIL 2, 1936

NUMBER 14

THE ROLE OF MENTAL HYGIENE IN GENERAL PRACTICE*

BY CALVERT STEIN, M.D.†

I. INTRODUCTION

"THE thing that hath been, it is that which shall be, and there is no new thing under the sun."

The doctrines of mental hygiene are no exception to this ecclesiastical rule. Such proverbs as, "Hope deferred maketh the heart sick" (Prov. 13:12), "Better is a dinner of herbs, where love is—" (15:17), "Better is a dry morsel, and quietness therewith than a house full of sacrifices with strife" (17:1), and, "A merry heart doeth a good like a medicine—" (17:22), indicate that the new science of the prevention of mental ill health is little more than a repetition of ancient truths many of which have been forgotten in our all too busy lives.

Even the modern emphasis upon child guidance, the most promising field of mental hygiene, was anticipated some four hundred years ago by the Aztec Indians¹ who laid down the following cardinal rules for the guidance of their children: "(1) The avoidance of gormandizing and the careful regulation of food, (2) the avoidance of idleness, (3) strict punishment and (4) vocational training."

Moreover, the following additional excerpts from the Book of Proverbs indicate that the Aztecs, in turn, were anteceded by at least two thousand years by the writers of the Old Testament. Even a child is known by his doings—

(20:11), "—but a child left to himself bringeth his mother to shame" (29:15). "Foolishness is bound in the heart of a child, but the rod of correction shall drive it far from him" (22:15). "Train up a child in the way he should go, and even when he is old he will not depart from it" (22:6).

There is nothing new in mental hygiene, then, except perhaps the somewhat tardy recognition that children, though small, have sensitive personalities of their own, with a desperate need for sympathetic understanding. It is this need which modern child guidance aims to supply thereby offering the most hopeful avenue of approach to the problems of social maladjustment and personal unhappiness.

II. HISTORICAL NOTE

In addition to the proverbs quoted above, the great Chinese philosopher Confucius (550-478 B.C.), in his inclusive character "shu", laid down what is probably the most valuable rule in the whole realm of human relations: "What you do not like when done to yourself, do not do to others."²

A thousand years later Caelius Aurelianus (500 A.D.) anticipated the fundamentals of twentieth century psychiatry by placing his patients "under the best conditions of light, temperature, and quiet and recommended that everything of an exciting character should be excluded. Of particular interest are his references to tactfulness in attendants for the avoidance of antagonism, and to the limited and cautious use of physical restraint—theatricals, entertainment, riding, walking, and work were all recommended, particularly during convalescence—He denounced semi-starvation, bleeding, chains, and excessive drug therapy."³

Another nine centuries elapsed before the establishment of the first mental hospitals at Granada, Spain, and Bethlehem ("Bedlam"), London in 1403, but not until 350 years later did modern mental hygiene begin in earnest, when in 1751, through the combined efforts of Benjamin Franklin and Dr. Thomas Bond, a prominent physician of Philadelphia, a charter was obtained for the first hospital in America for the care and treatment of the insane. This was opened in Philadelphia in 1752 and for thirty years Dr. Benjamin Rush, Chemist, Surgeon, and Revolutionist, "the father of psychological medicine in America, was the skilled physician and faithful friend of all its patients."⁴

Still later 1792 Philippe Pinel, a French pathologist and internist, startled the medical world in Paris by removing the chains from the insane patients at the Bicetre, while in 1796 William Tuke and Lindley Murray opened the York Retreat in England.

The nineteenth century gave us Dorothea Dix (1802-1887), a Massachusetts school teacher and philanthropist, who was responsible for the founding of many state mental hospitals in the United States.

Finally, in the twentieth century Dr. Thomas W. Salmon, first Medical Director of the Na-

*Read in part before the Hampden County Medical Society, September 25, 1935.

†Physician, Calvert—Senior Physician, Monson State Hospital, Palm Springs, Mass. For record and address of author see "This Week's Issue," page 700.

tional Committee for Mental Hygiene, and Dr Adolph Meyer, Professor of Psychiatry at Johns Hopkins and early adviser to the National Committee¹², together with a score of other renowned psychiatrists many of whose works have been drawn upon for this compilation (see references), are the leaders who have helped to materialize some of the principles set forth by Caelius Aurelianus, fourteen hundred years ago

Mr Clifford W Beers¹, secretary of the National Committee for Mental Hygiene (1909) is largely responsible for the popularization of the aims and doctrines of mental hygiene which is gradually changing the attitude of the general public to one of tolerance for the insane, and to a realization that "psychiatry has at last changed from a descriptive science carried on, for the most part, by individuals whose main preoccupation was the kindly and pessimistic custody of deteriorated persons, to a science led by men (who are) vividly interested in education, delinquency, sociology (psychology), and other stimulating and hopeful approaches to the problem"¹⁶

III ORIENTATION

Menninger describes a healthy mind as "—the ability to maintain an even temper and alert intelligence, socially considerate behavior, and a happy disposition" It therefore implies "—the adjustment of human beings to the world and to each other with a maximum of effectiveness and happiness"¹⁸ We may define mental hygiene as the prophylactic branch of psychiatry which deals with the preservation of mental health

"Seven hundred thousand persons in this country now going daily about their work and play, and apparently well adjusted, are definitely ticketed for state mental hospitals within the next ten years (This conclusion is based upon statistical evidence, and presumes no increase in the admission rate of about seventy thousand patients per year to our mental hospitals) To find these persons long before they reach the stage of frank madness, and to discover and abort the illness if possible, is the aim of mental hygiene"¹³

Fortunately, the general practitioner is in an enviable position to accomplish this aim For, as Hunter²⁰ says, "The family physician occupies the unique position of doctor, general advisor, friend and confessor and he needs must be at least a little of each of these He enjoys an intimacy that affords an unparalleled advantage in approach He knows the family constitution through personal observation He knows all the family skeletons and the present and past reactions to them He knows the family morale and the individual capacity for intelligent cooperation For these reasons it would

seem economic and proper for this line of first defense—the family doctor—to be better prepared to deal with the question and to evaluate anew the neuropsychiatric factors of ill health and disease"

Lest it be thought that this is anything new in teaching ideals it may be well to note the remarks of Jacobi in the first presidential address before the American Pediatric Society in 1889, "Unless the education and training of the young is carried on according to the principles of a sound and scientific physical and mental hygiene, neither the aims of our political institutions will ever be reached nor the United States fulfill its true manifest destiny—of raising the standard of physical and mental health to possible perfections" Forty-six years later, Fife¹³ continues to hope "My simple plea in this paper is to urge that pediatricians become more conversant with the educational, social, psychologic and psychiatric phases of child health, so that they may become worthy preceptors and consultants in the homes—family advisors for children—and so that they may remain leaders in all activities directed toward the promotion of child welfare This pediatric parental preceptor is still in his infancy—"

Nevertheless the family doctor is already doing commendable work along preventive lines, in an effort to keep down the incidence of mental disease He is competent in the prevention of the exanthemata and their sequelae as well as in the realms of rachitis, meningitis, cretinism, syphilis, alcoholism, vitamin deficiencies, and many other diseases which have neuropsychiatric complications He is alert to recognize the need for prompt treatment of such congenital defects as cleft palate, harelip, webbed or supernumerary digits, cryptorchism, tied tongue, or any other anomaly or blemish which may be significant from a physiological as well as psychological viewpoint He is able to recognize a psychosis, often even in its early stages and is usually prompt in referring it to the psychiatrist for treatment, while he himself does well enough with the ordinary acute psychiatric complications of alcoholism, puerpera, and fevers He is becoming more and more adept in the art of psychotherapy, in the use of a polished bedside manner and a sympathetic attitude, as well as the well-known "tonic" (color rubro) He knows the value of a thorough physical examination in the treatment of the psychoneuroses which, as is well-known, constitute a large portion of his private and clinical practice (thirty to sixty per cent according to Pratt)²¹ and which cases he usually sees long before they reach the internist or psychiatrist He knows, too, the wisdom of merely allowing the patient to talk out his problems, even though he seldom can afford to grant the necessary hours for such therapy Lastly, he is already adept

at prescribing, for temper tantrums and feeding problems, whether they are the result of overindulgence, "Motheritis", irregular habits, faulty discipline, or other causes.

But it is a comparatively recent doctrine even for psychiatrists, that the emotions and personalities, too, may be traumatized by neglect of the early manifestations of their disorders (Cannon, Crile, Freud).²²

Moreover society is now developing a "health consciousness" concerning mental hygiene that it has already acquired regarding many problems of public health and preventive medicine consequently "the intelligent layman (and his numbers are growing rapidly in every community) is more ready to avail himself of modern psychiatric service than ever before."²³

It remains, therefore, for the good physician to add to his therapeutic armamentarium merely a bowing acquaintance with child guidance, psychiatric social service, and psychometry and to become more familiar with their application to the problems of insecurity, vocational guidance, the unmarried mother, borderline intelligence, juvenile delinquency, and "emotional immaturity", in order to fill the cup of his specialized knowledge to overflowing. For as Frank aptly expresses it "The great doctor must know almost as much about the social order as the sociologist. This is necessary because the varied forces—political, social, economic, industrial, educational, religious—that march across a nation, making its mind or marring its spirit, register their effects in the lives of the doctor's patients. The more the doctor knows about these forces that make the atmosphere in which men's minds and bodies live the more intelligently can he trace effects to their causes, and the more wisely can he counsel his patients."

"The great doctor must know almost as much about the mind as the psychologist. This is necessary because even the most materialistic scientist admits that there is a subtle relationship between mind and body that the doctor of the body dare not overlook, for when he does overlook this relationship a thousand quacks rush in to capitalize his oversight."

"The great doctor must know as much about the subtle art of counseling as the priest."²⁴

IV STATISTICS

One explanation of this increasing demand for psychiatric information and service may be the disproportionately small number of physicians who are engaged in the neuropsychiatric specialty. There are in the United States six hundred and thirty-one hospitals for the care of nervous and mental cases. It will be noted that the number of nervous and mental institutions is less than ten per cent of the total number of registered hospitals but that in capacity and number of patients, they represent nearly fifty per cent of the total.²⁵

The total number of physicians in this country is 178,516.²⁶ The number of physicians especially interested in neurology, psychiatry, or both is only 2,341 these include residents of mental hospitals.²⁷ Thus less than two per cent of the physicians of the United States are burdened with the care of fully fifty per cent of the sick population of the country, the bed cases of which alone number close to one million people. A similar disproportion exists in the nursing field in which only eight per cent of the training schools, and only five per cent of the student nurses in the United States are in mental hospitals.²⁸

Although it is true that, to a considerable extent every physician is a psychiatrist whether he wills it or not, it is also true that the busy general practitioner is only just beginning to make up some of the defects in his psychiatric education. This paper is designed to assist him with an introduction to the study of what has been termed the "Cinderella of Hygiene."

V A CLASSIFICATION OF PROBLEMS IN MENTAL HYGIENE

The common problems in mental hygiene may be divided conveniently (but arbitrarily) according to their appearance during the several periods of growth as follows:

- 1 Infancy—under two years of age, feeding difficulties, night cries, habit spasms, and the question of adoptability.
- 2 Childhood—from two to twelve years in corrigibility, enuresis, speech defects, retarded development, undue shyness, thumbsucking, nail biting, failure in school, pilfering, and sometimes masturbation, truancy and stealing.
- 3 Adolescence—from thirteen through the teen age vocational guidance, personality changes, problems of puberty, sex, and delinquency.
- 4 Adulthood—twenty-one years and over responsibility, personality, marriage and parenthood.

Each age group has specific problems of its own and each may be complicated by problems which should have been corrected previously but, instead, have been carried over from an earlier level in the expectancy that they would be outgrown. All of them, however, have certain underlying factors in common which may be grouped under the headings of security, sex, and maturity. Most important of these is security but an understanding of all these common denominators as determined for the specific case will serve to simplify the study of any given problem. For detailed accounts of the specific complaints listed in the classification above the interested student is referred to the standard works on specific phases of mental hygiene: child guidance, sociology and psy-

chology by Thom^{37 38}, White⁴¹, Campbell^{4, 5}, Plant^{29 30}, Hart¹⁷, Wickes⁴², Myerson²⁷, Stearns³⁰, Glueck¹⁵, Huhner¹⁹, Landsay²⁴, Ellis¹⁰, Van de Velde³⁰, Westermarck⁴⁰, and scores of others^{2 3 30}, many of which are to be found in the extensive reading list by Levy and Coburn²³

VI ETIOLOGY

Factors involved in the causation of difficulties in behavior are classified by Lowrey²⁵ as follows

- 1 Gross mental deviations—feeble-mindedness, psychoses, encephalitis, lues, and tumors
- 2 Gross physical deviations—including deformities, and handicaps as of the senses, sight, hearing, etc
- 3 Psychoneuroses
- 4 Conflicts with individual drives against group thinking, group law, group morals, society, etc

"Problems in this group," says Lowrey, "do not always need a psychiatrist—they sometimes heal with time alone. Most of us manage to achieve some sort of compensation in our lives as we go along. We achieve some sort of balance in our personality, some maturity in point of view, some emotional poise. We manage in some way to make a fairly successful adjustment to life whereby we do not do too many things that distress other people, or at least we do not have any gross signs of failure of social adaptation. Here child study groups and church and education, the law, medicine, psychiatry, psychology, and so on, have definite contributions to make."

- 5 "Faulty training by ignorant parents (and teachers) is the simplest group to deal with," says Lowrey, "and child study organizations have made some real contributions to it."

VII TREATMENT

As in the treatment of tuberculosis and carcinoma there is an important time element and unavoidable cost. "The treatment of a disease may be entirely impersonal" (laboratory procedure, surgery, instructions to internes and nurses) "the care of a patient must be completely personal—and the failure of the young physician to establish this (intimate personal) relationship accounts for much of his ineffectiveness in the care of patients," wrote Francis W. Peabody nearly a decade ago. In "The Care of the Patient" this great internist presented the following principles for guidance and analysis of the situation:⁸

- 1 "Sickness produces an abnormally sensitive emotional state in almost every one, and in many cases the emotional state repercusses, as it were, on the organic disease."

2 "Death is not the worst thing in the world, and to help a man to a happy and useful career may be more of a service than the saving of life."

3 Nausea, vomiting, diarrhea, tachycardia, occipital headache and gastric distress are symptoms that may accompany the nervousness attendant upon an impending examination, a forthcoming speech or public appearance, or participation in a sports contest—but they are just as distressing as though they were from some organic cause.

4 Ordinarily the symptom vanishes when the occasion for the nervousness has passed—but if instead of an important three-hour examination, e.g., the patient has to face a lifetime of disappointment, failure or hardship—then the factor of repetition fixes the unusual emotional viscerosomatic response into a conditioned habit and instead of saying "I cannot stand this life," the patient says, "I cannot stand this nausea and vomiting. I must go to see a stomach specialist," and thus the neurosis becomes securely established.

5 When thorough examination discloses entirely negative findings on such a patient "you are in the difficult position of not having discovered the explanation of the patient's symptoms. You have merely assured yourself that certain conditions are not present."

6 "Sorrow, disappointment, anxiety, self-distrust, thwarted ideals or ambitions in social, business or personal life, and particularly what are called maladaptations to these conditions—these are among the commonest and simplest factors that initiate and perpetuate the functional disturbances."

7 "Sometimes the mechanism of cause and effect is obvious, (backache in a woman on first experiencing domestic unhappiness, headache from unfulfilled ambitions, or a functional tachycardia from years of brooding over a functional murmur about which a physician once told the patient 'not to worry'), sometimes it becomes apparent only after a very tangled skein has been unraveled."

8 "Time, sympathy and understanding must be lavishly dispensed, but the reward is to be found in that personal bond which forms the greatest satisfaction of the practice of medicine."

Richardson, in a recent publication³³, presents some excellent illustrations of the clinical manifestations of these mechanisms. The following three cases from the Springfield Child Guidance Clinic are selected to illustrate the handling of three common and very troublesome problems, viz., incorrigibility, enuresis, and stammering or stuttering.

CASE 1 R (S H C G C No 10434), white boy, aged five and one-half years in first grade

A Complaint

- 1 Incurable and negativistic behavior
- 2 Unresponsive and failing in school.

B Relevant Data Mother was the ninth of ten children and led an unhappy early life. She was compelled to leave the seventh grade, and to work out as a mother's helper and has always longed for a chance to return to school. Her own mother who was always very strict and used to beat her together with two of R's maternal aunts both spinsters came to live with R's family when he was only two weeks old and have remained there ever since.

Physical Findings 1 Defective tonsils 2 Cryptorchism (bilateral incomplete) 3 Malnutrition (15 per cent underweight, pot-belly, slow pulse, moist hands, cold feet) 4 Enlarged anterior cervical lymph nodes.

C Diagnosis

- 1 Retarded Intelligence (I Q 87—technically dull)
- 2 Chronic tonsillitis and anterior cervical lymphadenitis
- 3 Bilateral cryptorchism (incomplete)
- 4 Malnutrition (old rachitis and tonsillitis)

D Analysis 1 Mother's early deprivation of scholastic opportunities has caused her to place a high premium upon formal education so that she takes R's failure in school very much to heart. 2 Even if R were not emotionally handicapped by the divided disciplinary attempts of mother, grandmother and the two aunts at home, his mental age of four years and eight months indicate that he is nearly a whole year retarded, and just ready to begin kindergarten let alone be finishing a regular first grade. 3 Father seldom interferes at home, but the irritable aunts and whining nervous grandmother require quiet, attention and implicit obedience from R as well as from his older brother and two younger sisters. 4 While the father has never protected the presence of his wife's relations in his home, financial difficulties incident to the depression have made the mother conscience-stricken so that in addition to all the housework, she has more to strain her emotional composure than the average mother of four young children should have. 5 To top it all R's three siblings are all decidedly brighter than he is and this fact, together with the mother's high standards and his own inability to grasp first grade work (which normally requires a mental age of five and one-half to six years) cause him to appear stupid by comparison with his classmates, making his lot unenviable and his life miserable.

E Treatment The incurable behavior—temper tantrums, destructiveness, disobedience and feeding difficulties—are R's attempts to overcome his feelings of insecurity. Until efforts were made to convince him that he need no longer feel insecure despite his physical and intellectual limitations obviously no relief could reasonably be expected.

Removal of tonsils and an orchidopexy might assist him physically and the issuing of walking papers for grandmother and the two maiden aunts might make life more bearable at home but until the mother could lower her scholastic standards and become more willing to accept something less than an intellectual genius from R, only slight improvement could reasonably be expected.

Unfortunately truth often proves to be too shocking to ambitious parents, so that at first they may refuse to return to the clinic, resenting such suggestions as may threaten the security of their own ego. R's mother was no exception to this common rule so that not until after many months of intensive psychiatric social work followed up in her own home by a skilled and tactful worker did she finally con-

sent to taking R out of school whereupon the majority of the complaints promptly vanished. A year later back in school with a mental age more consistent with the demands of first grade, he has shown a vast improvement and even the mother has asked permission to return to the clinic for a check upon our findings and for further guidance.

CASE 2 B (S H C G C No 19275) white girl aged fifteen and a half years a sophomore in high school

1. Complaint

- 1 Nocturnal enuresis—duration nine years
- 2 Poor work in school.
- 3 Indifferent toward schoolmates associates with younger children plays with dolls cries easily

B Relevant Data Father the second of six children from all of whom he is estranged was the first son and the only one to go to college. He was formerly a successful professional man but has become irritable, asocial and quarrelsome. He is losing his patients as well as the respect of his friends and family. His preference for B's brother has turned her adoration to bipolar hatred for him. He never came to the clinic, or acknowledged our letters.

The mother is colorless, but cooperative and in contrast to the father has a very close tie with her two children as well as with her own family. Tactful handling of B's father permits her to make the final decision for the family in most cases despite the father's ill temper and unreasonable behavior.

Junior two years younger than B, is her superior in every way and is by far the favorite all round. He is fond of teasing her to distraction.

At two years of age B was trained in toilet habits. At six years she experienced a long siege of illnesses after which bed wetting returned and has been more or less constant ever since. Scolding has only produced indifference to the habit. Her one refuge is a devoted maternal grandmother whom she visits frequently.

C Diagnosis

- 1 Retarded Intelligence (I Q 83—technically dull)
- 2 Malnutrition (fourteen per cent underweight)
- 3 Facial acne vulgaris (mild)—(additional cause for self-consciousness)
- 4 Emotional insecurity—rivalry of brother and father's indifference
- 5 Enuresis on basis of habit plus the insecurity
- 6 Failure in school on basis of retarded intelligence plus a carry-over of her protest against insecurity

D Analysis B's presence on the honor roll up to the sixth grade indicates that more than mere intelligence may boost a candidate to that position in the elementary grades. At that time the work became more difficult, and she lost the security afforded by the high marks. Since then all her energies have been required merely to keep up with the class and her logical reaction was one of dislike and resentment. The enuresis may have begun quite accidentally during the fluid therapy associated with the exanthematous fevers at six years of age or it may have been a subconscious emotional manipulation of the natural desire (reminiscent of cradle days) to continue to enjoy and prolong the extra devotion and attention which she received during her protracted illness (Freud). Repetition (habit) and faulty discipline (scolding, punishment, reminders) soon fixed it into what she had come to believe was an incurable habit—so that she carried a rubber sheet with her whenever she slept away from home.

The association with younger children and dolls merely afforded less competition and allowed her

to continue as the "big boss" of the group (compensatory, in much the same spirit that children display when they want to be teacher when playing at school)

E Comment B was invited to keep a record of her dry nights on a private calendar, and was agreeably surprised to find that she had had nine dry nights, the last four of which were in succession, by the end of her first month. Restriction of fluids after six P.M., omission of condiments, and other exciting factors (radio, games, books), and the co-operation of the family in avoiding all mention of the habit, including reduction of Junior's teasing, were materially helpful. B was duly praised and for her effort was awarded a pass to the theatre (furnished through the courtesy of local cinema houses). She was told that such a record proved that her urinary system was normal, that enuresis was a mere habit like nail-biting, and that it could be controlled with practice. An attractive calendar, mounted on a piece of leathercraft (done by one of our rehabilitated juvenile delinquents) was presented to her with instructions to note how many more D's (representing dry nights) she could record by the next visit. No reward was promised, but when deserved, there was nearly always some game, book, or theatre pass to give suitable encouragement. During the next seven months she succeeded in recording 20 to 30 D's per month, according to circumstances at home. Thus, when report cards were poor, or disappointments were frequent the D's would fall off. Despite the father's neglect to answer our letters, or to visit us, his ultimate cooperation was apparent and the mother reported that he looked forward to receiving our reports. Soon B began to take renewed interest in her dancing, in which she was talented, and to work harder at school. Simultaneous treatment by family physician for acne and malnutrition was successful.

Enuresis recurs now only sporadically (once in eight to twelve weeks). B, who is really attractive, is becoming increasingly popular with her own set, and, despite her limited intelligence, is going to graduate from high school.

Hers is an unusually good adjustment to an unfavorable environmental influence, for enuresis is one of the most difficult symptoms of insecurity that the child guidance clinics are called upon to treat.*

CASE 3 T (S H No 13064), aged fifteen years, junior in high school

A Complaint

- 1 Stuttering (Stammering)—duration eight years
- 2 Request for vocational guidance

B Relevant Data An only child—difficult labor—very sensitive. When the mother suggested castor oil recently for abdominal pains, he told her she "must not be so personal." Cried, and refused to recite in school through fear of ridicule, result—low marks.

C Diagnosis

- 1 Stuttering dysarthria
- 2 Introverted adolescent
- 3 Superior intelligence (I Q 121)

D Analysis T talked too rapidly, and therefore stumbled over his words. An attractive, tall boy, he was self-conscious about his size, and also about his defective speech, which had begun innocently enough shortly after a boy playmate who stuttered badly had moved to a distant neighborhood.

E Comment T's natural bent for mechanical things was encouraged. He and the psychiatrist spent

many hours in each other's workshops, exchanging ideas, and assistance. From a few simple lessons in amateur photography T has built up, during the past three years, a demand for his photographs by local newspapers, and also makes enlargements, and creditable lantern slides for lecturers. The technique for correction of his defective speech is fairly simple, and may be embodied briefly into the following rules which have proved to be effective clinically in most of our cases*.

F Rules for Correction of Stammering (or Stuttering)

1 Always speak very slowly. Precept on the part of teachers and members of the family is more important in this connection than reminders, scoldings, or forcing the stutterer to repeat his broken words.

2 Rounding of the lips into exaggerated pronunciation of the letters, as though speaking through a megaphone, helps to overcome a very common source of dysarthria—viz, the habit, when speaking, of using only the tongue and mandible, as do ventriloquists. Part of this is habitual (often in imitation of elders), and part of it is caused by fear. Speaking without the use of (or with minimal use of) lips or mandible produces a stilted and flat, fallible vocalization which inevitably invites trouble with such consonants as B, F, M, P, Q, V, W, and Y, all of which properly require the use of lips and teeth, as well as tongue and mandible.

3 Consonant formation, for stammerers, comes more easily when the troublesome letter is not the first letter of the word. Thus "B" in "ambition" usually offers considerably less trouble than "B" in "bandit." Therefore, one way to uncondition the offending letter is to practice with long lists of words containing the desired letter in the middle, or at the end, e.g., "oboe" and "hubbub."

4 The element of fear produces tension. There is more tension in the respiratory system at the end of inspiration than at the end of expiration, consequently, stammerers are advised to exhale forcibly before and during speaking. (The counsel to whistle before speaking has the same respiratory as well as psychological effect, but is too audible to be suitable for permanent reeducation.)

5 Often an inaudible aspirant "h" before offending vowels, and before such consonants as "t", "p", "m", "n", "r", "s", "w" and "x", facilitates their pronunciation without stammering, and serves to boost the stutterer's self-confidence. Thus, "h after" (hafter), "h empty" (hempty), and the practice of the letters 'h-el, h-em, h-en, h-ar, h-es, h-ex, h-oo-w-i' and the vowels 'hay, he, hi, ho, and hee-oo (hu)'—still rounding and exaggerating the use of the lips—are valuable exercises.

6 Practice lists of selected words—if necessary, omitting the offending initial letter at first until repetition and confidence permit its inclusion—are valuable. Thus, "ord, omen, -ife, and -eight", later adding the "w" with an inaudible "h", thus, "hoo-w-ord", "hoo-w-oman", "hoo-w-ife", the "hoo-w" being practically inaudible, whispered, and formed largely by an expiration and a rounding of the lips as in saying the word "who", softly blowing out the vowel.

7 In obstinate cases, entire words, rather than mere letters on which the patient stammers must be analyzed for pertinent associations before the difficulty can be overcome. The habit of forgetting names, dates or experiences, with impersonal or unpleasant associations, is a familiar demonstration of this mechanism. (Freud's "Psychopathology of Everyday Life".)

*A detailed report on the treatment of fifty cases of enuresis at the Springfield Child Guidance Clinic since 1931 is in preparation.

*A detailed report on the treatment of defective speech as carried out at the Springfield Child Guidance Clinic is in progress.

Only a little practice with a few cases of defective speech is needed to give the educator a valuable tool with which to help these unfortunate people.

T's coöperation and conscientious practicing have long since overcome his stuttering, although at times he still speaks too rapidly. His personality has blossomed materially and he plans to enter college as soon as his financial status permits it. He is at present a successful salesman of photographic supplies.

VIII SUMMARY

1 Biblical and other early literature give evidence that there is little that is new in the modern doctrines of mental hygiene. (Section I)

2 The development of enlightened psychiatry and the work of the National Committee for Mental Hygiene in popularizing the newer attitudes toward the patient who is mentally ill is sketched. (Section II)

3 The importance of the movement is evidenced by statistical data. The enviable position occupied by the family physician is not entirely neglected by him, and he does much along prophylactic lines in the field of organic disease. (Section III)

4 Less than two per cent of the physicians of the United States and five per cent of the nurses are burdened with the care of fully fifty per cent of the sick population of the country, the bed cases alone of which number close to one million people. (Section IV)

5 The problems of mental hygiene are conveniently classified and references to standard authorities on specific phases of psychiatry, sociology, psychology and education, are given. (Section V)

6 Lowrey's classification of etiological factors is presented in Section VI.

7 Essentials of treatment are followed by a brief résumé of three important and trouble some clinical cases: Incurrigibility, enuresis and stammering. (Section VII.)

IX. COMMENT

The author is not unmindful of the very large percentage of psychoneurotic patients who remain incurable for the sufficient reason that no mortal healer is able to offer them better substitutes for the unbearable realities from which they seek to escape. The usual avenues of sublimation may be totally inadequate to compensate the unhappy sufferer for the grim realities of rejection, insecurity, disability and poverty. The ranks of psychopathic addicts claim many of this class for chronic 'neurotics', alcoholics, narcotic addicts, and other social, moral and legal transgressors for there are many people who are unsuited by native intelligence, ability and training to assume more than a very limited degree of responsibility, independence, and maturity. But, as in the realms of tuberculosis and malignancies, so too with disordered personalities, our only hope is in early diagnosis

and intensive therapeutic efforts. To help these people to find their natural level in order that they may better be enabled to maintain a happy balance in our complex civilization is one of the aims of mental hygiene.

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UROLOGICAL COMPLICATIONS IN GENERAL SURGERY*

BY GEORGE GILBERT SMITH, M D †

A COMPLETE list of urological complications in general surgery would be beyond my power to present and beyond your endurance to hear. It is my intention rather to select for comment certain complications which have occurred in my own experience and to describe them in sufficient detail to give you a definite picture of the particular situation.

Urological complications may be divided into three classes: those due to errors of diagnosis, those due to errors of technic, and those which we may consider as more or less unavoidable complications.

Complications due to errors of diagnosis In considering as complications those urologic conditions which existed before operation, which were not recognized as the primary cause of the patient's symptoms, and which still existed after the operation had been carried out, I may be stretching the meaning of the term "complications" somewhat unduly. These conditions most certainly do cause diagnostic confusion and unless they are remedied by appropriate treatment, they continue to persist after operation as definite urological complications. Almost without exception, these conditions may be diagnosed by appropriate measures; the error lies in arriving at a diagnosis without having employed those methods of investigation which will lead to a proper solution of the problem.

A paragraph borrowed from an article written in 1911 by Maurice Richardson⁴ expresses the situation: "We all know, but we do not always realize the fact, that we overlook pathological conditions easy of diagnosis because we do not happen to think of them. How many times, for example, have I been groping about for a diagnosis, as bewildered as one lost in a fog at sea, but at the first sign of a fog bell knowing his exact bearings, so in the bewilderments of diagnosis I have felt reassurance the minute the right but overlooked possibility has been suggested. One pounces upon the diagnosis—every symptom in the history and physical examination will fit into and prove that diagnosis."

There is real danger of mistaking lesions of the upper urinary tract for intra-abdominal disease. W. E. Stevens⁵, in an article on The Upper Urinary Tract and the Adjacent Organs, dwells at length on the possible errors in diagnosis and shows how easily one may be misled by symptoms. For example, he refers to the statement made by Bumpus and Thompson that in a series of 1001 ureteral calculi, the pain was

entirely epigastric in 162. In these patients, the diagnosis of peptic ulcer had been made in seventeen, of cholecystitis in 145. Lowsley and Twinem, also quoted by Stevens, in a review of eighty-four urological cases, found that thirty-nine of these patients had previously undergone some major surgical operation without relief of symptoms. Thirty-one had had the appendix removed. Hugh Cabot¹ in 1915 reported that in a series of 153 cases of stone in the kidney and ureter at the Massachusetts General Hospital twenty-six abdominal operations had been done without relief of symptoms "which were clearly due to the overlooked calculus in kidney or ureter." The appendix was removed in ten cases.

These figures of Cabot's represented the situation at a time when urological diagnosis was less well developed than it is now, and when the urologist was consulted far less frequently. The introduction of intravenous pyelography has no doubt made such errors more infrequent, although it should be borne in mind that unless intravenous pyelograms are absolutely clear and unequivocally negative, they should be checked by retrograde pyelography.

In the differential diagnosis of lesions of the upper urinary tract and those of intraperitoneal organs, a mistaken diagnosis of appendicitis is far and away the most common error. Maurice Richardson, in the article quoted earlier in this paper and entitled "The error of overlooking ureteral or renal stone under the diagnosis of appendicitis," emphasizes the advisability of having x-rays in all cases of suspected appendicitis in which the diagnosis is not perfectly clear. Among his cases diagnosed as "chronic appendicitis" there were twenty-two in which ureteral stone was found to be the cause of the symptoms. The principal symptom which Richardson considered to be suggestive of ureteral stone rather than of appendicitis was paroxysmal, intermittent pain without constitutional symptoms. The presence of microscopic blood in the urine, he stated, always called for an x-ray.

To my mind, the chief points in the differential diagnosis of ureteral stone and appendicitis are, in the former, sudden onset of excruciating, colicky pain, the gradual shifting of this pain from the renal area to a lower site, with radiation to the groin, testicle or vulva, and the absence of true abdominal rigidity. Slow, gentle pressure will not evoke muscular spasm. Nausea and vomiting, distention and obstipation may occur with either condition. At times, however, each of these two diseases may be atypical. Ureteral colic may come on gradually, appendiceal pain may develop rapidly. Blood may be found in the urine microscopically if an acute appendix lies in close relation to the ureter. The tenderness

*Read at a Meeting of the Detroit Branch of the American Urological Association in Toledo, January 23, 1936.

†Smith, George Gilbert—Visiting Urologist, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 700.

and pain from a retrocecal appendix, as Goldstein has pointed out, may be most pronounced in the costovertebral region. The most definite signs of appendicitis are, I believe, true rigidity of the abdominal muscles, a rising temperature and leucocytosis.

The possibility of mistaking a fecolith in the appendix for a ureteral calculus is not too remote. Stevens mentions such a case, I saw a similar one.

One bitterly cold winter night some three years ago I was asked to go 200 miles into the country to see a patient with a stone in the ureter. I arrived about two in the morning and found a man of thirty-three years who gave this history: Three months previously he had the first attack of pain located just below McBurney's point and nonradiating. He also complained of frequency of urination. He entered the hospital at that time but no definite diagnosis was made. The pain continuing he was readmitted. X-rays showed a smooth oval shadow 3×1 centimeters at the lower end of the right sacro-iliac joint. In different films its position appeared to vary considerably. An intravenous pyelogram showed normal renal pelvis and ureters. Although the lower portion of the right ureter was not clearly shown the shadow appeared to lie outside its probable course. Cystoscopy showed a normal bladder, a catheter passed easily to the right kidney. The patient's temperature was 99° , his white count 16,000. There was no pus in the urine.

Rectal examination gave no positive findings there was marked spasm on light pressure over McBurney's point. A diagnosis of appendicitis was made the shadow being interpreted as that of a calcified mesenteric gland. The patient was operated upon at once the appendix was short and thick its base coated with a thin layer of fibrin. Impacted in the base, where it joined the cecum was a hard mass the size of a marble, evidently a fecolith. The removal of the appendix with the fecolith left a hole one inch long in the cecum this was closed in two layers and a wick left in the pelvis. Although I expected a fecal fistula would result, the incision healed without complication.

If any question exists as to the causation of pain in the right lower quadrant the urinary tract should be excluded by a satisfactory intravenous pyelogram or a retrograde pyelogram. Plain films alone are insufficient as they do not show nonopaque stones or defects in urinary drainage.

It should be borne in mind that in the early hours of an acute epididymitis the pain may be referred to the lower quadrant of the abdomen on the affected side.

Acute infections of the kidney before pus appears in the urine, may simulate intraperitoneal disease. This is especially true of the coccal infections—renal carbuncle and acute suppurative nephritis—, less true of acute pyelonephritis.

Less acute renal lesions such as stone pyonephrosis, hydronephrosis and tumor may cause symptoms which on superficial examination suggest disease of the gallbladder or stomach. Goldstein² says "Many cases of renal infections and renal tumor as well as the largest percent

age of renal ptosis were presented for examination with the symptoms of nausea and vomiting." Cabot in his series of 153 cases of renal and ureteral stone found pain referred to the stomach and accompanied by vomiting in three instances.

Two cases in my experience illustrate this symptom-complex.

D. E. a man of sixty-eight was referred to me because of a mass in the right upper quadrant. His chief complaint was loss of weight and strength for six months he had had a slight constant nausea but had not vomited. Once three or four years previously he had passed blood in his urine. The feature of greatest interest to us is that for the preceding few months he had been under treatment for alleged stomach trouble, although gastric x-rays were negative. At the time the writer saw him he had a mass in the right upper quadrant, a right pyelogram showed complete obliteration of the renal pelvis the kidney which was removed by the transperitoneal approach, contained a renal cell adenocarcinoma. The duodenum was adherent to the kidney so that it had to be peeled off. Although the growth had invaded the perirenal fat it had apparently not involved the pedicle or the juxta-aortic glands. The patient's appetite increased and his nausea was relieved for some months. He died of recurrence two years later.

Mrs. B—a woman of sixty-seven, had suffered from stomach trouble for twenty years. At least once a day she vomited. Eight years ago a gastrointestinal x-ray study was negative there was a question of stone in the right kidney then. The patient occasionally passed blood in the urine for the past two years she had had an uncomfortable feeling in the right flank. Recent x-rays of the alimentary tract were negative but a definite shadow was seen in the right kidney. Cystoscopic study showed a badly infected and almost functionless right kidney which upon removal demonstrated that the kidney tissue was largely replaced by fibrolipomatosis. Following operation the patient's gastric symptoms disappeared.

In addition to these cases in which the symptoms caused by a lesion of the upper urinary tract are ascribed to intraperitoneal pathology, we find all sorts of combinations due to extension of malignant disease from one group of organs to another. Two recent autopsies at the Massachusetts General Hospital illustrate this situation. In one, a cancer apparently originating in a bronchus had invaded the kidney and ureter on the opposite side causing ureteral obstruction and urinary infection. The other had a carcinoma of the descending colon which had invaded the renal pelvis with radial extension into portions of the pyramids and cortex.

Ureteral obstruction with secondary dilatation of the renal pelvis and upper ureter occurs in a large percentage of patients with cancer of the uterine cervix and in certain cases of ovarian cancer.

An excellent paper by Henriksen³ of Johns Hopkins summarizes some recent articles on this complication. He quotes Faerber who found in 150 patients dying of cancer of the cervix ure-

teral involvement in eighty-four cases (56 per cent), while in 108 cases (72 per cent) the kidneys showed damage. Bilateral hydronephrosis was present in fifty-five cases, unilateral in forty cases, pyonephrosis in twenty and pyelitis or pyelonephritis in nineteen. Shields Warren⁸ found renal involvement to be the cause of death in one third of the cases autopsied by him. Williams noted hydronephrosis in over eighty-five per cent of the patients with the disease who came to postmortem. Kraul considered uremia to be the cause of death in fifty per cent of the cases studied by him.

A case in this group in which the renal condition was the outstanding feature was that of Mrs. M. She was sent to me because of recurring chills and fever and pain in the left flank. Pyelography showed a definite stricture of the left ureter, five centimeters above the bladder. As dilatation of the stricture failed to relieve the patient's symptoms, the left kidney was removed, it showed a definite pyelonephritis. On pelvic examination a soft cystic mass, thought to be an ovarian cyst, was felt in the left side of the pelvis. After her nephrectomy, the patient's condition improved and she went away for the summer. Upon her return, she complained of abdominal pain and loss of weight and strength, pelvic examination showed the mass to have increased markedly, there was free fluid in the abdomen. She was operated upon and extensive malignant disease primary either in the left ovary or in the uterus was found. Without much doubt the ureteral stricture had been due to this.

A symptom which would seem unlikely to lead one along false trails, but which occasionally does so, is hematuria in women. Women are not always sure whether the source of bleeding is the genital or the urinary tract. W. E. Stevens mentions a case in which the patient herself thought the blood came from the vagina, whereas it really came from a carcinoma of the bladder. Some years ago I saw a similar case in which an excellent surgeon had done a curettage because of bleeding thought to be from the uterus. The bleeding continued and was found on cystoscopy to come from a cancer of the bladder.

The coexistence of bladder lesions with carcinoma of the cervix is well recognized but frequently overlooked. Henriksen says, "The appearance of urinary symptoms in patients known to have cervical carcinoma is sufficient indication for a thorough examination of the urinary tract before exposing the patient to either surgical or radiological procedure." Band and Wade have described six definite stages of involvement of the bladder from anterior extension of the tumor: "(1) elevation of the bladder floor, (2) fixation of the bladder floor, (3) circulatory changes, as recognized by congestion or petechial hemorrhages, (4) formation of a transverse ridge, (5 and 6) malignant invasion, displaying its presence in the

form of an ulceration, of hypertrophic nodules or of a vesicovaginal fistula."

The close relationship between other conditions of the female pelvis and urinary symptoms has been well covered by W. E. Stevens.⁷ He states that frequency of urination is the most common urological symptom due to gynecological pathology, in a series of 913 patients referred to the gynecological and to the urological clinics at Stanford University urinary symptoms due solely to pathologic conditions of the generative organs were present in about twenty-five per cent of the gynecological cases, while twenty-two per cent of the urological cases had concomitant gynecological symptoms or pathology. Salpingitis, according to Stevens, is the most common gynecological condition requiring differentiation from pathology in the urinary tract. Pressure from the pregnant uterus or from uterine fibroids may cause disturbance of the bladder function. Cystocele may be responsible for incomplete emptying of the bladder, the cystitis due to infection of this residual urine cannot be cleared up until the underlying cause is removed. Prolapse may cause hydro-ureter and hydronephrosis.

The possible complications in this field of surgery are too numerous to describe, the point is that before operating upon a gynecological condition for relief of urinary symptoms, one should be sure that the cause of these symptoms is not primarily in the urinary tract. Particularly important is the examination of the urethra, for in many women whose urine is perfectly normal the urethra is the *fons et origo mali*.

Diverticulitis of the sigmoid may cause complications in the lower urinary tract. An inflamed diverticulum may adhere to the fundus of the bladder, suppuration ensues and is followed by the formation of a vesico-intestinal fistula. Even without as definite a relationship as this, diverticulitis in the male may be a factor in causing symptoms which appear to be of prostatic origin. Frequency and dysuria suggest the prostate as their cause, whereas it is the colonic irritation which is the trouble. Symptoms are referred to the prostate when that gland is really not at fault.

One could continue indefinitely to catalog those signs and symptoms which lead the diagnostician away from the true origin of the disease. Hyperparathyroidism as the cause of renal stone, malignant deposits in brain, neck, chest or long bones giving the first intimation of a cancer of the kidney, urological manifestations of lymphoblastoma, sacro-iliac strain as the cause of bladder symptoms, and calculi impacted in the lower ureter as the cause of sacro-iliac pain—examples of all those conditions could be given. The urologist should bear in mind the possibility of the coexistence of lesions outside

the urinary tract as much as the general surgeon should consider the likelihood of lesions within it

Complications due to errors of technique In this category we find chiefly injuries to the ureter or to the bladder occurring in the course of a pelvic operation. I have seen a number of instances of this, sometimes occurring during operations by excellent surgeons. Injuries to the ureter consist in ligation, incision of the ureteral wall or complete cutting of the ureter. It seems not unlikely that unilateral ligation of the ureter may occur fairly often, the kidney atrophies without much ado and no one is the wiser.

A year ago I saw a woman who had had an appendectomy after which she had a persistent right pyelitis. Pelvic examination showed an indefinite induration in the right side of the pelvis. Two years before that pyelograms were normal. Five weeks after operation she came under my care. Pyelography showed a definite stricture of the right ureter just below the pelvic brim. At first it was difficult to pass the stricture but once a catheter had been passed, the stricture dilated readily and eventually the pyelitis cleared up. Whether the ureter was accidentally ligated which is hard to believe was compressed by retroperitoneal inflammation or whether the appendix was blamed for symptoms really due to the ureteral stricture, I cannot say.

Some fifteen years ago I saw in one week two women in whom both ureters were ligated during hysterectomy. One was seen four days after operation. She had voided but one ounce of urine. Catheterization of the ureters showed both to be entirely obstructed about five centimeters above the bladder. Bilateral nephrostomy was done at once. Three weeks later both ureters were exposed and found to be constricted to mere fibrous cords. The strictured areas were excised, the ureteral ends cut diagonally and united end to end. Catheters were passed to both kidneys, a procedure which I believe was not necessary. The patient made a good convalescence and nine years later catheters were passed easily to both kidneys. Specimens of urine showed bacteria but only an occasional pus cell. This patient is still living eighteen years after operation. The other patient was not so fortunate. Her uterus had been removed because of cancer. She died of this disease within two years. In her case the ureters were ligated close to the bladder in attempting to restore their patency following a bilateral nephrostomy. I was forced to reimplant them in the bladder. The right anastomosis held but a urinary fistula arising from the left ureter persisted. In another woman hysterectomy was followed by persistent pyelonephritis. Catheterization of the left ureter showed an obstruction at the pelvic brim. Nephrostomy was done followed by an attempt to restore the patency of the ureter. Apparently the latter had been partially divided; there was an abscess about the ureter, the upper segment was thickened and dilated. The ureter was united by telescoping the smaller lower segment inside the dilated upper segment. This restored the ureteral function for a time as was proved by the passage of indigo carmine from the ureteral meatus. The patency of the ureter did not persist; catheters could not be made to pass the stricture and nephrectomy was eventually done.

In still another case during a vaginal hysterectomy the right ureter was nicked but not severed. A ureterovaginal fistula persisted, but closed after a

catheter had been passed up the ureter and left in for forty-eight hours.

If such an accident is recognized at the time of the operation, a catheter should be left in the ureter and adequate drainage for possible leakage provided. A Levin tube may be used, the tip should be passed to the renal pelvis, the other end to the bladder. The end in the bladder can be extracted by means of a cystoscopic rongeur forceps. If the ureter is completely severed the operator should immediately reestablish the channel by drawing the upper segment into the lower segment by a suture at two opposing points of the cut end, three fine catgut sutures should be placed to attach the tip of the lower segment to the wall of the upper segment. If it is feared that the ureteral lumen will be temporarily obstructed a small catheter may be passed to the renal pelvis through an incision in the ureter above the anastomosis. Sisk² advises end-to-end suture about an undwelling ureteral catheter.

Accidental incision of the bladder wall during a pelvic operation should be closed by two rows of infolding sutures, and the bladder drained by a urethral catheter.

Unavoidable complications Without question the most frequent of these is postoperative retention. In women more than in men this complication is likely to result in a period of urinary infection, the bladder first then one or both renal pelves being involved. After ten days or two weeks the process quiets down leaving the patient with an irritable urethra or a chronic bacilluria. I doubt if catheterization is or need be, responsible for this infection. The fault lies in too little not too much use of the catheter. Patients are allowed to become overdistended, the bladder suddenly emptied of thirty or forty ounces of urine becomes congested and vulnerable to the few bacteria which are unavoidably introduced. If nurses were taught to spend less time scrubbing their hands before catheterization and more time in irrigating the bladder after catheterization fewer complications would arise. Any non-irritating sterile solution such as potassium permanganate 1-8000 may be used. The patient should be given methenamine by mouth in fifteen grain doses every eight hours, or intravenous methenamine grains thirty one, every twelve hours.

In male patients, unless the retention seems likely to be temporary, it is often better to fasten a catheter in the urethra than to practice intermittent catheterization. This is particularly true in patients who have been subjected to removal of the rectum; the wide dissection of the pelvis may interfere with nerve fibers going to the sacral plexus and produce a bladder paralysis which will last sometimes for weeks. In these cases cystoscopy shows a gaping internal sphincter similar to that seen in tabetics. As many of the patients in whom removal of the rectum

is done are in the prostatic age, there is always the possibility that prostatic hypertrophy is at least partially responsible for the retention. If this is the case, the prostate may be removed either suprapubically, perineally or by transurethral resection. In view of the fact that the patient has been through a severe operation, the last method would seem to be particularly appropriate.

For the orthopedic surgeon, an interesting complication is the formation of renal calculi in patients who have been confined to bed for long periods with ununited fractures. These patients are sometimes given a diet rich in calcium to promote union, the excess of calcium in the blood from this source and from the absorption of lime from the skeleton which goes on during periods of inactivity is largely responsible for the formation of urinary calculi. Such a case occurred at the Massachusetts General Hospital and was reported by Barney.

The patient was under treatment for ununited fracture of the femur and had been taking two quarts of milk a day, a diet rich in calcium and calcium lactate. Bilateral renal calculi were discovered after the patient had been under treatment for six months. Twelve days after x-rays showed these stones the left kidney was operated upon. No stones were found. The patient then said that since being x-rayed he had passed quantities of sand in his urine. He was followed for six months, at the end of which x-rays showed no shadows in either kidney. This unfortunate complication does not occur very often, but the possibility should be borne in mind. The administration of vitamin A in such cases and acidification of the urine may be of value as a preventive measure.

Another complication which we may classify as unavoidable is the formation of vesicovaginal fistula during parturition. Since these fistulae are usually linear tears through relatively healthy tissue, with no loss of substance, there should be a good chance of closing them at the first attempt. Closure becomes more difficult with each successive operation. The best time to operate upon these fistulae would seem to be as early as the patient's general condition will permit, perhaps within two weeks after delivery. The most severe tear that I have seen ripped the bladder neck between the urethra and the right side of the pubic arch, allowing the urethra to fall over to the left side and leaving a wide opening into the bladder. This tear was repaired three weeks after delivery and healed by first intention.

The most difficult fistulae to repair are those

resulting from slough caused by radium used in the treatment of cervical carcinoma. In these patients the tissues about the edge of the fistula are so devitalized that their healing power is greatly impaired, the loss of tissue and the fixation of the bladder base are other factors which prevent approximation of the edges of the fistula. In these cases ureteroenterostomy is the only solution.

Radium burns of the bladder following treatment of cervical cancer which are not severe enough to cause fistulae may be responsible for great suffering. The most stubborn cases are those which develop years after the application of radium, in a woman whom I have been seeing the ulceration developed nine years afterwards. The process, according to Dean, is due to an endarteritis of the vessels in the bladder base, some factor, probably infection, supervenes and the mucosa of the bladder base, its resistance lowered by impoverished blood supply, breaks down into a sloughing area upon which lime salts are deposited.

These are but a few of the urologic complications which may be encountered by the general surgeon, the orthopedist or the obstetrician. Each one of these complications deserves more discussion than our time will permit, but I hope that the subject has been presented with sufficient fullness to illustrate the point that I wish to make. That point is, that no specialty is complete in itself, that every specialist must first of all be a well-trained diagnostician, cognizant of the general principles of medicine and surgery, that he must be ready to ask for help from specialists in other branches whenever he encounters a problem not limited to his own field.

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NEW HAMPSHIRE MEDICAL SOCIETY

FOREIGN BODIES IN THE AIR AND FOOD PASSAGES*

BY JOHN A. COYLE, M.D.† AND LESLIE K. SYCAMORE, M.D.†

ENDOSCOPY is a general term covering inspection of the larynx, trachea, bronchi, esophagus and any cavity of the body by the endoscope. In this paper we will attempt to cover some of the most important points dealing with foreign bodies in the bronchial tree and esophagus. They are removed by the procedures known in medicine as bronchoscopy and esophagoscopy. This is a specialized branch of surgery adapted to the strictest examination of the tracheobronchial tree and esophagus for the purpose of extracting foreign bodies, diagnosis and treatment of diseases of the air and food passages. These examinations are carried out with a rigid tube that has special sources of illumination located at either or both ends of the tube.

In 1804 Bozzini¹ invented 'The Light Conductor' an apparatus for looking into the various canals of the body. His efforts were considered to be those of a charlatan and quickly met with disapproval. Twenty five years later Babington² devised a simple mechanism called a 'glottoscope'. This consisted of a mirror and tongue depressor combined, but its use was limited to a small number of cases and it was never accepted as an important aid in medicine. In the year 1854 Manuel Garcia³ a musician became interested in the larynx. With the aid of two mirrors he examined his own larynx. Eleven years later he read a paper before the Royal Society of London under the title 'Physiological Observations on the Human Voice'. Turk and Czerniak⁴ popularized the use of laryngeal mirrors.

In 1890 A. Kirstein⁵ of Berlin devised a method of direct laryngoscopy which he called autoscopes. In 1897 he described tracheoscopy by inspection through the glottis exposed to view by his method. That same year Gustav Killian⁶ demonstrated the feasibility of passing straight and rigid tubes through the glottis into the tracheobronchial tree. He also showed that these tubes could be used for inspection when illuminated by the Kirstein headlamp, a specialized arrangement attached to a headband. In 1897 he removed a foreign body from the bronchus of a living child.

In 1898 the first bronchoscopy worthy of name was done in this country by Algernon Coolidge

Jr.⁷ at the Massachusetts General Hospital using an open urethroscope a head mirror and reflected sunlight. Through an already existing tracheotomic fistula he removed a piece of hard rubber cannula from the right bronchus of a man, aged twenty two.

By July, 1902 twenty cases had been reported in which foreign bodies had been removed by bronchoscopy. Emhorn devised an esophagoscope the same year that is similar to the one in common use in this country today.

The search for foreign bodies in cases where they were or were not present led to the discovery of lesions existing in the air and food passages and the consequent application of medicaments. Thus the search for foreign bodies was a forerunner of diagnosis and therapeutic measures previously not in use. In one of the largest clinics in the world specializing in this field of work it has been estimated that only two per cent of their work is for foreign body extraction while the remaining ninety eight per cent is comprised of diagnosing existing lesions and the treatment of them.

Since the time of Killian the instruments and technique have been so tremendously improved that this branch has won an important place in modern surgery. Before proceeding farther, mention should be made of Dr. Chevalier Jackson⁸ of Philadelphia who has done more in connection with all branches of this work than any other person or persons. His efforts have been tireless in presenting to the profession his profound knowledge and observations obtained from thirty years of practice along this line as well as devising some of the most efficient apparatus for this type of work.

If bronchoscopy and esophagoscopy were more widely used many unsuspected and obscure lung and esophageal troubles would be revealed, a large percentage of which respond favorably to treatment.

In order to obtain good results one must undergo specialized training and have experience. One must work in close collaboration with the general physician and an x ray specialist, as well as have the cooperation of carefully trained assistants. Teamwork is essential for successful results. Ninety-eight per cent of cases of foreign bodies are reported as cures.

All bronchoscopes and esophagoscopes of practical value have been straight and rigid tubes. To be otherwise would defeat the purpose of observation of existing lesions. Most of the work is done at the end of a long tube

*Read at the Annual Meeting of the New Hampshire Medical Society at Manchester May 8, 1936.

†Coyle, John A.—Otolaryngologist, Hitchcock Clinic, H. Howe New Hampshire. Sycamore, Leslie K.—Otolaryngologist, M. F. Hitchcock Memorial Hospital, Hanover, N. H. For records and addresses of authors see "This Week" issue, page 704.

and in a narrow passage, necessitating monocular vision. The chief differences in the various forms of instruments have been in the methods of illumination. Dr. Jackson's instruments, which I believe are most widely used in this country, have distal illumination, while the Bruning instruments used in Europe have proximal illumination. This is not the place for a discussion of relative merits of the two types. For removal of particular foreign bodies, many specialized types of forceps have been devised, and one must constantly bear in mind the possibility of damage by instruments and by the withdrawal of a foreign body.

We are interested today primarily in cases of known or suspected foreign bodies in the air or food passages, but endoscopy is by no means limited to this type of case. According to C. H. Thomas⁶ the indications for bronchoscopy are as follows: Foreign bodies in the lung, bronchiectasis, persistent purulent expectoration, lung abscess, tracheal or bronchial obstruction, unexplained dyspnea, unexplained cough, massive lung collapse, lung conditions simulating chronic tuberculosis without demonstrable tuberculous infection. To this list Dr. Chevalier Jackson⁷ adds that the "asthmoid wheeze" heard at the mouth instead of over the chest wall, and the typical signs of obstructive emphysema are nearly always pathognomonic of an endobronchial foreign body.

Thomas⁶ lists the contraindications as follows: aneurysm, high blood pressure, advanced cardiac disease, chronic nephritis, active pulmonary tuberculosis and a moribund patient.

The indications for esophagoscopy are as follows: The presence or suspected presence of a foreign body, impaired laryngeal motility except in cases of aneurysm, and any abnormal sensation in swallowing. The contraindications are more or less the same as for bronchoscopy.

Usually neither bronchoscopy nor esophagoscopy is an emergency procedure, and it is extremely essential to obtain a careful history, paying particular attention to minute details. Lyman Richards⁸ states that oftentimes a history of aspiration is available, but must be obtained from the parents of a child. Unless the physician, having the possibility in mind, questions them closely a valuable clue may be lost. A general physical check-up should be completed with appropriate laboratory tests. Upper respiratory passages should be examined, with special attention given to dental sepsis, and corrected when possible. An x-ray should be taken in every case of suspected foreign body, even though the suspected substance is not dense enough to cast a shadow, as lesions may be revealed by the x-ray indicating the location of a foreign body which itself does not appear. For localization, plates from various angles are

oftentimes necessary, and fluoroscopy with barium is often indispensable for determination of esophageal conditions and then location. When time permits, the patient should be prepared as for any operation. It must be remembered that the patient is more or less immune to organisms that he himself harbors, yet infections introduced may be extremely virulent, so surgical asepsis is to be desired. In general, most of our cases have been done with avertin anesthesia. This does not seem to deaden the cough reflex which is a very essential factor for the prevention of complications. During the narcosis with avertin there is usually no increase in bronchial or salivary secretions. Our cases experienced no nausea or vomiting and the patients usually retain no recollection of events. I might add that opiates are not used in conjunction with the anesthesia or afterwards, because of the desirability of retaining the cough reflex to aid the clearing of the passages.

The most important part of the introduction of these instruments is the position of the patient, who may be sitting or recumbent, but in either case the position of the head and neck is relatively the same, and a trained assistant to hold the head is necessary. In all of this work, mouth, pharynx, esophagus or trachea must be brought into a straight line, not by crowding the tube but by proper position. This is obtained by extension of the head at the occipitoatlantal joint and not the whole neck extended. One may enter the esophagus instead of the larynx. This error can be detected by failure to receive the tracheal blast and by the appearance of the walls of the passage. Roughness is to be avoided and the tube should not be extended beyond the area of vision. By using a suction apparatus or swabs, the passages are freed of secretions.

The initial symptoms of a foreign body in the tracheobronchial tree are usually choking, gagging, coughing, wheezing, hoarseness, dyspnea, cyanosis and croupiness, or symptoms may be entirely lacking. There may be a quiescent period followed by pronounced respiratory symptoms plus general toxic effects. Physical signs in the chest change with bronchial movements and the shifting of secretions. In a case of obscure bronchitis, one should think of a foreign body. Nonobstructive metal objects afford few symptoms and few signs for weeks or months, then later show evidence of suppuration. Vegetable matter such as peas, peanuts, beans, etc., cause violent reactions at once such as toxemia, cough and irregular fever. The character of the foreign body often changes. If metal it may become partially oxidized, if vegetable matter it may be broken into pieces. Foreign bodies usually produce early changes in the mucosa, such as edema, granulations and increased mu-

concretion Metal foreign bodies are usually easily detected by x ray plates. Occasionally however they may be hidden by lung shadows or are themselves too small to cast a satisfactory shadow Early bronchiectasis due to the presence of a foreign body, is usually cured by bronchoscopic removal of the existing cause

Seventy per cent of foreign bodies enter the right bronchus because of its increased diameter and less acute angle of deviation from the line of the trachea Of course the position of the patient during inspiration and pulmonary movements may influence the ultimate resting place of the foreign body

Therapeutic measures of shaking the patient by the heels with the head lowered may be successful in the first few minutes before the foreign body has passed the glottis

The principal symptoms of esophageal foreign bodies are difficulty or discomfort in swallowing The localization of pain is very definite, as patients not infrequently refer the sensation to a point at some distance from the site where the foreign body is lodged Small bones are especially liable to be lodged in or about the tonsils, or in the pharyngeal wall Complete esophageal obstruction is usually due to a large bolus of meat A J Wright in the *Journal of Laryngology and Otolaryngology*, March 1934, writes that "pain on swallowing, or its increase after twenty four hours or so, makes the presence of a foreign body extremely possible" In neglected cases, esophageal perforations are the rule, leading to disastrous results Cummings¹⁰ noted that about seventy per cent of foreign bodies found in the adult esophagus were in cases wearing dentures These people have difficulty with bones especially and often swallow them

A large percentage of foreign bodies in the esophagus are demonstrable either by the x ray plate, fluoroscopy or fluoroscopy in conjunction with the use of barium

The blind method of passing esophageal bougies or probes attempting to dislodge foreign bodies or to dilate esophageal constrictions is only mentioned to be condemned

One must not lose sight of the fact that pre-existing esophageal lesions may be first evidenced by the lodgment of a foreign body at the constriction caused by the lesion

Most large esophageal foreign bodies are caught in the region of the cricopharyngeus muscle

I would like to review briefly a few of the cases that we have had illustrating some of the points that have been mentioned

(Slides were shown)

CASE 1 A J aged three years, was brought to the hospital August 2 1933 because of difficulty in breathing supposedly of five days duration For

the questioning brought out the fact that this symptom had been present for several months Temperature 104° pulse 120 respirations 25 on admission Examination of the chest showed breath sounds absent throughout the lower left chest Dr Stewart thought of foreign body possibility and advised x ray of chest

(Slide shown)

Foreign body was removed August 4 1933 The patient had more or less of a stormy course and was taken from hospital against advice August 12 1933 Condition improved August 25 1933 he was brought in for a check up Admission was advised because of varying temperatures Discharged September 6 1933 greatly improved Recent reports indicate that he is well

(Slide shown)

CASE 2 E C aged six years Chief complaint wheezing One week previously while playing with a paper clip in mouth he seemed to have swallowed it He was taken to a doctor who told the parents not to worry that it would pass through the intestinal tract, or to wait until something developed as a result At the time of the accident there were considerable coughing dyspnea, and cyanosis for a few minutes His mother became worried and brought him to the hospital for a chest x ray On admission November 17 1933 temperature 100° pulse 100 respirations 20 The child did not seem acutely ill

(Slide shown)

Foreign body was removed November 17 1933 The patient was discharged November 20 1933

CASE 3 M D., aged three years and 8 months Brought to the hospital and admitted June 24 1933 Four weeks previously while quarreling with her sister aspirated a peanut Some coughing at the time One week later began to wheeze A nurse diagnosed asthma No dyspnea or cyanosis Three days before admission developed what seemed to be a cold Temperature 98° pulse 130 respiration 25

(Slide shown)

Foreign body half a peanut, removed June 25 1933 The patient was discharged July 6 1933

(Slide shown)

CASE 4 H B., aged sixty-one years Admitted August 21 1933 complaining of discomfort and difficulty swallowing Onset while eating chicken

(Slide shown)

Foreign body chicken bone removed the same day Discharged the following day

CASE 5 B D., aged fifty-seven Admitted February 10 1934 Complaints choking off and on past three years Loss of 12 lbs weight during winter Day before admission was unable to get solid food down, because of sudden obstruction Considerable distress in chest such as pain and pressure Small amount of liquid would pass at times Physical examination and Wassermann negative

(Slide shown)

February 14 1934 esophagoscopy examination revealed a large bolus of food lodged in the middle third of the esophagus This was removed and a small tumor was seen projecting from the posterior wall A biopsy taken was reported to be a carcinoma Deep x ray therapy given Returned a few days ago for a check up No symptoms or evidence of obstruction

CASE 6 H B aged seventy years Admitted April 20 1934 Unable to swallow Pain in the chest Twenty four hours previous to admission the patient coughed while eating Since then, unable to swallow food Liquids passed down slowly

(Slide shown)

A large piece of meat attached to a bone was removed the same day. The patient was discharged the following day.

(Slide shown)

In conclusion I would like to add that foreign bodies left or undiscovered in the lungs or esophagus, will ultimately produce disastrous results, and I hope that we have brought out the necessity of further examination in obscure pulmonary and esophageal conditions.

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[Dr Coyle and Dr Sycamore then showed many slides on the screen, both interpolating discussions on the subject of Bronchoscopy]

DISCUSSION

PRESIDENT LORD I will call upon Dr Robert M Deming of Glenciff to discuss the subject of Bronchoscopy

DR ROBERT M DEMING *Mr. President and Members of the Society*—I feel that I can add but little to this interesting talk by Dr Coyle, since he has covered the subject quite thoroughly. My interest in bronchoscopy is from a purely clinical viewpoint, as I am not experienced or interested in the technique of the procedure.

A clinician is interested in bronchoscopy as a means of differentiating various conditions, which may be present in the chest. Chief of these is bronchiectasis a condition much more common than was previously thought, and frequently diagnosed and treated as pulmonary tuberculosis, even in sanatoria.

Bronchoscopy, combined with lipiodol injection and x-ray, should make a diagnosis. It is valuable in detecting and diagnosing chronic nontuberculous lung infections, fibrosis of the lung or silicosis, abscess of the lung for drainage, provided the abscess is not located too far up, for obtaining material for a biopsy to differentiate and definitely diagnose tumors of the lung or bronchi.

One of our patients is now having a bronchoscopy and lipiodol injection to determine whether she has a papilloma of the bronchus with resultant plugging of a bronchus. It is used quite spectacularly in removing foreign bodies. The cardinal indications for diagnostic bronchoscopy are the clinical or x-ray evidences of bronchial obstruction, and in no connection is this more valuable than in early diagnosis of bronchial carcinoma.

The use of the bronchoscope is limited, or should be, to special operators, since the procedure is not carried out without danger of some damage to the trachea and lungs.

When a patient presents a varying amount of non-productive or only moderately productive cough for a long period, occasional hemoptysis in varying amounts from streaking to large hemorrhages, per-

sistently negative sputa, and roentgenograms that are inconclusive, but which give evidence of a difference in density of the lung fields, indicating distention of the upper lobe on the affected side, and as an inequality in the position of the diaphragm best seen in the lateral roentgenogram, it is reasonable to suspect an atelectatic bronchiectasis of the lower lobe. A bronchoscopy with lipiodol injection should then be of the utmost value.

PRESIDENT LORD This paper is now open for discussion, and I know that we are all interested in this business of making inspection of the interior.

DR LOUIS C AGER There are three points that I want to mention. One of them is rather interesting historically. I have never seen it mentioned in any published discussion of bronchoscopy.

In the late eighties,—I think it was about 1888,—Dr Rushmore, Professor of surgery at the Long Island College Hospital, had the following case.

A prominent clergyman of Brooklyn was playing with his children and insufflated a small cork which lodged in a bronchus, with the usual inflammatory results. He came into Dr Rushmore's service in the hospitals and various measures were tried. Dr Rushmore had the idea of extracting with a corkscrew. After various attempts at manufacture, a flexible metal tube was constructed with a slit to permit respiration in the opposite lung. This was inserted into the bronchus and into it was run a long flexible corkscrew. That the cork was actually reached was proved by the fact that a piece of cork was broken off and recovered. However the patient died of pneumonia, or perhaps atelectasis. Later the professor exhibited the tube and cork to his medical students of whom I was one.

Another matter that I wish to mention is the work of Dr Stitt of Cincinnati over a considerable length of time while I was stationed in the Cincinnati Office of the Veterans' Bureau. No doubt most of you have seen his reports but I wish to verify the fact of his very satisfactory results in lung irrigation with a hypertonic salt solution. I saw several severe cases of bronchiectasis,—some in very old people,—tremendously relieved. One man told me that he had not been able to go to bed for two years but, after a few treatments, he was able to get several hours' sleep at a time in bed. I wish some of the bronchoscopists here in New England would make use of the method. We have a good many cases of bronchiectasis among the Veterans.

One other observation. We have had in the Hospital at Rutland Heights, for some time, a patient with evidence of pulmonary tuberculosis. His chief trouble, however, has been sudden severe attacks of vomiting during eating with severe pain in his chest. X-rays were made without showing anything until he had a typical severe spasm of the esophagus just as he was swallowing the barium. It showed up wonderfully.

PRESIDENT LORD Is there further discussion on this paper?

DR H O SMITH In the town adjoining mine, a schoolboy in good health, aged ten years, began to develop a slight cough and to lose weight. The tentative diagnosis was incipient tuberculosis. Finally, he developed an acute process in the lung, with high fever, pain, profuse expectoration. I made a diagnosis of lung abscess. An x-ray was taken and it was found that he had in one of the small bronchi, a carpet tack. The child was taken to the Children's Hospital. Dr Richards removed the tack under general anesthesia. The boy went to his home and the cough gradually ceased. He put on weight, and now is a typical, healthy, country boy.

PRESIDENT LOBB Is there any further discussion?

Dr. FRANK N. ROGERS, Manchester X ray does not always help although I agree with Dr. Smith that x ray pictures should be taken of all suspected cases of tuberculosis and cases of foreign bodies in the larynx. Peanuts will not show up in x ray. The history of such a case is about the only thing we can go by.

I had a case some years ago of peanut bronchitis which ended fatally although the child lived for a long time after having the peanut removed but due to the traumatism of getting the peanut out the child had to wear a tube.

It is a bad habit for a young baby or a young child to eat peanuts. Peanut butter is all right but peanuts themselves are dangerous.

Nut bars are always dangerous to the very small child. The package of popcorn contains a prize and usually a little metal figure, just about the size that would enter the larynx. I personally wrote to the manufacturers of these articles and warned them against using these prizes.

Dr. RICHARD W. ROBINSON, Mr. President and Gentlemen—I won't take but a minute of your time. The gentlemen who have been talking about this subject have been speaking of bodies that are distinctly foreign that come from the outside.

A little incident that occurred a few days ago I think is perhaps of some importance so I will mention it.

A thirteen months old baby developed an acute lung condition and this was diagnosed by x ray as a lung abscess. There were several days of illness when finally the child coughed up a little piece of material brownish in color that looked like half a bean which on observation under the microscope and from chemical test proved to be a solid milk curd that the youngster had evidently inhaled after vomiting. I wonder if this sort of accident is not quite frequent and whether it might not account for some of the acute lung conditions of infancy.

PRESIDENT LOBB If there are no further remarks, I will ask Dr. Coyle to close the discussion.

Dr. JOHN A. COYLE, Mr. President and Gentlemen of the Society—We attempted to cover briefly only some of the work on foreign bodies. Sometime perhaps, we may present treatment of bronchiectasis and give some credit to individuals that have done a great deal of work along this line. I thank you.

PRESIDENT LOBB Do you wish to comment Dr. Sycamore?

Dr. SYCAMORE No I have nothing to say.

CARE OF THE NEWBORN*

BY RICHARD W. EUSTIS, M.D.†

THE two specialties of obstetrics and pediatrics overlap. The obstetrician is interested in the infant, the fruit of his skill and the mother's labor. His is the task of aiding him into the world and his is the task of resuscitation if the baby fails to breathe spontaneously. The pediatrician's interest is in the baby's immediate condition and in the stored up reserves of fats, minerals and of vitamins on which he is partly dependent for the first months of life. These reserves, in turn, depend upon the health and diet of the mother.

We were taught that the full term fetus had obtained from his mother all that he needed to start life for himself even though in so doing he seriously depleted her reserves. The observation that the newborn infants of anemic mothers were not themselves noticeably anemic seemed to support this theory. More recent reports however have shown that such infants are definitely anemic at the age of three months, and it is evident that because of the maternal lack they were unable to obtain an adequate reserve of iron.

The dentists associate poor development of the first dentition with deficiencies in the maternal diet more than with defective diet during infancy.

If this is true of iron and calcium it is probably true of all the mineral salts.

It is for these reasons that pediatricians urge that the diet of pregnancy should include an abundance of mineral salts and of Vitamins C and D both of which appear to be necessary for the proper metabolism of bones and teeth. The other vitamins are probably present in sufficient amount in any reasonably well balanced diet.

The rise of pediatrics as a specialty focused attention on the newborn infant and the early articles on the care of the newborn emphasized the importance of maintaining a normal body temperature of 99°-100°F and of minimizing the weight loss. These points are less important than we once thought. More recent work has shown that the rectal temperature of a healthy infant is anywhere between 97° and 99°F and that attempts to force the body temperature above 99° are apt to cause indigestion.

In the first few days after birth an infant loses from five to fifteen per cent of his birth weight. This loss is chiefly water and need not

*The fourth in a series of papers presented in the Symposium on Obstetrics at the Annual Meeting of the New Hampshire Medical Society at Manchester May 1, 1935.

†Little, Richard W.—Physician to Children, Medical Service, Massachusetts General Hospital. For record and address of author see "This Week" issue, page 760.

concern us if in other respects the infant is vigorous and well

We try to practice moderation while waiting for the infant to develop his own powers. He must be kept warm, but not too warm. He must be given fluid enough to prevent dehydration, but not so much that he is uninterested in nursing. Hunger and thirst are the best stimuli for sucking, just as eager sucking is the best galactagogue.

Our usual routine in the care of the newborn is as follows

BATHING

As soon as respiration is well established, the newborn baby is wrapped in warm blankets, placed in a warm room, and left alone for several hours. If his condition is good, he is then given his first bath. With sick infants, this should be postponed even for one or two days. During the bath, the nurse is trained to look the baby over for any abnormalities that may have escaped the doctor's attention at the time of delivery. Following the bath, he is anointed thoroughly with 2 per cent ammoniated mercury and sent to the nursery. We have found it advisable if the temperature is subnormal to admit the infant to the air-conditioned premature nursery for one or two days until his temperature becomes stabilized.

TEMPERATURE OF NURSERY

Most hospital nurseries are too warm. A hot room is necessary only when the infant is exposed, as during the daily oiling. At other times the air temperature should not be over 70°F. Greater heat is apt to mean poor ventilation and a very dry air which causes excessive evaporation from the skin and mucous membranes and increases the risk of respiratory infections. Also, if the baby is too warmly dressed or in too warm a nursery, the moist skin becomes macerated and forms a favorable field for impetigo and furuncles. The ideal nursery is kept at about 70° and has a treatment room attached to it which may be kept at 75° to 80°. If only one room is available, the high temperature should be permitted only during the time the babies are being oiled and weighed.

Overheating of infants is undoubtedly also a frequent cause of indigestion and diarrhea. We have known for a long time that this was the cause of many of the summer diarrheas, but Blackfan's work with air-conditioned nurseries has shown that it may also be a cause of diarrhea at any time of the year.

BREAST FEEDING

The crusade in favor of breast feeding by the public health experts should be applied to individual cases with discretion. It is perfectly

true that for the mass of the population, the death rate is distinctly lower among the breast fed babies. It is also true that breast feeding takes less time, and is easier and cheaper.

Except in the presence of definite contraindications, most mothers can nurse their babies if they want to. If they do not want to, it is a waste of time to struggle with them. However, if after a reasonable trial, the breast milk is insufficient or if the otherwise normal baby is not gaining satisfactorily, it is only common sense to wean. Mixed feeding after the first month does not work out well in practice.

The infant is put to breast after the first twelve hours, and every four hours by the second day. Until the milk comes in, he should not be left at breast for more than a few minutes. The purpose of this preliminary nursing is to give the baby colostrum, to stimulate milk formation, and to get the mother and baby used to each other. This latter factor is particularly important with a first baby.

There is considerable dispute as to whether the infant should be given water, sugar solution, or even a formula from the bottle during this period of two to five days before the milk comes in. On the one hand are the men who are impressed with the dangers of excessive weight loss and dehydration fever. They advise fluid from the bottle for all infants, and some have gone so far as to order definite amounts at definite hours. Dehydration fever has been rare under this treatment, but the proportion of successful nursing has been comparatively low.

The most effective method of minimizing the initial loss of weight is to give the baby normal saline solution containing 5 per cent glucose. This causes fluid retention and a fairly level weight curve on the chart, but we cannot see that an excess of fluid in the tissues is of any real advantage to the baby. After a few infants developed a generalized edema, we abandoned the use of the glucose saline mixture.

When fluid is offered to check weight loss, whether it be water, sugar solution, or a formula, the infants come to breast fairly satisfied, find nursing a hard job, and lie back waiting for food from an easy running bottle. The mothers complain that their babies won't nurse, their breasts are not satisfactorily emptied, and the milk supply gradually diminishes.

At the opposite extreme is a school which says the infant should never be given a bottle until breast feeding is given up. The percentage of successful breast feeding in such cases is higher but there is no doubt that unintelligent application of the rule may cause trouble.

We believe the wisest of the two courses is to start infants on a routine of nothing by mouth except the regular breast feedings. If this regime is followed, it is very necessary to watch their weights daily, the condition of their skins,

their general vitality and their nursing ability. Most infants will come through successfully, but individual cases will need small amounts of water or sugar solution to prevent dehydration. If a formula is necessary to start them gaining, it usually means that nursing will not be successful.

FEEDING INTERVAL

Regularity of feeding has been preached by pediatricians since the beginning of that specialty, and many reasons have been advanced for its necessity, such as the limited gastric capacity and the three hour emptying time of the stomach. Nevertheless, the chief advantage of regularity seems to be that only in this way can the mother plan her time. There is no doubt that when the milk supply is abundant the baby is healthy, and the mother always available to an infant which is nursed whenever it cries for food does just as well as an infant that is fed by the clock. But regularity is always necessary in a hospital and usually at home, and therefore the wisest schedule for the mother is the one with the fewest number of feedings on which the infant does well. We find that a four hour schedule works out successfully in the vast majority of infants. This is true even of premature babies weighing as little as three pounds. There is an occasional infant that will have to be fed every three hours because his stomach will not hold enough to carry him the four hour period. Such cases are recognized because although they go to sleep immediately after each feeding they wake up and cry an hour before the next meal is due.

Most of the milk at a feeding is obtained during the first three or four minutes, but this first milk is comparatively low in butter fat and it is the latter part of the nursing that contains the most cream. This is the reason that the baby is allowed to nurse each breast eight to ten minutes when both breasts are given and fifteen to twenty minutes when one is given. When we are trying to increase the milk supply we give both sides at each feeding, thereby increasing the number of times each breast is stimulated during the twenty four hours. Occasionally it is necessary for a time to give both sides every three hours, but such frequent nursings are likely to cause cracked nipples.

We can suspect an insufficient milk supply by the baby's apparent hunger by his failure to gain and by small scanty stools. The only conclusive proof, however, is to weigh the infant before and after each feeding for twenty four hours. It is not sufficient to weigh after one or two feedings only as the amount obtained at the individual nursings may vary widely although the twenty four hour amount is steady from day to day.

If the baby's condition is reasonably good, we should not be alarmed by his failure to gain during the first ten days or even two weeks and we should not allow the desire of the parents and grandparents to lead us to introduce a formula until it is necessary. Frequently the full milk supply is not established until the mother is about ready to get up and if we have had the courage to wait, we will find that the infant will start gaining.

An overabundant milk supply is not common and is usually only a temporary matter. It is suggested by a gaining but uncomfortable baby with regurgitation and frequent stools and is best handled by shortening the time at breast and giving only one side at a feeding. If the mother is uncomfortable an icebag will check the secretion of milk.

BOTTLE FEEDING

Successful bottle feeding even with the simplified methods in use today demands a certain minimum of intelligence, equipment and medical supervision, and unless these are available every effort should be made to keep the baby at breast. But where these conditions can be met there is no doubt that a satisfied gaining bottle-fed infant is happier and more completely nourished than an underfed infant at breast.

When a baby is to be fed from the beginning on a bottle, we wait the customary twelve to twenty four hours until he is rested and hungry, and then offer first one half to one ounce of water or sugar solution and four hours later the first formula. He will probably take from one to two ounces of formula at each feeding that is, on the usual four hour schedule of six feedings he will take from six to twelve ounces in twenty four hours increasing gradually to three ounces at a feeding or eighteen ounces in twenty four hours.

Fashions in formulae are nowadays very simple but they still leave room for considerable individual choice on the part of the physician. This individuality seems to be mostly on the doctor's part for at the Boston Lying in Hospital the babies have done just as well since we have adopted a stock formula as they did before on various different mixtures.

Our usual formula is now—

Bolled Milk	12 ounces	— 240 calories
Karo	1 ounce	— 120
Water	to 18 ounces	
		360

This supplies 20 calories to the ounce which is the same as the average breast milk.

The formula can be made equally well with unsweetened evaporated milk using six ounces instead of twelve.

Other sugars can of course be used in place of the Karo. Equivalent amounts are

Cane Sugar	2 level tablespoonfuls
Milk Sugar	3 " "
Dextrimaltose	
No 1 or No 2	4 " "

Eighty-three per cent of the babies at the Boston Lying-in Hospital were breast-fed during 1934. The remainder, even the premature infants, have done well on this stock formula.

One of the chief reasons for this excellent record lies in the nursing staff. The supervisors and head nurses know how to handle babies and are able to impart their art to the constantly changing pupil nurses. To feed an infant skillfully and well, without causing colic or excessive regurgitation, is an art in some ways comparable to that of the animal trainer. The expert nurse shows the same confident approach and handling, the same understanding of expression and of inarticulate sounds. Confidence begets confidence, and nervousness, nervousness, although the apprentice instead of being kicked, clawed or bitten, merely risks being dieneded with vomitus and kept awake by a crying baby.

The care of the newborn infant includes the early recognition and proper handling of the sick infant. Suggestive signs are an unstable temperature, a weak or high-pitched cry, poor color, poor nursing ability, and either lethargy or increased irritability. Such infants, from the nursing standpoint, should be handled as if they were premature, and the doctor should examine them carefully, having in mind the various diseases of the newborn period. Fever is as apt to mean overheating, dehydration, or intracranial hemorrhage, as infection, and infection may be present with a normal temperature. Also, the white blood count in the newborn period may be as high as 20,000 without indicating infection.

Although this is not the time to enter into a discussion of the diseases of the newborn, there are a few points in our handling of some of the conditions that are worth mentioning.

In cases of apnea and cyanosis, we first clear the airway of mucus by suction through a catheter passed into the pharynx, and then give gentle artificial respiration with the infant in the crib. Oxygen and 5 per cent carbon dioxide is administered through a large celluloid cone which covers the whole head and shoulders.

In intracranial hemorrhage, we first treat shock and then give an intravenous transfusion of one to two ounces of citrated whole blood. If the intracranial bleeding has been due to hemorrhagic disease, as it may be without visible bleeding elsewhere, this should stop the bleeding. If, on the other hand, the hemorrhage is from a torn vessel we think the advantage of the increased coagulability of the blood induced by the transfusion more than outweighs the theoretical risk of a slightly raised blood pressure.

Lumbar puncture is performed after the infant has rallied from shock and preferably early in the stage of increased irritability before convulsions develop. Its purpose is twofold, to confirm the diagnosis and to relieve the symptoms of increased intracranial pressure. The fluid is usually either frankly bloody or xanthochromic, according to the amount and location of the bleeding and is under increased pressure. We find manometer readings of the pressure are of some value in deciding the amount of fluid to be withdrawn and in determining the time of the next puncture. One puncture is enough in some cases, others require two or three at intervals of twelve hours to one or two days before symptoms are relieved.

Any external bleeding in the first few days of life which is not immediately controlled by ligation or by simple pressure, is presumptive evidence of hemorrhagic disease, as is also the vomiting of blood, either fresh or black, or the passing of bloody stools. The only exceptions we make are a blood-streaked, mucous discharge from the vagina which in our experience is almost never associated with bleeding elsewhere, and the vomiting of small amounts of blood by an otherwise perfectly healthy baby where the source of the blood can be traced to a crack in the mother's nipple.

Transfusion is the only really effective treatment for hemorrhagic disease of the newborn. Intramuscular injections of whole blood will control some cases, but they are not effective for several hours, probably eight at least, and during this waiting period irreparable damage may be done by internal hemorrhage. I do not believe it is justifiable to waste any time with intramuscular injections of whole blood or of other coagulants unless transfusion is for some reason absolutely impossible.

Between one and two ounces of blood is withdrawn from the vein of one of the parents, mixed with citrate solution, and injected into a scalp vein or one of the jugular veins of the infant. We have not found it necessary during the newborn period to group or match the bloods. This sort of transfusion sounds simple, but is really a fussy, delicate procedure, best done by an interne or recent graduate from a children's hospital. I think it wiser to bring the baby to such a man rather than to try a bungling job myself.

There have been a few cases reported of successful transfusion during the first three days by loosening the umbilical tie and introducing the needle into the open end of an umbilical vein. Although we have never had occasion to try this, I have kept it in mind as a possible method in case of the failure of the more usual routes.

The important point to drive home is that nurses should report at once any bleeding or any sudden pallor which may indicate internal

bleeding and that a transfusion should be performed as soon as possible after the presumptive diagnosis is made. Only in this way can we avoid a high death rate.

Erythroblastosis is a new name given to a previously unrecognized condition which lies part way between the very serious icterus gravis neonatorum and the comparatively mild anemia of the newborn. The suspicions of the obstetrician should be aroused by the golden yellow color of the vernix and by the hypertrophied placenta. Such infants show a progressing anemia with many nucleated red cells indicating that the young cells are being swept into the circulation. They are usually jaundiced and may develop edema and enlargement of the heart. They should be transfused at once and the transfusion should be repeated as often as is needed until blood destruction and blood production are normally balanced, which may be a matter of several weeks.

Thrush is a recurring pest of hospital nurseries. It appears occasionally in spite of the most scrupulous cleanliness of bottles and nipples as well as the most careful wiping off of all overhead surfaces from which dust and spores may fall. We have tried many treatments and our best results have been obtained by painting the tongue and inside of the mouth with a 1 per cent aqueous solution of gentian violet. Two or three applications at daily intervals usually suffice.

Impetigo in the newborn is a very different disease from that appearing in childhood or adults. It is just as annoying and has more serious possibilities. It may be defined as a contagious superficial infection of the skin caused usually primarily by a streptococcus resulting in the formation of thin walled blebs which are very easily ruptured. The resulting denuded area presents an oozing surface and tends to increase in size by peripheral extension. It is very difficult to draw a sharp line between

a mild, simple impetigo in the newborn and the bullous impetigo or pemphigus neonatorum which results in such extensive blistering and denuding of the skin that the death rate is very high.

For the prevention of impetigo we have found the best plan to be a thorough munction with a 2 per cent ammoniated mercury ointment immediately after the initial bath. Following this the baby is neither bathed with water nor except rarely, anointed again with the mercury ointment during his stay in the hospital. Instead he is oiled daily with a mild antiseptic neutral blend of vegetable and mineral oils. We do not believe that this oil alone without the preliminary munction is adequate prophylaxis but with the combination of the two we have distinctly reduced the number and severity of the cases of impetigo.

If an infant develops a characteristic bleb or denuded area he should be rigidly isolated from the rest of the nursery. The most effective treatment seems to be the use of drying lotions and exposure of the affected part under an ordinary electric light bulb. Ointments and strong disinfectants should be avoided. One or two applications of metaphen followed by the frequent sopping on of whitewash and the electric bulb treatment work best in our hands. It is very important to keep the infant cool as heat and perspiration tend to macerate the skin and aid in the spread of the infection.

MISCELLANY

THE APPOINTMENTS OF MR JAMES A. HAMILTON

Mr James A. Hamilton Superintendent of the Mary Hitchcock Hospital of Hanover N. H., has accepted the position of Superintendent of the Cleveland City Hospital as of July first as well as the position of Professor in the Graduate School of Business at Western Reserve University.

DO YOU KNOW?

"Colds are not due to cold weather—Eskimos do not have them unless they come in contact with white men.

"Vitamin means life-carrier"

More than 700 000 different insects have been named and described by scientists

Most parents are so busy training children in such good habits as eating regularly that they fail to help them form the habit of liking people. Development of this characteristic will often prevent

fussing about food temper tantrums lying disobedience jealousy and many other bad habits which cannot be easily corrected by direct injunction

Sleep ought to be measured carefully different individuals have widely varying needs in the amount of sleep required. Loss of sleep for one or two nights can be made up but habitual loss of sleep will eventually break down the most rugged system

Thomas Adams said Prevention is so much better than healing.

—Bulletin Public Relations Bureau
New York State Medical Society

MASSACHUSETTS MEDICO-LEGAL SOCIETY

A STUDY IN FEIGNED MURDER*

BY JESSE W BATTERSHALL, M D †

THE morbid philosophy of Schopenhauer that contemplates life as a personal attribute and self-murder as the justifiable destruction of it, happily is now discredited as unmoral. Self-killing is condemned by the Church as moral outlawry and by the State as an indefensible yet obviously unpunishable infraction of its law.

Among the noticeable circumstances attending the current economic distress is the appalling increase in deaths by suicide. From a reported total of 459 suicidal deaths in 1925, the Massachusetts records indicate a yearly increase to a high peak of 639 deaths in 1932 with only a minor decrease in the last two years. Banning from present consideration, suicides, impelled by the fanciful and unreal concepts of the seriously disordered mind, and viewing the residuum impartially as the exercise of individual volition, the resultant is not an agreeable one.

The urge to self-murder has its origin in a multitude of circumstances. Humiliation, ripening into profound depression or morbidity after continued deliberation on fancied social or business losses to follow, is a common albeit unhappy cause. Disheartening disappointments following untoward developments in scholastic effort, frustrated plans for social or financial advancement, thwarted hopes or disillusion in love, these and many other circumstances often provoke emotional crises that in turn are the geneses of impulses to destroy life, so, too, of our national business life in these times of stress. Indeed, from the pages of business history we may cull accounts almost without number of gruesome deaths, self-inflicted, and instigated by financial instability and economic distress.

In many of these cases, the self-destruction is plotted with marked premeditation. Plans are made with infinite care. Religious interdictions cast upon the self-killer, the necessity of surrounding his act with the appearance of accident or even death at the hands of an assailant, to the end that religious rites are not denied, and that no stigma should enure to his family. Again, the skeptical eye of the insurer approaches the presentation of a claim for death loss, with an inquisitorial attitude, searching among the attendant circumstances for some fact, however isolated or insignificant it may appear to the untrained observer, by which to

refute a claim of accidental death and its attendant double indemnity relief.

Still other considerations, as variable as the persons themselves, may often lead the suicide to long, deliberate planning. In short, the suicide contemplates his act with a view to the simulation of a real accident, and with a purpose to thwart the exposure of the truth in future inquiries. Upon those charged with official investigation of violent deaths, in the first instance, there must necessarily fall the heavy burden of weighing the revealed facts, to discern the true from the simulated, and to pass with frank impartiality upon the accumulated evidence.

A suicide, remarkable for the nicety of its detailed planning, came to my attention in 1931. The body of Mr. X, a professional man of high standing in a small manufacturing town in southeastern Massachusetts, was found in the early morning, lying on the floor of his garage, in the basement of his home. A passing school boy, glancing through the open garage doors, was attracted by the headlights of an automobile, inadvertently left burning when the machine was parked in the garage. The frightened boy ran home and told of his ghastly discovery and a relative hastily summoning Mrs. X, went with her to the garage, by way of the kitchen stairway which led to the basement, there the inert body of Mr. X was found lying between two parked automobiles, parallel to the running boards of the cars. Neither motor was running. On the floor by the body of Mr. X there was found a bankbook with eight endorsed checks ready for deposit, together with a slip specifying \$400 in cash. No cash accompanied the checks or book, however, and none was found in the vicinity. On the other side of the body, close to the running board of the second car, Mr. X's empty wallet was found and a few papers and a negligible amount of small change lay close by the wallet. Superficial examination of the body revealed a bullet wound with its entrance directly over the cardiac area on the left anterior chest wall with a sharply demarcated area of blackening around the wound. There was also some tattooing noted. The course of the bullet appeared to be upward. The clothing disclosed burning and powder residue. It was evident that the firearm had been discharged at close range. There were no signs of a weapon nearby, and all outward appearances indicated a murder induced by robbery. The premises were minutely searched for approx-

*Read before the Massachusetts Medico Legal Society Octo-ber 2 1935

†Battershall Jesse W.—Medical Examiner First Bristol Dis-trict Massachusetts For record and address of author see This Week's Issue page 700

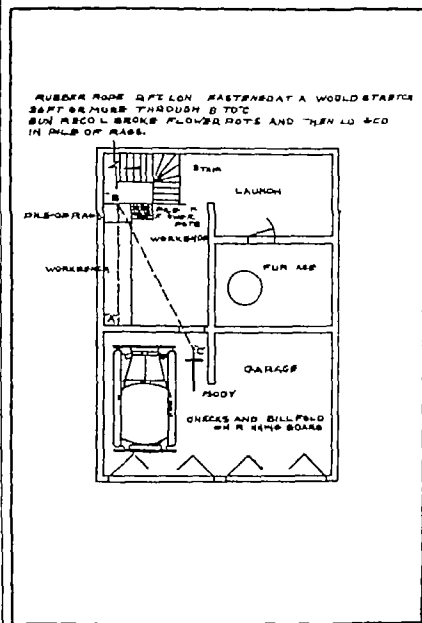
mately three hours, and finally a 32 calibre revolver was found and later identified as the property of the deceased. This came to light in a workshop about ten by twelve feet in area adjoining the garage. It was tied securely to a piece of rubber cord with heavy hempen cord which showed signs of having been broken and retied. The rubber cord was one half inch in diameter and sixteen and a half feet long, placed over the revolver there was a cardboard cone its base at the muzzle and its apex at the handle. Theoretically it seemed that the base of the cone was to be placed in close apposition to the body to deaden the report of the discharge, and also to prevent powder burns on the hands. The rubber cord ran around the leg of Mr X's work bench, through a cotton pillow and burlap bag, and along the undersurface of the bench through a series of holes made through supports under the top of the bench for a distance of about 12 feet. It could not be seen unless the observer was directly under the workbench. It developed that this cord could be stretched into the garage to a point where the body was found a distance of some thirty six feet. The existence of this ingenious contrivance was revealed by a humble flowerpot that lay freshly broken near the corner of the bench. In the investigation which followed it appeared that Mr X, on the morning of his death, had already transacted some business with a client at the latter's home and had returned to his own home a few hours before the discovery of his body. Mr X was rational showed no evidence of mental upset at the time of this transaction and, on the contrary, appeared to be jovial and in good spirits on leaving his client who apparently was the last person to see him alive.

As the inquiry went on, startling facts began to appear. Mr X was heavily insured and policies provided for double indemnity in case of accidental death. He was financially involved and was being pressed by creditors for payment of his several outstanding obligations. His home was heavily mortgaged.

On completion of the investigation it was officially decided that Mr X came to his death by suicide. Evidently the deceased assumed that on the discharge of the revolver with the attendant entry of the bullet into his body his muscles would relax and that the revolver attached to the elastic cord, would fly back into the workroom and conceal itself in the cotton pillow and burlap under the bench, thereby hindering or possibly preventing discovery. However, in passing through its return course the weapon struck the flowerpot which deflected it and thus prevented its entire concealment. (See diagram.)

The ingenuity and knowledge of the suicide often unite to dispel the appearances of self imposed death. It is frequently his aim to create an out-of-ordinary atmosphere, purposely to

mislead. The result is that commonly, the devices employed are unique in design and the method of procedure seems apparently novel. Yet it can be said only rarely that both the device and plan are original. The case under consideration illustrates this. Although it seems quite unique in design and completion this case is paralleled by the suicide of a Midwestern farmer who shot himself outside his barn and



whose pistol was found under the barn attached to a piece of rubber which had drawn it to its hiding place. Gross' records what is believed to be the first case of this sort and which occurred in Vienna toward the end of the last century. And in fiction the lovable Sherlock Holmes finds the solution of a gripping mystery in the discovery of the lethal weapon in the river into which it had been hurled by a contrivance similar to the one here employed.

None will deny that the ultimate determination of the reason for these gruesome tragedies often depends on the true discernment of the value of seeming insignificant facts. No fact is too subtle or too minor to be unworthy of notice. There is no such thing in these cases, as too many facts. Investigations must be pains taking persistent and if you will, even painful thorough.

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THE GOLDEN AGE OF MEDICAL ENDOWMENTS

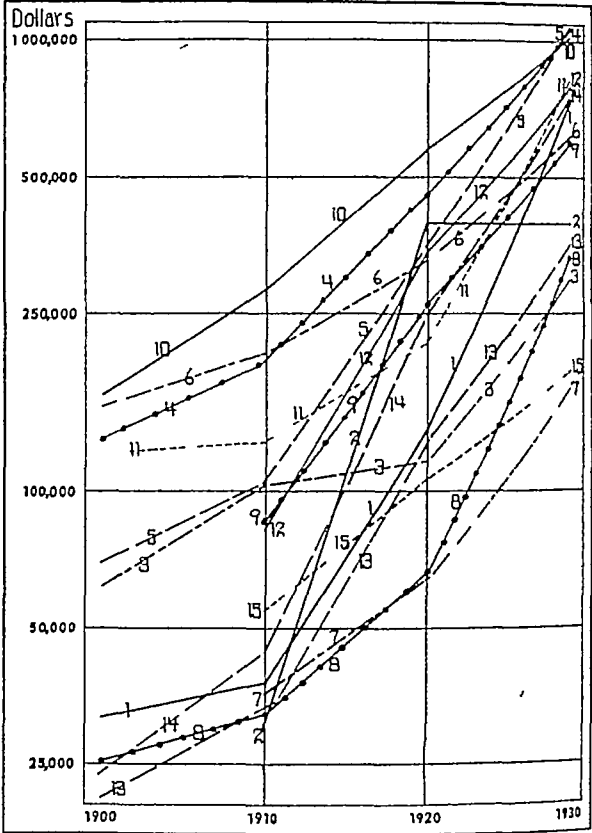
BY HENRY A CHRISTIAN, M D *

DURING the three decades, 1900 to 1930, medical education in the United States of America was supported increasingly bountifully by gifts for endowment and immediate use, rich men gave extremely generously for improvement of medical education, for increased facilities, for investigation of medical problems and for larger and better hospitals in which to care for the sick

All parts of our country received such gifts, some parts more bountifully than others, but in no section were such gifts small in amount. Practically all medical schools had their financial resources greatly augmented. The actual plan of management and teaching in vogue in the medical schools seems to have influenced gifts but little, actually very various types of organization are found in these medical schools that were helped so generously, gifts to improve medical science and medical practice by enlarging the financial resources of medical schools and hospitals came, apparently in spite of, rather than because of, form of organization, it made but little difference whether hospitals were related to medical schools or not, everywhere money came. The period 1900 to 1930 was one of unprecedented giving to all aspects of medicine.

A study of the budgets of a group of fifteen representative medical schools shows the in-

crease in financial resources, and so how little influenced by form of organization and by geo-



*Christian Henry A—Hersey Professor Theory and Practice of Physic Harvard Medical School For record and address of author see This Week's Issue page 700

CHART 1 shows ratio of the budgets of fifteen medical schools (1900-1930) illustrative of the data of table 1

TABLE 1

MEDICAL SCHOOL No 1	MEDICAL SCHOOL No 5	MEDICAL SCHOOL No 9	MEDICAL SCHOOL No 13
1900 31,367	1900 70,084	1910 85,867	1900 20,633
1910 37,091	1910 106,463	1920 259,868	1910 32,224
1920 134,144	1920 353,629	1930 593,225	1920 131,321
1930 715,056	1930 1,160,354	Increase nearly 6 fold	1930 347,652
Increase 22 fold	Increase 15 fold		Increase 16 fold
MEDICAL SCHOOL No 2	MEDICAL SCHOOL No 6	MEDICAL SCHOOL No 10	MEDICAL SCHOOL No 14
1910 30,000	1900 153,758	1900 164,074	1900 23,331
1920 387,000	1910 201,384	1910 279,915	1910 45,295
1930 387,000	1920 326,188	1920 568,177	1920 253,104
Increase 11 fold	1930 600,075	1930 1,010,384	1930 754,043
	Increase 3 fold	Increase nearly 6 fold	Increase 31 fold
MEDICAL SCHOOL No 3	MEDICAL SCHOOL No 7	MEDICAL SCHOOL No 11	MEDICAL SCHOOL No 15
1900 61,500	1910 35,204	1900 122,191	1910 54,350
1910 102,920	1920 64,659	1910 131,157	1920 105,320
1920 116,468	1930 167,628	1920 217,368	1930 182,255
1930 291,992	Increase almost 4 fold	1930 830,164	Increase 2 1/2 fold
Increase almost 4 fold		Increase nearly 6 fold	
MEDICAL SCHOOL No 4	MEDICAL SCHOOL No 8	MEDICAL SCHOOL No 12	
1900 131,455	1900 24,998	1910 81,838	
1910 197,788	1910 31,748	1920 334,006	
1920 435,521	1920 65,916	1930 776,002	
1930 1,128,826	1930 325,000	Increase over 8 fold	
Increase nearly 8 fold	Increase 12 fold		

graphic distribution. What has happened to the annual budgets by decades from 1900 to 1930 in these representative medical schools is graphically presented in chart 1, which be it noted, is on a ratio basis wherein equal vertical increments correspond to equal proportional increases in expenditure. For five schools no budget is shown until 1910. Medical school No. 14 has had proportionately the greatest augmentation of budget (thirty-one fold), No. 1 comes next in increase (twenty two fold), No. 13 and No. 5 rank next with increases of sixteen and fifteen fold respectively. No. 10 began in 1900 with the largest budget, increased six fold and was outstripped in total budget in 1930 only by medical schools No. 4 and No. 5. Medical schools Nos. 4, 5 and 10 in 1930 had budget expenditures of over \$1,000,000.00 while medical schools Nos. 1, 11, 12 and 14 spent between \$715,000.00 and \$830,000.00 each. Table 1 shows the actual budgetary expenditures of each school for 1900, 1910, 1920 and 1930 and the proportional increase from 1900 to 1930. The geographic dis-

tribution of these schools was as follows: two in the New England States, three in the North Atlantic States, one in the Mid Atlantic States, two in the Southern States, five in the Mid Western States and two in the Pacific States.

The thirty years from 1900 to 1930 comprised the golden age of medicine so far as financial support was concerned. The past few years have shown a shrinkage of assets and curtailment of expenditure, not infrequently very serious retrenchments have been necessitated. None can foresee the future, but it seems very probable that the day of great gifts for medicine is over; certainly this will be true for many years to come. Will governmental support replace private endowments and gifts? What will be the results of such a change? Here is a serious problem whose satisfactory solution will demand the best thought of medical men. This is a challenge to those now just commencing activity in medical schools and hospitals; they will be the ones to solve this problem.

LIFE EXPECTANCY

According to Dublin and Lotka in their book on "Length of Life" during the Roman Empire a baby's expectation of life was between twenty and thirty years. One hundred years ago in England it was forty years. In the United States it is now fifty-nine years for boys and sixty-two years for girls.

Dr. Alexis Carrel, Nobel laureate in medicine and otherwise famous, interjects an unpleasant thought for people of the third decade in a report to the *New York Times* expressing the opinion that a middle-aged individual has less chance of reaching eighty than his grandparents had.

He claims that resistance to fatigue, sorrows and worries has decreased and that modern man easily breaks down. He advocates a new type of scientist whose functions should be to concentrate on the study of human problems.

"HEALTH FOODS AND DRUGS SEIZED BY PURE FOOD OFFICIALS"

Stocks of health foods on sale at Washington D. C., and Boston were examined in February by inspectors of the Federal Food and Drug Administration and six items found in violation of the law. They were labeled as so to give the impression that they were foods possessing special remedial properties. The Administration says they were mixtures of various food and non-food ingredients and had no greater nutritive value than

ordinary foods. Furthermore, in some of them there were medicinal ingredients which in the view of enforcing officials have no rightful place in any thing sold as food.

The available stocks were seized on charges of misbranding. The charges as to each item are explained as follows: "Correcol," a mixture of mucilaginous seeds similar in characteristics to psyllium with gum karaya (a vegetable gum) was labeled as a "colon food" although neither ingredient had any food value. It was further claimed that the product would set up normal intestinal activity which was beyond its capabilities.

"Hauser Potassium Broth" made of dried seaweed, alfalfa, okra, potato starch, beet and rhubarb leaves contained nothing especially warranting its name, according to the allegation. The ingredients provided no more potassium than can be obtained in the normal wholesome diet. A representation that the article was a health product was similarly held unwarranted.

"Slim" which the manufacturer called "a delicious non-habit forming beverage" was in reality a mixture of senna, orange peel, anise, bladder wrack (a seaweed), buckthorn bark, dried apple and centaury flowers. The Administration flatly charged that this product, containing mostly medicines with only one true food ingredient, was not a beverage. Also, claims for the reduction of weight were held to overreach the worth of the mixture which could have a laxative effect only.—*Bulletin U. S. Department of Agriculture*

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22141

PRESENTATION OF CASE

A thirty-five year old white American garage owner was admitted complaining of pain in the chest.

The patient was perfectly well until four years before entry when he began to suffer from a steady aching pain in the arches of both feet. There was no reddening but there was said to be some slight swelling and tenderness. The duration was not recorded. He continued his daily activities and shortly afterward began to notice some dyspnea on exertion. This continued with gradually increasing severity. About a year later while in bed the patient had his first attack of chest pain. The pain was localized to the region of the left nipple and was associated with profuse perspiration. No other details were noted. About this time he began to be "quite nervous" and visited a physician who immediately referred him to a cardiologist. He was given digitalis and nitroglycerin but had no further attacks for several months. At this time precordial distress began to recur with increasing frequency. The pain now radiated down the anterior surface of the left arm to the wrist and was associated with profuse perspiration and palpitation. Relief was obtained fairly promptly by the administration of one to three nitroglycerin tablets. About a year before entry he was compelled to discontinue work because of the pain which now occurred several times daily. The distress was often not associated with either exertion or excitement. It continued to occur daily for the three succeeding months, which he spent in bed, but evidently the attacks were lessened in severity and frequency. For the remainder of the period up to his admission he led a bed-and-chair existence. An occasional short walk was permitted but this invariably precipitated an attack. He took as much as a grain of morphin without relief of pain. Gradually the frequency again increased until he suffered twelve to fifteen episodes daily, often while at complete rest and frequently awakening him from sleep. There was no orthopnea. He developed a slight nonproductive cough about a week before coming to the hospi-

tal. He had no acute joint distress although for two years he had had occasional slight pain with movement of the left shoulder and upon flexing his fingers. During the four years of his illness his weight had decreased from 190 to 145 pounds.

He had a series of twelve operations for fistula in ano done twelve or fourteen years ago.

Physical examination showed a cooperative young man complaining of pain under the left clavicle. There was profuse perspiration. The skin showed ashen pallor. The apex impulse of the heart was felt in the sixth interspace, 13 centimeters from the midsternal line. A systolic thrill was palpated at the aorta and a diastolic at the apex. A blowing systolic and a rumbling diastolic murmur were audible in the mitral area and both systolic and diastolic murmurs were also audible at the aortic area. A pistol shot sound was heard over the femoral vessels and a faint capillary pulsation was observed inside the lips and in the nailbeds. The pulse was full, pounding, and said to be of Corrigan type. The blood pressure was 160/110. There was pain on movement of the proximal phalangeal joints of the right hand and the left shoulder.

The temperature was 98°, the pulse 100. The respirations were 20.

Examination of the urine was negative. The blood showed a red cell count of 5,140,000 with a hemoglobin of 75 per cent. The white cell count was 13,700, 65 per cent polymorphonuclears. A Hinton test was negative. A blood culture was negative. An electrocardiogram showed normal rhythm with an occasional ventricular extrasystole. The P-R interval was 0.2 of a second. The Q-R-S was 15 of a second. The Q-R-S complexes were split, and the T waves extended in the opposite direction. There was left axis deviation.

X-ray examination of the heart showed marked enlargement in all directions but more prominently downward and to the left. The aorta was not dilated. The lung fields showed diffuse mottled dullness, more marked on the left side and increased density in the bases.

On the fourth day a paravertebral alcohol injection of the first to fourth left thoracic nerves was done after which the patient rapidly developed left pupillary, sudomotor and vasomotor paralysis in the upper portion of his body. Shortly afterward he complained of acute pain in the left chest. This was associated with some dyspnea and cyanosis, and a friction rub was heard in the left upper thorax. The pain was relieved somewhat by strapping the chest but the distress continued for about two days, after which the patient appeared to improve. An x-ray taken four days postoperatively showed some fluid in both pleural cavities and increased dullness in the lung bases. He had no further anginal attacks but suffered from paroxysmal

attacks of dyspnea. Nine days postoperatively he had pain high in the chest bilaterally which was aching in character and more severe on the left side. The pain persisted throughout the night and a friction rub was heard in the left upper axilla. On the following day the patient, whose condition had remained fair suddenly gasped and died.

DIFFERENTIAL DIAGNOSIS

DR WILLIAM B BREED Taking this history as it is given, it is a pretty weak description of rheumatic fever. It seems to me this story suggests the gradual onset of angina to the point of angina decubitus. Of course, at his age, without any definite rheumatic history in the past, it is a fairly good picture of cardiovascular syphilis. If, on the other hand, you take what is given you in the physical examination later on at its face value, then your point of view changes. Perhaps the description of the arches of the feet is put in to suggest that he was a rheumatic. However, I do not see how that description can be of value as a definite manifestation of rheumatic fever. You will see that he first began to have anginal pain on exertion which was relieved by nitroglycerin and gradually had to take to his bed. He had frequent attacks in bed without exertion, to a point where a grain of morphia was necessary to relieve pain. There is no episode which is described here, however, which would make us think he had a definite occlusion of any of the coronary arteries.

If this record is correct it is perfectly obvious that with a palpable diastolic thrill at the apex and palpable systolic thrill at the base in the aortic area and corresponding murmurs one must make a diagnosis of rheumatic heart disease with mitral stenosis, aortic regurgitation and aortic stenosis. Therefore the case falls at once into the rheumatic group, also, as you will see later the Hinton test is negative, which helps to rule out the syphilitic suggestion. He was obviously in shock from pain with the ashen pallor and the profuse perspiration that occurs from any pain, gallbladder pain, ureteral colic, a true coronary thrombosis or from severe anginal pain.

Presumably there was no bacterial endocarditis. There was no anemia, and at least one blood culture was negative. The P-R interval was at the upper limit of normal. The Q-R-S complexes were split, with the T waves extending in the opposite direction, indicating intraventricular block, presumably left bundle branch block, which indicates severe myocardial damage, or coronary disease. One cannot tell either by physical examination or electrocardiogram whether this man ever had a definite coronary occlusion but it does indicate that he has severe myocardial damage with angina and so

presumably a good deal of coronary disease. May I ask Dr Holmes to look at the x rays?

X RAY INTERPRETATION

DR. GEORGE W HOLMES The x ray examination covers only a period of three days. This is one of the first films taken and it shows a definitely enlarged heart. The enlargement is almost wholly to the left and appears to be left ventricular enlargement. It is possible of course, that the right ventricle is also enlarged but the horizontal position and general shape is more suggestive of left ventricle. In addition he has definite changes in the lung roots with thickening and mottling extending out into the lung from the roots—the appearance of stasis rather than bronchopneumonia. There is a slight increase in the width of the supracardiac shadow if we look at the films taken in the oblique view. We have a fairly good outline of the aorta and I think we can safely say it is not dilated. If that observation is correct he probably does not have luetic or hypertensive heart disease.

We have a film taken three days later in which there appears to be considerable change in the heart during the interval but part of it may be due to a difference in the way in which the films are taken. This is a portable film and taken at a shorter distance and part of this increase in size is due to that. It does look as if the heart were a little larger and the changes in the lung became more marked.

DIFFERENTIAL DIAGNOSIS CONTINUED

DR. BREED Before we go into the definite cause of his death I should like to say a word about the question of when his rheumatic infection began. I doubt very much that it began four years prior to his entry, when he complained of painful arches. Such rapid progress from a mild rheumatic infection in a man of thirty along cardiac lines is very unusual. I should assume that he had had a rheumatic infection previously and that for a number of years he probably had rheumatic heart disease without symptoms. Whether the pains in his arches were due to rheumatic fever I think is entirely academic and it is of no particular value to decide that question here. He was given the alcohol injection because of angina, and I should therefore doubt that he had had an occlusion prior to this because he probably would not have been selected for such a procedure if it had been known that he had had any amount of cardiac infarction. We know, also, that people with rheumatic heart disease are prone to early coronary disease. I think we can rule out syphilis very well. Now what did he die of? I think that is somewhat academic too because he did not have any particular episode lasting a few days, and the ninth day he died rather

suddenly having had some chest pain twenty-four hours previously. There are three possible causes of his death. One of them is a large occlusion, one a pulmonary embolus and another is a rent in the aorta or in the myocardium. I suppose we are expected to say one, two and three on this. The appearance of the friction rub after the pain not over the precordium but high in the left axilla is not very helpful. Just for the sake of making it interesting I will put (1) pulmonary embolus, (2) large fresh occlusion with infarction (a little rapid for that but it might be big enough) and (3) some mechanical tearing or rupture of the aorta or of the myocardium.

CLINICAL DISCUSSION

DR EDWARD F BLAND This was a very unusual case and we believe it belongs in a relatively rare group which Lewis described in part in 1931.

There are a few interesting points that were not brought out in the story. In the first place he was only thirty-five years of age when he died. He had the beginning of his arthritic symptoms at thirty-one. Prior to that he had had a number of physical examinations for insurance and his heart had been normal. Furthermore, shortly after the onset of his arthritic symptoms his heart was said to be involved and within one year of the onset of rheumatism he began to have angina pectoris, within two years he was bedridden with angina pectoris decubitus. He was referred from Ohio to Dr J C White in this hospital for surgical relief of the pain. Formerly he had been accustomed to take as many as fifty nitroglycerin tablets during twenty-four hours. When he entered here we felt he had some form of active cardiovascular disease. We believed lues had been ruled out and thought it probably rheumatic in nature because of the repeated joint pains. This impression was further supported by the following findings: slight periauricular swelling around the small joints of the hands, an elevated sedimentation rate and a persistent leukocytosis, together with a P-R interval by electrocardiogram of 2 of a second. Clinically we were certain he had active rheumatic disease. This was further suggested by the atypical form of angina pectoris which he had. Lewis has fully described the syndrome. The attacks usually come at night without adequate provocation and are associated with a striking rise in blood pressure. We have observed one similar case at the House of the Good Samaritan where the blood pressure rose from 160 systolic to over 300 systolic during these attacks. They are accompanied by a sinus tachycardia of 130 to 140 with profuse sweating and flushing of the skin and considerable associated respiratory difficulty, all of which were present in this patient. Furthermore, in the milder attacks they may

not have pain, but only the associated circulatory phenomena. It is only with the severe attacks that they have typical anginal pain. After the alcohol injection his angina pectoris was completely relieved but he continued to have paroxysmal attacks of the profound circulatory disturbances which had been previously noted. As to the exact cause for his sudden death, we had no adequate explanation except, as Lewis pointed out, they are prone to die suddenly.

DR EARLE M CHAPMAN What percentage of cases of proved cardiovascular lues may have a negative Hinton?

DR BLAND There are figures from Baltimore indicating about 15 per cent.

DR MALLORY That is the Wassermann.

DR BLAND Yes.

DR TRACY B MALLORY The Hinton is certainly more sensitive, so I should think you could cut that figure in half.

DR BREED Does anyone here think this man had cardiovascular syphilis?

DR BLAND One further point I would like to make. All of these people with this form of angina pectoris have been relatively young, all have had free aortic regurgitation and in our experience it has been rheumatic in origin.

CLINICAL DIAGNOSIS

Rheumatic heart disease, aortic and mitral valve involvement

DR WILLIAM B BREED'S DIAGNOSES

Rheumatic heart disease
Mitral stenosis and regurgitation
Aortic stenosis and regurgitation
Pulmonary embolus

ANATOMIC DIAGNOSES

Subacute aortitis and aortic endocarditis—unknown etiology
Aneurysm of the mouth of the left coronary artery
Aortic insufficiency
Hypertrophy and dilatation of the heart
Chronic passive congestion
Anasarca
Congenital malformation of the right kidney

PATHOLOGIC DISCUSSION

DR MALLORY Let me show you first the picture of this man's aorta and aortic valve. One of the commissures of the aortic valve was cut directly through in opening the heart but the other two show clearly. Their points of attachment to the aorta appear to be much lower than normal so that the sinuses of Valsalva and the mouths of the coronaries are more evident than usual. There is no interadherence but neither is there definite separation. The cusps are markedly thickened and appear to be

stretched rather taut across the dilated ring. There are no vegetations on them. The walls of the sinuses and the first 25 centimeters of the ascending aorta show a pannus-like overgrowth of pink, wrinkled fibrous tissue. Only



the minutest atheromatous flecks could be made out on close scrutiny. The upper margin of involvement is irregular but very sharp and the aorta beyond is perfectly normal.

The mitral, pulmonic and tricuspid valves were all negative—not the slightest suggestion of rheumatic involvement and their circumferences were all within normal limits. The circumference of the aortic valve was 10 centimeters 2 centimeters above normal limits so there could have been no stenosis of either the aortic or the mitral. Both right and left ventricles were dilated and their walls were markedly hypertrophied. The heart weighed 900 grams.

The margins of the sinuses of Valsalva are difficult to make out because of the endarteritic process but it is evident that the mouths of both coronary arteries are above them and arise from the aorta proper. The mouth of the left one was involved in a small aneurysmal dilatation 1 centimeter in diameter and 0.5 centimeter in depth, which is not apparent in the photograph. The mouth of the right one was narrowed and can be seen as the crescentic slit just medial to the left hand commissure. Beyond their mouths both main coronaries and all their major branches were entirely negative.

Histologically the intima of the involved areas shows a marked overgrowth of fibrous tissue with little or no inflammatory infiltration. The media under these areas is invariably highly vascu-

larized with foci of absorption of muscle cells and elastic lamellae. The penetrating vessels are often surrounded by cuffs of lymphocytes. In the adventitia the perivascular inflammatory infiltration is very marked. In other words, the picture is a textbook one for fairly acute syphilis of the aorta. Whether such a diagnosis is justified however, is open in my opinion to real doubt. Perhaps we had best postpone the final discussion till after the next case. Microscopically numerous small foci of muscle cell absorption without leukocytic reaction were found scattered irregularly throughout the myocardium. No Aschoff bodies were demonstrated.

Outside the heart and aorta we found little of importance. There was a rather marked hypertrophic arthritis of the spine. There was, of course, moderate anasarca and marked chronic passive congestion. The right kidney was anomalous, showing no development of the upper pole.

DR. BREED. I would like to make one comment about the mitral valve. We are beginning to be willing to accept a mitral diastolic murmur before death without presupposing stenosis but we are not as a rule willing to accept a definite diastolic thrill in the mitral area without diagnosing stenosis. Therefore, I should like to cast some doubt on that observation. It is not easy to time thrills. Dr. Bland saw this patient, and so I should like to ask him if he is perfectly clear in his own mind that there was a definite diastolic thrill in the mitral area.

DR. BLAND. No, I agree with Dr. Breed. Perhaps it would help if I read this short description of my findings. 'Cardiac sounds at the base are masked by a loud harsh systolic and blowing diastolic murmur. At the apex is a slight systolic and a moderate mitral rumble (no thrill).'

CASE 22142

PRESENTATION OF CASE

First Admission. A twenty five year old white American laborer was admitted complaining of pain and swelling of the joints.

About six years before entry the patient began to have pains and some swelling in his feet. These persisted for about two years, at which time strapping and orthopedic treatment relieved the distress. However for the two years preceding admission both feet and ankles became intermittently swollen and painful. One and a half years prior to entry his right wrist became swollen and motion was painful. About a year later his right heel became swollen and was quite tender. X-ray examinations showed spurring in this region. For four months before entry he had frequent pain and some stiffness in his lower back. Despite these symptoms he

continued with his work. There were occasional night sweats and slight morning cough of some two years' duration.

He had had an acute attack of gonorrheal urethritis two and a half years before entry and again a year later. Both attacks subsided promptly with vigorous medical care.

Physical examination showed a well-developed and nourished young man in no discomfort. Several small discrete nodes were palpable in the cervical, axillary, epitrochlear, and inguinal regions. The lungs were clear. The heart was not enlarged. The sounds were normal. The blood pressure was 110/65. Tenderness was elicited over the tenth, eleventh and twelfth dorsal spines. There was swelling and limitation of motion of the right wrist joint. Tenderness was elicited over the metatarsal arches and about the insertion of the right Achilles tendon.

The temperature, pulse and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 5,500,000, with a hemoglobin of 100 per cent. The white cell count was 9,600, 55 per cent polymorphonuclears. The sedimentation rate was 85 millimeters per minute. A gonococcus complement fixation test was negative. The uric acid was 2.6 milligrams per cent. A Hinton test was negative. The basal metabolic rate was minus five. Prostatic fluid was negative for gonococcus. Gastric analysis showed free acid. A sugar tolerance test showed a normal curve.

X-ray examination showed no evidence of dental or sinus infection. There were proliferative changes about the margins of the right wrist joint. The vertebral column was negative. A gallbladder series and barium enema were negative. The lungs were clear and the heart was normal.

The patient's condition remained essentially unchanged. His course was afebrile save following the administration of typhoid vaccine intravenously and gonococcus vaccine subcutaneously, at which times he had sharp rises in temperature. He was discharged on the twenty-sixth hospital day.

Second Admission, three months later

The patient remained fairly comfortable for two months after discharge. Thereafter there was recurrence of all joint pains in both wrists, lower back, and left sacio-iliac regions. The right heel remained persistently painful and he returned to the hospital for relief of this symptom.

Physical examination showed the patient's condition to be essentially unchanged. There was tenderness over the ninth dorsal spine with limitation of spinal movement. There was tenderness over the right wrist joint, proximal joints of the first and second left metatarsals and posterolateral aspect of the right heel.

The blood showed a white cell count of 10,800, 40 per cent polymorphonuclears and 60 per cent lymphocytes.

A bursa was removed from beneath the right Achilles tendon and the patient was discharged five days later.

Final Admission, nine months later

Except for intermittent recurrence of pain in the various joints the patient felt fairly well and six months before returning to the hospital he worked in a hayfield for about a month. At the end of that time increasing joint pain precluded such activity. He stated that he felt a little weak thereafter but was not obviously ill until two weeks prior to reentry. He then developed slight productive cough, palpitation and dyspnea with moderate exertion. These symptoms progressed rapidly in severity.

Physical examination showed the patient to be well nourished, orthopneic, and moderately cyanosed. His eyes were staring and there was slight fullness of the neck veins. The tongue was furred and the throat was angry red. The heart was found to extend 4 centimeters to the right of the midsternal line and 10 centimeters to the left in the sixth inter space. Rough aortic systolic and diastolic murmurs were heard best in the carotids. A_2 was absent. A systolic bruit was audible in the pulmonic area, and P_2 was accentuated. A presystolic thrill and murmur were present in the mitral area. The blood pressure was 125/65. Fine moist rales were audible at both lung bases. The liver was tender and extended three fingerbreadths below the costal margin. The right wrist joint was partially ankylosed and there was swelling of the left ankle. No note of edema was made.

The temperature was 100°, the pulse 100. The respirations were 30.

Examination of the urine showed a trace of albumin but was otherwise negative. The blood showed a red cell count of 3,800,000, with a hemoglobin of 60 per cent. The white cell count was 10,500, 78 per cent polymorphonuclears. The stools were negative. The nonprotein nitrogen of the blood was 40 milligrams. Repeated blood cultures were negative. The sedimentation rate was 38 millimeters at the end of one hour. The vital capacity was 1,500 cubic centimeters. An electrocardiogram showed normal rhythm with evidence of left bundle branch block. Another gonococcus complement fixation test was negative.

X-ray examination showed a mitral shaped heart with marked pulmonary artery enlargement.

Shortly after admission a pericardial friction rub appeared. The temperature continued to be elevated and fluctuated between 99° and 102°. At the end of the second week the cardiac dullness appeared to be increased and the patient became quite markedly dyspneic. A pericardial tap afforded no relief and on

the following day while receiving intravenous glucose, he suddenly became markedly cyanotic, went into collapse, and died shortly afterward on the fifteenth hospital day, thirteen months after the first admission.

DIFFERENTIAL DIAGNOSIS

DR. HOWARD B. SPRAGUE If we leave out all the inside of this record and think of the first part and the last part, we have a boy who at the age of nineteen begins to have joint pains which are troublesome off and on for the rest of his life and he dies seven years later with evidence of valvular disease. This would seem to be all right for setting up a diagnosis of rheumatic heart disease. It is only when you look at the rest of the data in the record that you think this might be a diagnosis to shoot at rather than to accept offhand. I should like to know what sort of arthritis he had during these years. Apparently it troubled the people in the hospital as much as it troubles me. He certainly was thoroughly investigated so far as the etiology of his arthritis is concerned. It was apparently a proliferative affair with partial ankylosis and calcification of a joint. I do not know whether there is an intermediate type of infectious arthritis which is the same thing as rheumatic fever, but I do feel that we see patients who have some joint changes of a permanent nature associated with rheumatic fever and who have cardiac changes typical of rheumatic heart disease. We have come to look at such a patient on the ward from the standpoint of diagnosis in this way—we listen to the heart in order to make a diagnosis of the kind of arthritis he has. If the patient has rheumatic heart disease what he has in his joints is rheumatic fever. I am not at all impressed in the present case with the fact that the gonorrheal infection bears any clear relationship to this unless it was a further activating agent. I should like to hear from Dr. Bauer some time as to what kind of arthritis the patient had.

At his first admission he had an entirely normal heart. You can see that his various tests were entirely normal except the sedimentation rate. I take it that this was elevated and on the second admission it was also elevated but reported a different way. He had no increase in uric acid in the blood. The Hinton test was negative. You will see that at times he was an orthopedic problem and had treatment for pains in his feet and later on he became a surgical orthopedic problem with dissection of a bursa and other times was a straight medical problem. However, he was able to leave the hospital after this palliative operation but returned in nine months with all these findings in his heart. That is the disturbing thing that in such a short time he could develop all this cardiac pathology. He has a rough aortic systolic and diastolic murmur which was heard

best in the carotids but I take it they were also heard over the heart, and the aortic second sound was absent. That certainly suggests something wrong with the aortic valve and it is very difficult for me to believe that he could develop rheumatic aortic stenosis, which this suggests, in nine months. He had a presystolic thrill and murmur at the mitral area. Again I feel that he could not have developed mitral stenosis.

DR. WALTER BAUER I did not think that there was a presystolic thrill. The only murmur I remember hearing was the aortic diastolic one.

DR. SPRAGUE He came in this last time with more evidence of active infection. He had some anemia and his temperature rose to 102°. The question of bacterial endocarditis apparently was quite seriously considered because he had many blood cultures, consistently negative. An electrocardiogram showed left bundle branch block. Could we have some report about the x ray? Dr. Holmes?

DR. GEORGE W. HOLMES These are films of the chest. This is the early film and I think it shows normal heart and lungs. It is possible that there is a little widening across the aortic arch. It was taken at full inspiration and I think we would have to interpret it as normal. A later film, this again is not a seven foot film, probably a portable film very much underexposed and distorted. We cannot see a considerable part of the heart outline or of the lung structure. I think this probably represents the upper border of the heart. Here is the left border, a somewhat triangular shaped heart of the type we see in mitral disease or dilatation and in addition we have the changes in the lung which go with passive congestion. I do not believe that these findings help much in the diagnosis. He has no dilatation of the aorta. That might help you some.

Was a pericardial friction rub heard? That is of importance.

There is a rough spur on the undersurface of the os calcis. I do not know that it is of any significance.

DR. SPRAGUE Do you think it is significant of gonorrheal infection?

DR. HOLMES They are said to be more common with gonorrheal infection but they also may be due to trauma.

DR. SPRAGUE The statement about the pericardial tap is rather ambiguous to me.

DR. EDWARD A. GALL There was about 100 cubic centimeters, clear at first and bloody toward the end.

DR. SPRAGUE The possibilities here seem to be rheumatic carditis or an acute bacterial process. We might mention the possibility of lues in this case although the Hinton is negative and the patient is three years younger than the youngest patient with fulminating luetic

aortitis that we have had here, I believe I do not believe that he has bacterial endocarditis due to the gonococcus. It seems to me that his gonorrheal infection quieted down and there was too much time in between for this to be an acute process from that and statistically the figures are very much against it. I believe we have not had any case autopsied here of acute gonorrheal endocarditis. Against bacterial endocarditis is the fact that we have no evidence of petechiae, negative blood cultures and essentially negative urine, and the occurrence of pericarditis. Pericarditis does occur with acute or subacute bacterial endocarditis but it is relatively rare. The signs in the heart if we are to explain them on the basis of acute bacterial endocarditis make one think that large vegetations might be present in the mitral and aortic valves which would produce, both of them, enough obstruction to suggest a stenosis of the valve. That can occur. Also, there may have been enough ulceration of the aortic cusp to result in the disappearance of the aortic second sound. The left bundle branch block could be caused by a metastatic abscess in the region of the left branch of the bundle of His or obstruction in the region of the coronary ostia, or could, of course, be due to active rheumatic carditis. On the whole I should think that the rapid progress in this case, so far as the heart is concerned, pointed to a relatively acute bacterial endocarditis without clear evidence that the several years of joint pain had resulted in any definite rheumatic process on which it was engrafted.

CLINICAL DISCUSSION

DR BAUER. This individual did not seem to be much of a diagnostic problem so far as his joint disease was concerned until the time of his last admission. As you can see from the detailed arthritic work-up, he was thought to have arthritis. We hope some day soon we shall have sufficient data of this sort to enable us to discontinue this detailed statistical type of study.

We thought we were dealing with an individual who had proliferative arthritis or the chronic rheumatoid type of arthritis. The question of gonorrheal arthritis was raised from time to time primarily because of the fact that he had had an asymmetrical type of arthritis rather than a symmetrical type, secondly, because he did have spurs, and thirdly, because he had Achilles tendon involvement. We do know that we can see atypical rheumatoid arthritis which is anything but symmetrical, although a larger percentage of patients with the disease have symmetrical joints involved. We further know we can have spurs from other causes than gonorrhea, such as trauma. We also know we encounter calcaneal spurs in the chronic rheumatoid type of arthritis. Given an individual with arthritis and Achilles tendon involvement one

should always appreciate that the two most likely things to cause such involvement are either a gonorrheal infection or gout. However, we do occasionally see Achilles tendon involvement in rheumatoid arthritis.

He was followed in the arthritic follow up clinic as an uncomplicated case of rheumatoid arthritis. When one encounters a patient with chronic progressive arthritis of years' duration he can feel perfectly safe in betting a thousand to one that it is not due to the gonococcus. In other words, the gonococcus is not responsible for a chronic progressive type of arthritis of years' duration. It does cause arthritis which may disable a patient for weeks or months. The patient may recover without residual joint changes. In other instances the patient may recover with considerable evidence of joint change or damage in one or more joints. Once such changes have occurred subsequent use of the joints may produce a progressive traumatic arthritis. In such cases we are dealing with a traumatic or degenerative type of arthritis secondary to faulty joint mechanics resulting from the previous gonorrheal arthritis. Certain individuals have recurrent attacks of gonorrheal arthritis but in such instances the patient is symptom-free between attacks. Such patients do not suffer from a slow, chronic, progressive, deforming arthritis extending over a period of years such as we see in rheumatoid arthritis.

Dr Sprague stated that given a patient with arthritis and rheumatic heart disease, the presence of rheumatic heart disease means that the joints are part and parcel of a rheumatic fever infection. I cannot agree with this statement. In certain instances this is undoubtedly correct, in others it is not. I do not remember what I wrote in the record at the time of this man's last admission. As I remember the case, my best guess would have been "God knows." I believe I thought that we were dealing with an individual with—I will read the notes.

"We have never been too certain of the type of arthritis present in this individual although we had previously favored a diagnosis of a specific infectious arthritis rather than rheumatoid arthritis. Although he has had arthritis two or three times we have no absolute proof that those episodes were due to gonococcus. The complement fixation tests have always been negative."

There is something missing in the history, that is, he had had two attacks of arthritis, the first attack having appeared six weeks prior to his first hospital entry.

"The question is whether we are dealing with rheumatic fever and rheumatic pericarditis in an individual who has had rheumatoid arthritis for seven years. This is very important from the etiologic point of view. Are rheumatic

fever and rheumatoid arthritis due to the same etiologic agent? At present we have no way of proving it."

The local doctor when written to could not tell us that he had found Gram negative diplococci in the prostatic smears obtained at the time of the first attack of arthritis.

At the time of his last admission I thought he had one of two things either an acute endocarditis or an active rheumatoid pericarditis in addition to the previously existing rheumatoid arthritis.

DR. FREDERICK T. LORD: I saw this patient only at the time of his first admission. The two attacks of gonorrhea occurred some time after the onset of the arthritis and there seemed no reason to assume that he had had an earlier attack. Absence of a history of gonorrhea preceding the arthritis and our failure to prove the presence of gonorrheal infection led us away from the diagnosis of gonorrheal arthritis and we made a diagnosis of infectious arthritis.

CLINICAL DIAGNOSES

Rheumatic heart disease
Aortic stenosis with regurgitation
Mitral stenosis
Pericarditis with effusion
Congestive failure
Pulmonary embolus

DR. HOWARD B. SPRAGUE'S DIAGNOSES

Subacute bacterial endocarditis involving the aortic and probably the mitral valves
Chronic infectious arthritis

ANATOMIC DIAGNOSES

Subacute aortitis and aortic endocarditis of unknown etiology
Hypertrophy and dilatation of the heart
Thrombosis of the right auricular appendage
Pulmonary embolism
Chronic passive congestion
Hydrothorax, bilateral
Chronic infectious arthritis

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: This man's heart except for its slightly smaller size looked almost identical with the preceding one. It weighed 580 grams. There was the same type of involvement of the aortic valve and then the same queer fibrous growth over the intima of the first portion of the ascending aorta. In this case, however, the lesion extended only a centimeter up the aorta but balanced this by extending about the same distance down over the ventricular endocardium below the aortic valve. Microscopically the picture is very similar to that in the preceding case though it appears slightly more acute. There is again a marked fibrous thickening of the intima with

swollen active looking fibroblasts but little leukocytic infiltration. The media shows focal absorption of muscle cells and elastic fibers and marked vascularization. There is more leukocytic infiltration in these slides with some polymorphonuclears, many monocytes and many lymphocytes. The vessels of the adventitia show perivascular cuffing with lymphocytes and also show definite endarteritis. The findings are consistent with the acute stage of syphilis. With this in mind Levaditi stains were done but no spirochetes could be demonstrated. The myocardium as in the preceding case showed focal areas of degeneration without leukocytic reaction but nothing suggesting either gummatous or Aschoff bodies. The final episode in this case was pulmonary embolism—a single large embolus which apparently arose from a thrombus in the right auricle. Several joints were turned over to Drs. Bennett and Bauer for examination and Dr. Bauer will report on them.

DR. BAUER: I should like to say that the few joints we were able to examine showed changes which we ordinarily call the characteristic changes of an early rheumatoid arthritis. I believe that in this particular case one is almost forced to make two diagnoses unless they are willing to agree at this time that these two diseases are due to the same etiologic agent as some of our New York colleagues would lead us to believe. How would you interpret this case of Dr. Sprague's?

DR. MALLORY: It is evident that the two cases we have discussed this morning are so closely similar that it is only reasonable to assume that they represent the same disease entity. What that is, however, is still a matter of doubt. In each case the anatomic lesion is typical of the acute stage of luetic involvement of the heart and aorta, a lesion that for two generations has been considered pathognomonic. Yet a considerable array of significant arguments can be marshaled against such a diagnosis. In the first place there are the negative Hinton tests. These are of course not conclusive but seven years' experience with the Hinton test in this hospital has convinced me of its high degree of sensitivity. The frequency with which it picks up congenital cases vascular and bone cases, and neurosyphilis in which the Wassermann is negative makes it seem unlikely that two cases in the acute stage would have been missed. Barring these two cases the Hinton has failed to pick up only one luetic aortitis in the last twenty we have demonstrated at postmortem whereas the Wassermann has missed three. The negative Levaditi in case 22141 is again of some significance though the unreliability of all spirochete stains is notorious. The absence of any history of syphilis is worth consideration. As Dr. Sprague pointed out twenty-six is younger than any proved case of aortic syphilis in our experience. The clinical evidence it seems to me is strongly against the diagnosis of syphilis.

What about the validity of our anatomic and histologic criteria? The last ten years have been prolific of discoveries of new diseases of the blood vessels and many lesions that would formerly have been ascribed to syphilis are now recognized as pathologic entities. Rheumatic fever is now known to cause extensive and severe aortitis, which though usually limited to the outer half of the media may cause significant endarteritis as in cases reported by Pappenheimer and Van Glahn and by Perla. Such extensive destruction of the media as these two cases we are discussing today showed has not, however, been reported, and Dr Pappenheimer, who was kind enough to look at these sections for me, was not inclined to believe they were rheumatic.

That other types of aortitis exist, however, is certain. Klinge has described extensive aortitis in malignant hypertension when syphilis

could apparently be excluded. I have personally seen an acute diffuse aortitis as the only anatomic cause of death. It is not impossible that some of these as yet unclassified processes may produce lesions indistinguishable from those of syphilis.

I imagine the majority of pathologists would classify these two cases as luetic. I can certainly offer no positive evidence to the contrary, yet I find myself distinctly skeptical of that diagnosis. We have insufficient positive evidence to claim they are rheumatic but I do not believe that possibility can be excluded, and particularly in Dr Sprague's case the evidence is very suggestive. There remains the possibility of aortic endocarditis of unknown etiology, perhaps the precursor of certain of the mysterious calcific aortic stenoses ordinarily met only in their healed stages in elderly people. I must leave you to make your own choice.

The New England Journal of Medicine

SUCCESSOR TO

THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1822

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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for the United States Canada \$7.00 per year \$8.25 per year
for all foreign countries belonging to the Postal Union.Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office at Fenway.The Journal does not hold itself responsible for statements
made by any contributor.Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass.

DIABETES AND TUBERCULOSIS

THE Statistical Bulletin of the Metropolitan Life Insurance Company for February comments upon the comparative mortality from Diabetes and Tuberculosis. It has been well known that the mortality rates for the former disease are rising while those for the latter are falling, but many will be surprised to learn that these converging trends are expected to cross each other in the not distant future. For white females the diabetic death rate actually exceeded that for tuberculosis in fourteen states during the two year period of 1933-1934. The male diabetic death rate will equal or exceed the tuberculosis rate at a more distant future because it is generally so much lower than that of the female diabetics. Among the colored population, and in some of the Southern and certain "resort" States, the approach to the tuberculosis rate, on account of its relative height, is much less apparent. The general trend throughout the country, however, is unmistakable.

It is sometimes said that one half of the world

does not know how the other half lives—but it is easy to know in a general way, how the other half dies. What may be more difficult is to ascertain why the other half dies as it does. The declining tuberculosis death rates have been quoted to illustrate the beneficence of everything from mountain air to salt water and in between they have sold a lot of cough drops. The increase in diabetic deaths, on the other hand is not so naïvely explained, indeed the Census Bureau presents us with the paradox that the more successfully we treat the disease the greater will the death rate be. To die of diabetes one used to have to die in coma. Today coma deaths are rare diabetics are kept alive indefinitely. They can live to die of a hundred other legitimate causes and still be classified as diabetic deaths by the Census Bureau. Because the diabetic trait is a maturing one the fact that human longevity is increasing adds many new cases of diabetes to the population each year. These new cases will all eventually be recorded as diabetic deaths—and the longer we keep them alive the greater will be the "mortality" for which we have to answer.

As an elderly physician of the latter part of the last century used to say "Although one should never give up a patient until three days after he is dead no doctor can be expected to save a man from his last illness."

A LEGISLATIVE MISTAKE

AN amendment to Section One Hundred, Chapter One Hundred and Twenty Three of the General Laws of the Tercentenary Edition (House 40) was introduced to the Massachusetts Legislature by Dr Winfred Overholser the Commissioner of Mental Diseases.

This amendment provided in substance that when a person under complaint or indictment for a crime was found by the court to be insane or in such mental condition that his commitment to an institution for the insane is necessary for his proper care or observation pending the determination of his mental condition the court may commit him to a 'State Hospital or to the Bridgewater State Hospital'. The court may then employ experts to examine the defendant and pay all expenses incident to the study. The amendment further provided that examiners thus employed should be physicians registered in this Commonwealth and qualified by training and experience to carry out this procedure.

It is the duty of the Department of Mental Diseases to advise the Commonwealth from time to time of such matters as may be pertinent in dealing with insanity and the Commissioner properly met his obligation, evidently with the purpose of saving the State from error and applying justice to a defendant.

How did the Legislature behave when this

amendment was before it? The House approved and the bill went up to the Senate. There then ensued a disgraceful exhibition of opposition to a plan which would, if adopted, make court procedure more dignified and give assurance of intelligent treatment of a responsibility which will have to be met quite frequently.

During the Senate debate on this bill certain Senators, true to form on other occasions, ridiculed and insulted physicians recognized by the profession as eminent exponents of the application of scientific medicine to human needs. The bill was rejected.

Progress in several attempts to provide this Commonwealth with the best possible medical service has been prevented for many years by such people.

This deplorable state of affairs does not seem to be regarded seriously by the citizens of Massachusetts and is likely to be repeated unless public opinion becomes articulate and sentiment provokes action in improving the quality of statesmanship.

Unfortunately doctors find legislative responsibilities unattractive and few are willing to make the sacrifice involved in entering political life. These recent exhibitions of bad behavior will tend to deter medical men from seeking election to this chamber, but we need them there. The opportunity for honorable service should appeal to those who can afford to give time to it. If this sentiment could be expressed by organized medicine, it might lead some of our doctors to engage in this field of public service. A deliberative body that permits crude and indecent brawling in its proceedings needs the infusion of a dignified membership. The Senate as now constituted seems impotent to correct its faults. How long must we endure these insults?

The Massachusetts Medical Society

THE SCIENTIFIC EXHIBIT

In recent years, medical meetings have made a feature of the Scientific Exhibits. Of ever-increasing merit year by year, these exhibits have become an important feature of the meetings.

According to precedent, the forthcoming meeting of the Massachusetts Medical Society in Springfield promises to include features of interest to its members in the Scientific Exhibit. Modern methods of diagnosis and treatment in both surgical and medical fields are to be emphasized. Two exhibits on cancer treatment promise to be of interest: two on pathology, one on recent advances in chest surgery, another on plastic surgery, one on pneumonia and still another on anemia will engage the interest of all

Recent advances in diagnosis and therapy will be emphasized throughout.

The Scientific Exhibit will, as last year, be in the main hall together with the Commercial Exhibit. All members attending the meeting will find many items of interest in both exhibits.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

STEIN, CALVERT D.N.B., M.D. Tufts College Medical School 1928. Senior Physician, Monson State Hospital, Palmer, Mass. (Visiting) Psychiatrist, Springfield Hospital Child Guidance Clinic. His subject is The Role of Mental Hygiene in General Practice. Page 665. Address: Monson State Hospital, Palmer, Mass.

SMITH, GEORGE GILBERT A.B., M.D. Harvard University Medical School 1908. F.A.C.S. Visiting Urologist, Massachusetts General Hospital. Urologist, Palmer Memorial and Huntington Memorial Hospitals. His subject is Urological Complications in General Surgery. Page 672. Address: 6 Commonwealth Avenue, Boston, Mass.

COYLE, JOHN A. B.S., M.D. McGill University Faculty of Medicine 1928. Otolaryngologist, Hitchcock Clinic, Hanover, New Hampshire. Address: Hanover, New Hampshire. Associated with him is

SYCAMORE, LESLIE K. B.S., M.D. Harvard University Medical School 1927. Roentgenologist, Mary Hitchcock Memorial Hospital. Address: Hanover, New Hampshire. Then subject is Foreign Bodies in the Air and Food Passages. Page 677.

EUSTIS, RICHARD S. A.B., M.D. Harvard University Medical School 1911. Instructor in Pediatrics, Harvard University Medical School. Physician to Children's Medical Service, Massachusetts General Hospital. Consulting Pediatrician, Boston Lying-in Hospital and House of the Good Samaritan. His subject is Care of the Newborn. Page 681. Address: 319 Longwood Avenue, Boston, Mass.

BATTERSHALL, JESSE W. M.D. Tufts College Medical School 1916. Medical Examiner First Bristol District, Massachusetts. Member of Staff, Sturdy Memorial Hospital, Attleboro. His subject is A Study in Feigned Murder. Page 686. Address: 18 North Main Street, Attleboro, Mass.

CHRISTIAN, HENRY A. A.M., LL.D., Sc.D. (Hon.) M.D. Johns Hopkins University School of Medicine 1900. Hersey Professor, Theory and Practice of Physic, Harvard Medical School. Physician-in-Chief, Peter Bent Brigham Hos-

pital, Boston. His subject is The Golden Age of Medical Endowments Page 688 Address Peter Bent Brigham Hospital, Boston Mass

The Massachusetts Medical Society

THE REVISION OF THE JOURNAL MAILING LIST

ACCORDING to a vote of the Council the names of all Massachusetts Medical Society members whose dues for the current year are unpaid March 1 shall be removed from the mailing list of *The New England Journal of Medicine*

The Editor of the *Journal* was, therefore obliged this year to suspend sending the *Journal* to 653 Fellows This is a smaller number than last year

Fellows who wish to avoid loss of numbers of the *Journal* should immediately forward payment to their District Treasurers

SECTION OF OBSTETRICS AND GYNECOLOGY*

C. J. KIRKHAM M.D., Chairman 524 Commonwealth Ave., Boston Mass.	R. S. TITUS M.D., Secretary 472 Commonwealth Ave. Boston Mass.
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CORPUS LUTEUM TREATMENT OF THREATENED ABORTION

The diagnosis of threatened abortion is properly made when uterine bleeding or painful rhythmic uterine contractions occur before the twenty eighth week of gestation It is true that many pregnancies otherwise normal which progress to term without treatment are associated with a slight bloody discharge for one or two days usually during the first few months and some such have a few hours of painful uterine contractions However mild such a threat may be the diagnosis remains the same for the sign and symptoms mentioned are due to forces which if unchecked by nature or treatment will finally terminate the pregnancy We attribute contractions either to an increase in the contractile stimulus, emanating probably from the pituitary or to an increase in sensitivity of the fundus by reason of at least a relative diminution of the corpus luteum hormone which normally renders the myometrium insensitive to such stimulus The cause of the increased pituitary stimulus or of the decrease in corpus luteum inhibition is not known The bleeding comes either from a dissolution of part of the

decidua from an unknown cause which is intrinsically capable of destroying all the decidua or it comes from a separation of a part of the chorion by an unknown cause which likewise is intrinsically capable of breaking the villous contact over the whole decidua basalis In these cases in which abortion is but mildly threatened and recovery spontaneous the factors involved in either the destruction of the decidua or in the separation of the trophoblast on one hand or in the change in pituitary or corpus luteum action on the other hand are promptly neutralized, are compensated for or subside by reason of opposing qualities of either matrix or ovum or both The clinician who would successfully combat the more vigorous threat of abortion must consider the factors for bleeding or for uterine sensitivity, which I have characterized as unknown and consider too what I have called the opposing qualities which are equally mysterious.

Studies of the endometrium of both lower mammals and primates seem to show that the development of the mucosa into the decidua and its maintenance during at least the early part of pregnancy are due to the effect on the endometrium of properly related amounts of estrin and progesterin from the corpus luteum This gland is a biological puzzle Only a fertilized ovum can normally sustain it beyond a limited period,—about fourteen days in human beings, and the corpus luteum in turn is essential to the early development of the ovum If in primates, the corpus luteum is removed in the first third of pregnancy the decidua disintegrates and bleeding occurs, followed by miscarriage. Except in placenta praevia which we mention below, whenever red flow occurs early in human pregnancy we can with what justification recent biological studies give us postulate a disturbance in corpus luteum physiology and either an absolute deficiency of progesterin or a deficiency relative to the amount of estrin present The same may be said of an increase in myometrial activity

There are two theoretical ways of compensating for this partial failure of the corpus luteum One is to substitute for it by supplying the woman with progesterin obtained from the corpora lutea of other mammals This is already commercially available and a synthetic progesterin may soon be on the market The second theoretical way to compensate for progesterin deficiency is to increase its production presumably by encouraging the anterior pituitary to increase its production of the so-called luteinizing hormone More of this later

If one is to substitute a very important detail in the treatment, the proper dosage must be determined Progesterin is marketed in ampoules containing 1 cc of solution of progesterin with stated potency of 1/25 rabbit unit of 1/5 rab-

A series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

bit unit, of 1 rabbit unit, and of 5 rabbit units. There is no clinical evidence known to the writer that doses of less than 3 rabbit units have any effect on the *nonpregnant* woman. He has enough clinical evidence to make him think that anything less than repeated doses of 3 rabbit units will *not* affect the nonpregnant patient, whether she gives evidence in her endometrium that there is no active corpus luteum present, or that there is a normal one present.

In the pregnant woman who is threatening to miscarry, either the ovum is normal and alive and therefore worth saving or it is abnormal and fortunately perhaps already dead. If the ovum is good enough to save, biology teaches us there must be present in the patient a corpus luteum which is secreting at least a moderate amount of progesterin,—in all probability, at least as much as the nonpregnant patient produces during the latter half of the normal menstrual cycle. If repeated doses of less than 3 rabbit units of progesterin are not effective on the bleeding mechanism in the nonpregnant patient, or on the pain from essential dysmenorrhea, it seems a fair conclusion that such an amount can have no appreciable effect in the pregnant patient.

The published reports of cases treated with small amounts are quite unconvincing. The "post hoc ergo propter hoc" conclusions drawn from these cases are not acceptable until we learn that we are wrong in believing that in more than 65 per cent of completed abortions, the conceptus is already dead or abnormal when the first threat of miscarriage is made—a belief which is based on careful examination of miscarriage products by competent embryologists. The other 35 per cent of the completed miscarriages are the only ones which concern us, and which obviously need some other treatment than the methods available up to now. Included among these are undoubtedly some cases of early placenta praevia in which purely mechanical separation of the trophoblast from decidua causes the first bleeding which progresses until enough separation has occurred to render the conceptus a foreign body. This, then, of itself invokes uterine contractions by a mechanism unknown. The treatment for these must be preventive, of which we know nothing, or complete rest, of the necessity for which we usually become aware only too late to accomplish anything. The treatment of the other patients, who merely threaten to abort but do not execute the threat, is obviously adequate. It may be that the patients who thus fail to fulfill their threat to abort, and who have normal concepti, will be more easily deterred by progesterin, but to this end they will, in all probability, need larger doses than heretofore, or than any but the richest can afford at the present prices.

If adequate substitutional treatment for a theoretical progesterin deficiency is thus not al-

ways available, the only other compensatory method is stimulation of the patient's corpus luteum to work more effectively. Our only approach to this end is through the anterior pituitary, and we have only theoretical ways of encouraging the anterior pituitary to supply an adequate luteinizing stimulus. Empirically, rest, with its beneficent effect on the central nervous system, and through this on the sympathetic nervous system, and through both, on the adrenals and the thyroid, and, perhaps directly or through this latter effect on related endocrine structures, on the pituitary gland,—rest, has proved helpful in defending against the threat of abortion. To such rest, experience, and some sound biological conclusions, teach us to add an extra supply of what vitamins we are aware of, of the minerals contained in milk, of iron in the presence of anemia, and of iodine or thyroid extract in the presence of even a slight measurable disturbance of thermodynamics. These with a balance of fats, carbohydrates, and proteins are the best agents we have for pituitary support. As the ovum develops, its dependence on the corpus luteum grows less but its requirements of metabolites derived from food grow greater. The same treatment, persisted in, which applies what little we know of human nutrition, then benefits the conceptus directly. There is slight but increasing evidence that as the chorion develops it takes to itself the production of progesterin or a similar hormone which doubtless maintains integrity of the maternal portion of the placenta.

AIDS TO THE COMMITTEE OF ARRANGEMENTS

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FRANKLIN DISTRICT

- Dr F A Millett, Greenfield
- Dr Chauncy V Perry, Greenfield

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning April 5

Berkshire

Thursday, April 9, at 4 30 P M, at the House of Mercy Hospital, Pittsfield. Subject: Diseases of the Liver — Hepatitis and Painless Jaundice. Problems in Diagnosis and Treatment. Instructor E S Emery Melvin H Walker, Jr, Chairman.

Bristol North

Wednesday April 8, at 7 30 P.M., at the Morton Hospital Taunton. Subject Kidney and Bladder Diseases A and B (Surgical)—Hematuria Its Significance in Surgical Diseases of Kidney and Bladder Prostatism and Related Diseases Cystitis and Pyelitis Instructor Richard Chute Arthur R. Crandell, Chairman

Bristol South (New Bedford Section)

Friday April 10 at 4 00 P.M. at the St. Luke's Hospital, New Bedford Subject Pediatrics (Medical)—The Neonatal State. Instructor L. W. Hill Harold E. Perry Chairman

Norfolk*

Friday April 10 at 8 30 P.M., at the Norwood Hospital Norwood Subject Dermatology—Ten Common Skin Diseases—Diagnosis and Treatment (1) Impetigo Contagiosa (2) Scabies (3) Acne Vulgaris, (4) Psoriasis and Seborrheic Dermatitis (5) Epl. dermophytosis (6) Herpes Simplex and Zoster (7) Eczema, (8) Erythema Multiforme (9) Verruca Vulgaris and (10) Dermatitis Medicamentosa and Dermatitis Venenata. Instructor E. L. Oliver H. B. C. Riemer Chairman

Worcester (Milford Section)

Wednesday April 8 at 8 30 P.M. at the Milford Hospital, Milford Subject Kidney and Bladder Diseases B (Surgical)—Prostatism and Related Diseases. Cystitis and Pyelitis Instructor S. B. Kelley Joseph I. Ashkins Sub-Chairman

The Course previously given at the Faulkner Hospital has been combined with the group at the Norwood Hospital

**MASSACHUSETTS LEGISLATIVE
NOTES****HOUSE BILL 34**

The Senate has passed House Bill 34 with three amendments which are as follows:

In House

Amend the bill by adding after section 2 the following new section—"Section 3 For purposes of examination and registration osteopathic schools rated as A schools by the American Osteopathic Association shall have the same standing before the board as A schools so rated by the American Medical Association.

In Senate

Add at the end of section one the following—"An applicant aggrieved by the refusal of the board to approve a medical school under this section shall be entitled to have the reasonableness of such refusal reviewed by a justice of the superior court, whose decision shall be final."

In Senate

In section 1—striking out in line 15 the words

"the board and inserting in place thereof, the words "a board consisting of the Secretary of the Board of Registration in Medicine the Commissioner of Education, and the Commissioner of Public Health.

These amendments leave the more important features of the bill operative. The bill now goes to the House for concurrent action and if passed by the House will be presented to the Governor. It has had a long and stormy passage

MISCELLANY**AFFAIRS IN CONNECTICUT****A COMMISSION TO STUDY LAWS RELATIVE
TO AUTOMOBILE ACCIDENTS**

A temporary commission has been appointed in Connecticut to study financial responsibility laws as they relate to automobile accidents. This commission consisting of Motor Vehicle Commissioner Michael A. Connor Insurance Commissioner John C. Blackall and Superior Court Judge Frank P. McEvoy has been meeting informally with various groups affected by and interested in these laws. On March 9 1935 representative physicians from the eight different counties were given a hearing by this commission and on this occasion it was learned that Connecticut hospitals are losing money caring for persons injured in automobile accidents with no means of paying for their treatment. The commission was informed that in many of these cases where the responsible person carries no liability insurance the hospital has no means of collecting its costs. The physicians present also impressed upon the commission the fact that members of the profession caring for emergency cases frequently find themselves unable to collect for services rendered.

There is a very strong feeling among the medical profession in Connecticut that the present laws relating to financial responsibility in automobile accident cases are entirely inadequate. Advocates may be found of compulsory liability insurance for all automobilists as exists in Massachusetts. Others are in favor of the establishment of a state fund maintained by taxation to be used to meet hospital bills and physicians fees in such cases.

PNEUMONIA MORTALITY

The death rate from pneumonia in Connecticut during the last six years has been consistently lower than at any time as far back as 1885. For 1935 the pneumonia death rate was 65.2 per 100,000 population. The lowest rate during the past fifty years was attained in 1934 that of 6.9. The 1935 rate was the second lowest with only 1123 deaths. The highest point was reached in 1918 when influenza was epidemic in this country and in Europe.

The director of the Bureau of Preventable Diseases of the State Department of Health believes that the use of pneumonia serum has had some of

fect in reducing the death rate, though just how much he was unwilling to estimate

New Britain has experienced an epidemic of scarlet fever so severe that it was considered wise to close the schools.

PROBLEMS IN CONNECTION WITH THE FLOOD

Hartford and neighboring towns and cities along the Connecticut River, after experiencing the worst flood in their history, now face the possibility of an epidemic as the waters subside. The State Commissioner of Health has recommended that all persons working in flooded areas throughout the State be immunized against typhoid fever. The Hartford Board of Health has already started this preventive treatment.

The public water supplies throughout Connecticut during the flood have remained unimpaired, although at one time it was believed that the town of Cromwell had suffered pollution of its reservoir. This water supply was later proved by tests to be safe. A food shortage is not likely since highway communication and rail communication to the southwest have remained open.

In Hartford, to prevent the spreading of respiratory diseases and to give first aid treatment, volunteer physicians have been assigned to various schools where the refugees are housed. These physicians work in two-hour shifts throughout the day and until midnight, the remainder of the twenty-four hour period being covered by physicians on call. The Hartford Dispensary has remained open day and night, including Sunday, and has been covered by its own volunteer staff of physicians also working in two-hour shifts. Private practice has been greatly disrupted by the absence of electricity, phone service and the difficulties of transportation. For several days, while without an adequate supply of electricity, the various hospitals of Hartford were forced to limit their surgical work to emergencies.

CONNECTICUT NEWS

G Mansfield Craig, M.D., of Haddam has been appointed medical examiner of that town by Colonel L. A. Smith.

Louis M. Allyn, M.D., of Mystic has resigned as a member of the board of trustees of the Mystic Oral School for the Deaf. To fill this vacancy Governor Cross has appointed Hugh F. Lena, M.D., of New London.

The school is a State institution for the care and training of deaf children. Although Dr. Allyn has resigned from the board of trustees he will continue as physician at the school. Dr. Lena is appointed for the unexpired portion of Dr. Allyn's term ending July 1, 1936, and for the full term of three years from that date. Dr. Lena is a graduate of Dartmouth, 1912 and Johns Hopkins University School of Medicine, 1916. Since his discharge from the U. S. Navy in 1919 he has operated his own private hospital in New London.

RECENT DEATH

CROWE—WILLIS HANFORD CROWE, M.D., of 409 Whitney Avenue, New Haven, Connecticut, with an office at 59 College Street, died at his home, March 24, 1936.

Dr. Crowe was born in 1873 and graduated from the College of Physicians and Surgeons of New York in 1895. He had served on the surgical staff of St. Raphael's Hospital for many years.

His widow, Mrs. Grace McDonald Crowe, a son, Willis M. Crowe, of Worcester, and a daughter, Mrs. Schuyler Gillespie, survive him.

OBITUARY

TRACY—DWIGHT WALLACE TRACY, M.D., fifty-two years old, one of Hartford's leading dermatologists, died at his home in West Hartford, Sunday, March 22, 1936. He had been ill with heart disease for several months and in December, 1935, was obliged to relinquish his practice.

Dr. Tracy was born in Hartford, May 28, 1883, son of the late D. W. Tracy, for many years a prominent pharmacist of that city. He received his elementary education in Hartford, was graduated from Yale University in 1904 and from Johns Hopkins University School of Medicine in 1908. After studying abroad he served an internship at the Hartford Hospital. During the World War Dr. Tracy was contract surgeon for the Students' Army Training Corps at Trinity College, Hartford, being commissioned major. For eleven years he served as medical inspector for the Hartford Board of Health prior to the war. Before his retirement from practice Dr. Tracy had served for many years on the staffs of the Hartford, Hartford Municipal, Litchfield County, Canaan, Middlesex, and Charlotte Hungerford (Torrington) Hospitals. He was a thirty-second degree Mason and a Past Master of Hartford Lodge, No. 88, A. F. & A. M. A member of the Hartford Medical Society, the Hartford County Medical Association, and the Connecticut State Medical Society, he also belonged to several clubs including the University Club of Hartford, the Yale Graduate Club of New Haven, and the Yale Club of New York City. He was active in the work of Christ Church Cathedral of which he was a member.

Dr. Tracy is survived by a widow and three children. The funeral was held from his home on March 24, 1936, several of his friends in the profession serving as bearers.

THE ELECTION OF DR. SHIELDS WARREN

At a recent meeting of the American Society for Experimental Pathology, Dr. Shields Warren of Boston was elected Secretary-Treasurer.

According to a report in the *New York Times*, Dr. Warren made some valuable suggestions on the irradiation of cancers by x-rays and the gamma rays of radium. Experimenting on rats, Dr. Warren found that cancer cells fail to multiply at the normal rate within an hour and a half after a radium

treatment. The lowest point of reproduction is reached from two to ten hours after irradiation. The cancer cells begin to multiply again after that time but at only a third of the old rate for some seventy two hours

APPOINTMENT OF NEW MEMBERS TO THE HARVARD FACULTY

James R. Lingley of the Massachusetts General Hospital Boston, Mass. B.A. Acadia University N.S., 23 M.A. ibid. 24, M.D. Harvard 28 appointed Roentgenologist in charge of the X Ray work of the Harvard Hygiene Department until September 1 1936. He is now Assistant Roentgenologist at the Massachusetts General Hospital, and Roentgenologist at the McLean Hospital, Waverley and at the Norfolk Prison Colony Mass.

MARCH 1 TO SEPTEMBER 1 1936

Professor Julian H. Capps of Berea College Ky. A.B. Illinois '13 A.M. Princeton 14 appointed Research Fellow in Chemistry. Professor Capps is on leave from Berea College and while at Harvard will do research in collaboration with Professor Gregory P. Baxter of the Harvard Chemistry Department.

James A. Kennedy of the Peter Bent Brigham Hospital Boston Mass. A.B. Vanderbilt University 31 M.D. ibid. 34 appointed Research Fellow in Medicine.

FOR ONE YEAR FROM APRIL 1 1936

Robert B. Hightower of the Childrens Hospital Boston Mass., S.B. Mississippi State College 27 M.D. University of Virginia 32, appointed Instructor in Child Hygiene and Pediatrics in the Harvard Medical School and School of Public Health.

APPOINTMENTS TO THE BOARD OF SCIENTIFIC DIRECTORS OF THE ROCKEFELLER INSTITUTE

The Board of Trustees of The Rockefeller Institute for Medical Research announces the election of Dr. Walter Bradford Cannon and Dr. George Hoyt Whipple as members of the Board of Scientific Directors.

CHRONIC DISEASE*

"Chronic disease is becoming a major public health problem. This is largely due to the change in the composition of the population. In Massachusetts in 1850 31 per cent of the population died after the age of forty. In 1934 78 per cent. The factors behind the ageing of the Massachusetts population are improved public health activities which have lessened the number of deaths in early infancy and young adulthood the declining birth rate which tends to increase the average age of the population and the decreased immigration which lowers our population in the middle age groups.

*Part of a free public lecture by Dr. Robert L. Lombard, Director, Division of Adult Hygiene, Massachusetts Department of Public Health given Sunday afternoon, March 2, at the Harvard Medical School.

The ratio of the number of individuals in the productive age group (20-60) to the nonproductive age group (over 60) has declined since 1870 from 7 to 1 to 5.4 to 1. On the other hand while the total expectation of life is considerably greater than at any other time in our history there has been practically no change in the expectation of life of individuals who arrive at the age of fifty. The average age at time of death of those individuals is slightly less than it was two generations ago.

With more people coming into the late adult age groups and with no improvement in the diseases most common in these age groups a problem both from an economic and a humanitarian standpoint arises. The ever decreasing number of individuals in the wage-earning groups has an ever increasing number of completely dependent individuals in the nonproductive age groups.

The costs of chronic disease are much higher than those of acute illnesses as the duration is long and the care needed in many cases is considerable. A ten-year period of complete disability with chronic rheumatism entails great suffering on the part of the individual as well as an economic burden on the part of the family. The problem however would not be nearly so acute if all chronic disease were confined to the over-sixty group. Instead a large part of it is occurring in the productive ages.

"During 1929-31 the State Department of Public Health made a survey of chronic disease in fifty one cities and towns in Massachusetts. From the records obtained we estimated that 21 per cent of the population between forty and fifty were suffering from chronic disease. Many of these individuals were still able to work as the disease had not progressed far enough to warrant invalidism. None of them however could do as good work as if they had been free from chronic disease.

Chronic disease will probably never be completely eradicated but if its onset could be delayed until late adult life an immediate improvement in conditions would be apparent not only in the individual and his family but also in the general community because he would be an asset rather than a liability. The solution probably lies in—first, a better knowledge of the various chronic disease conditions; secondly better hygiene on the part of the people throughout childhood and middle life; and thirdly frequent consultations with family physicians at least, when slight deviations from normal occur and as an optimum periodic health examinations while still well. There is considerable evidence to show that many of the chronic disease processes are influenced by faulty hygiene. Improvement in this direction may prolong the onset of many of these diseases. A large part of the population does not seek medical advice even when it is aware of abnormalities of function. Many diseases could be arrested in their early stages if the public were better educated in making use of available medical facilities and if the physicians were better educated in the recognition and study of minor deviations from the normal.

"Inasmuch as many of the procedures incidental to the establishment of a diagnosis, such as x-ray, metabolism tests, blood chemistry, etc., require considerable outlay on the part of the patient and expensive equipment on the part of the physician, it naturally follows that every physician has no such resources available for every individual. Some method must be inaugurated whereby every physician will have at his disposal adequate laboratory facilities for patients of low and moderate means. Many suggestions have been made as to how this can best be accomplished. It is my feeling that government money should be used to help both the physician and his low-income patient to obtain

these services. It should be possible for the physician to have access to free x-ray, metabolism tests, etc., when the need for them arises. If this were possible, much of the criticism of the costs of medical care would be removed.

"Such a program was inaugurated for cancer in this State ten years ago. Any person unable to pay receives as much x-ray diagnostic work as is needed and any other processes necessary for the establishment of a diagnosis and for subsequent treatment. This plan has worked admirably in cancer. It might well be extended to other diseases."

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1935 AND SEVEN YEAR AVERAGE

MONTH ENDING FEBRUARY 29, 1936

Diseases	1936				Average cases reported for week corresponding to Feb 29 for past seven years	1935			
	Week ending Feb 8	Week ending Feb 15	Week ending Feb 22	Week ending Feb 29		Week ending Feb 9	Week ending Feb 16	Week ending Feb 23	Week ending Mar 2
Amebiasis	—	—	1	—	—	—	—	1	—
Chickenpox	163	114	108	96	102	175	149	145	153
Conjunctivitis Infectious	5	2	53	—	—	1	—	—	—
Diphtheria	1	—	—	4	13	6	1	3	5
Dysentery Bacillary	—	1	—	—	—	2	1	—	—
Encephalitis Epidemic	—	1	—	—	—	—	—	—	—
German Measles	162	169	191	180	27	19	20	35	67
Influenza	4	12	4	17	753	9	21	12	32
Measles	124	122	78	91	233	617	620	689	785
Meningococcus Meningitis	1	—	4	2	2	1	—	1	1
Mumps	64	83	73	63	95	35	68	59	31
Paratyphoid Fever	1	1	2	—	—	—	1	—	—
Pneumonia (Broncho)	51	43	54	55	50	37	51	36	44
Pneumonia (Lobar)	69	62	83	74	56	33	52	37	38
Poliomyelitis	—	—	—	1	—	—	—	—	—
Scarlet Fever	69	67	78	89	82	49	65	53	67
Smallpox	—	—	—	—	1	—	—	—	—
Streptococcus Sore Throat	4	—	2	3	3	3	3	3	4
Tetanus	—	2	—	1	—	—	—	—	—
Trichinosis	—	1	—	—	—	—	—	4	2
Tuberculosis (Pul)	23	30	24	42	27	34	21	14	30
Tuberculosis (O F)	—	4	2	3	3	1	1	2	2
Typhoid Fever	2	—	—	1	—	—	—	2	2
Typhus Fever	1	—	—	—	—	—	—	—	—
Undulant Fever	3	1	2	—	—	1	1	1	—
Whooping Cough	85	56	57	77	71	73	68	61	62
Gonorrhea	31	34	12	35	37	26	26	16	29
Syphilis	46	61	33	48	50	47	41	45	66

Remarks No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years.

THE PROBABLE APPOINTMENT OF DR. PARRAN

President Roosevelt has nominated Dr. Thomas Parran, Jr. to succeed Dr. Hugh Cumming as Surgeon General of the United States. There is every reason to expect that this will be confirmed both because Dr. Parran was appointed by the President as Health Commissioner of New York State and because his administration of the State Health Department was most satisfactory.

Although the administration of the Public Health Service by Dr. Cumming has been generally endorsed there is abundant reason to believe that the quality of public service in this department will not diminish under Dr. Parran's direction.

This appointment is just recognition of an honorable and efficient public servant.

MORTALITY RATES FOR 1936

So far as the 'Weekly Health Index' of the Bureau of the Census applies to the United States it seems to show that the mortality rates for February and March 1936 are well above those of 1935. The figures are based on a population of thirty seven million inhabitants of eighty five cities and are for February more than a full point per 100,000 above the rates for last year.

Climatic conditions have been trying this year and may have had an effect on the mortality rates.

CORRESPONDENCE

PUERPERAL DEATHS

Harvard University
School of Public Health

March 18 1936

Editor *New England Journal of Medicine*

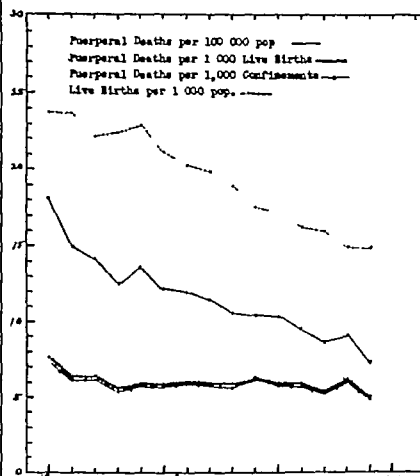
The need for care in the presentation and interpretation of statistical data has become more generally recognized by physicians in recent years but medical literature continues to include examples of the misuse of such data. It would seem desirable to call attention from time to time to one or another of the statistical errors which the physician is likely to encounter in order to keep writers constantly on their guard. With this in mind I am submitting a chart and citing a recent example from your *Journal* which shows rather vividly the kind of error which may result from the incorrect choice of a basis for the estimation of a death rate.

In your issue of October 10 1935 an article dealing with Changes in Maternal Mortality and Their Significance appeared to show that there has been a sharp decline in maternal mortality in Massachusetts during recent years and attributed this primarily to the efforts of the medical profession. Unfortunately the author failed to take into account the fact that only a small portion of the total population are potential candidates for death from puerperal causes and that the percentage of these has been falling rapidly in recent years. The accompanying chart shows in the curve at the top the

rapidity with which the birth rate has been falling in Massachusetts since 1920 and the middle curve shows that the number of puerperal deaths per 100,000 population has been falling with almost equal rapidity. This is the curve upon which the principal conclusions in the article referred to were based.

Assuming that a woman cannot die from causes associated with pregnancy without first becoming pregnant, other things being equal the number of puerperal deaths will vary directly with the number

MASSACHUSETTS



Inclusive of stillbirth and making proper deductions for plural births.

of pregnant women in the community. We have no record of the actual number of pregnancies occurring in the State during each year but we do know the number of stillbirths and live births. If we assume that practically all deaths reported as puerperal are associated with these we may add together the reported stillbirths and live births correct for multiple births, and use the resulting figure as the basis for a maternal death rate. The curve shown at the bottom of the accompanying chart was obtained in this way. Owing to the fact, however, that only live births are reported with absolute accuracy it has become customary to use as a maternal mortality rate one that is related to live births alone. This curve is also shown and is almost identical with the one corrected for stillbirths and multiple births. It may therefore be assumed that the customary maternal mortality rate based upon live births portrays quite accurately any changes in the number of maternal deaths which occur per thousand pregnancies. This rate plots out, as shown in the chart, as an almost straight and undescending line and only in the year 1934 can it be inferred that improvement is suggested by the figures. The ar

ticle therefore entirely loses its point for it explains an assumed improvement which is in reality non-existent

It has seemed worthwhile to present this chart as an example of one of the errors to be avoided and I trust that you will find space for its publication

HAROLD C. STUART, M.D.

PERMANENT WAVES AND HAIR DYE

Editor, *New England Journal of Medicine*,

For the last two years a patient of mine has been very much annoyed and chagrined by the results of her "permanent waves." This white-haired lady allows herself only one "permanent wave" each year and on the last two occasions she has returned to her family more or less disguised by the slate color of her hair. Her chief lament has been that she feared her friends would consider that she had been foolish enough to allow her hair to be dyed.

Such an experience has been unique in my practice and as I have felt that perhaps idiosyncrasy played the leading rôle in these mishaps I have said nothing in print about them. My theory has been, however, that the patient has been using for some time a hair lotion containing mercury and that owing to the great heat employed in the "permanent" waving of the hair or to the unknown patented solution which all hair-dressers use prior to the application of the heat, the normal sulphur content of the hair has become susceptible to the mercury of the hair lotion and the resultant color has been due to the deposit of the black sulphide of mercury. Unfortunately, this discoloration has proved to be a fast dye yielding to no decolorizer which I have dared to use on this delicate white hair. The lapse of time each year has restored the normal color.

One reason for this letter to the *Journal* is due to the fact that my experience has proved not to be unique, for Drs. A. M. H. Gray and R. Klaber have published on pages 97-99 of the *British Journal of Dermatology and Syphilis* for February 1936 a similar observation in which the hair became a brown black. Dr. Gray states that the unknown solution used by English hairdressers to prepare the hair for the "permanent" waving contains ammonia. Dr. Gray further writes that he has found in the literature only one analogue, that described by K. Philipsen (*Ugeskr. f. Læger* 95:746 [June 29] 1933—*Zentralbl. f. Haut* 46:199, 1933).

My second reason for this letter, following the experience now of three observers, is to warn physicians who are about to prescribe to white-haired ladies mercury-containing hair lotions to tell these patients that such a lotion is incompatible with "permanent waving" and that if they desire such treatment from a hairdresser they must suspend the use of such a lotion probably, for at least two months.

CHARLES J. WHITE, M.D.

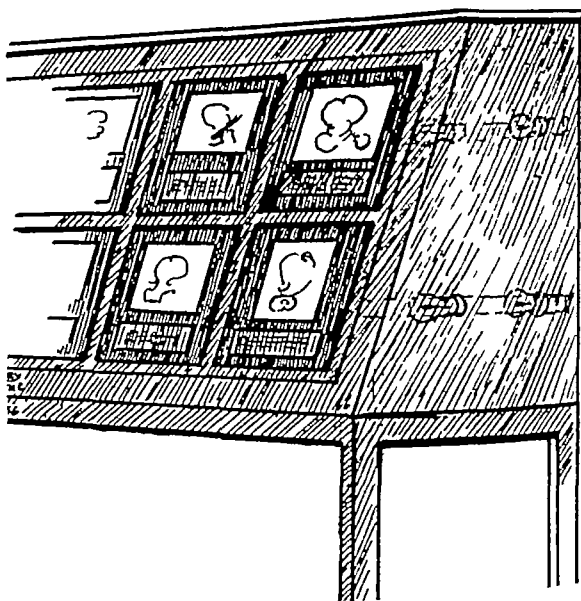
259 Marlborough Street,
Boston, Mass.

A NEW METHOD OF MEDICAL ILLUSTRATION

Editor, *New England Journal of Medicine*,

During the past year a new method of illustration has been found successful for demonstrating the steps of surgical procedures or for summarizing the steps in the treatment of special cases. The method of applying color to the commercial product of translite paper for medical use was developed by me in this Clinic. A drawing or photograph is so colored and illuminated as to give a more realistic and effective result than has been possible with the usual black and white illustration.

The basis of the illustration is a half tone drawing. A photograph of the drawing is made directly on to translite paper (Eastman). The translite paper, being sensitive on both sides, takes too dark a print on the front and too light a print on the back. When a light is placed behind the print the correct value is obtained. Color is applied to the back of the print. Transparent oil colors are used. When the print is shown in a dimly lighted room the color is visible from the front.



Translite Exhibit Cabinet

In making the translite print the photographer should take care to make the print light enough so that when the color is applied to the back of the print the shading will be light enough and the color effect will not be "muddy."

The oil paint is applied to the print in the manner of coloring photographs. The best result is obtained by coloring the print over a ground glass in front of a daylight electric light bulb. For ease of handling the print while coloring it is convenient to mount it on a piece of cardboard which has a hole cut out the exact size of the drawing. Adhesive tape may be used to hold the margins of the print to the cardboard frame. The thickness of the cardboard enables the print to be handled and laid color side down without allowing anything to touch the color side.

When a series of prints are exhibited they may be shown in an arrangement similar to that used for x-ray films. Pieces of clear glass and ground glass with the print between them are held in place by a series of frames. The enclosed space behind the illustrations contains the lights. Frosted day light electric bulbs are satisfactory. If the drawings or photographs are matted with dark paper the artistic effect is better. If the mat is made large enough a space may be cut away for a title which is also made on the translucent paper. The mat helps in keeping all light from within the cabinet from showing through accidental cracks between the print and the frame.

Color used in this manner makes drawings or photographs more graphic. When drawings, photographs and x-rays are thus assembled the arrangement is very satisfactory for study by a group of people.

HELEN LEWIS LOUD

Artist to the Lahey Clinic

605 Commonwealth Avenue
Boston Mass.

PERIARTERITIS NODOSA

March 20 1936

Editor *New England Journal of Medicine*

In the March 19 issue of *The New England Journal of Medicine* there appeared an extremely interesting report from the Case Records of the Massachusetts General Hospital. It was a fatal case of (probable) periarteritis nodosa in which skin changes were a prominent feature. The latter included vesicles, pustules, scaly erythematous patches, swollen and blotchy lesions and nodules. In the discussion the belief was expressed by several of the physicians present and by the pathologist in particular that the skin lesions had no relation to the underlying disorder.

It is therefore pertinent to present the following. Crosti A. (Glor. Ital. di dermat. e sif. 76 15 Feb. 1935) described a case of periarteritis nodosa in a five-year-old boy in whom the skin changes were very striking. They were composed mainly of areas of polymorphous erythema and nodular infiltrates, the latter varying in size from a millet seed to a pea. Crosti also called attention to the fact that it is necessary to recognize the cutaneous and subcutaneous symptomatology (which may be composed of infiltrative erythema, hemorrhages, nodules, necrosis or elephantiasis) not infrequently present in periarteritis nodosa. The reason is obvious especially in cases not fatal and in those in which a biopsy is impossible.

Another recent case was that reported by F. Goldschlag and A. von Chwallibogowski (Arch. f. Dermat. u. Syph. 171 872 [Aug. 14] 1935). The diagnosis of periarteritis nodosa was confirmed histologically. The most striking changes of the entire clinical picture were those in the skin. The latter presented livid quarter-dollar-sized areas, papules, urticarial efflorescences, subcutaneous nodules and livedo racemosa.

In a very recent article L. Motley (J. A. M. A. 106 398 [Mar. 14] 1936) called attention to the fact that skin lesions not infrequently appear in periarteritis nodosa and take the form of subcutaneous hemorrhages, urticaria and in particular purpura resembling Schönleins disease. One of his cases presented erythematous purpuric-like lesions and subcutaneous nodules.

If one is to believe the assumption of some of the leading dermatologists that periarteritis nodosa is a symptom complex similar to erythema nodosum-like and erythema multiforme-like conditions due to various etiologic agents such as drugs, infections, etc., then the skin lesions present should naturally be a prominent and striking feature of the entire picture.

J. L. GRUND, M.D.

483 Beacon Street
Boston, Mass.

RECENT DEATH

BARNES—IDA F. BARNES, M.D., a graduate of the Boston University School of Medicine in 1893, died at her home in Beverly, Massachusetts, March 26, 1936. Dr. Barnes was born in New York, the daughter of Hobart and Alice Barnes. After graduating in medicine, she practiced for a time in Boston.

NOTICES

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P.M. on Thursday, April 9, in the Amphitheatre of the Peter Bent Brigham Hospital, Dr. Henry A. Christian, Physician-in-Chief, Hersey Professor of the Theory and Practice of Physics in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students.

On Saturdays in the wards of the Peter Bent Brigham Hospital from 10 to 12 staff rounds will be conducted by Dr. Christian.

EXAMINATION OF CANDIDATES FOR APPOINTMENT TO THE PUBLIC HEALTH SERVICE

A board of commissioned officers will meet at the U. S. Marine Hospital, Boston, Mass., at 10 A.M. April 13, 1936, for the purpose of examining candidates to determine their eligibility for appointment to the grade of Assistant Surgeon in the Regular Corps of the Public Health Service.

BUREAU OF MEDICAL RELATIONS WITH FOREIGN COUNTRIES AT THE FACULTY OF MEDICINE—PARIS, FRANCE

Announcement has been made of the existence of a Bureau of Medical Relations with Foreign Countries (Bureau des Relations Médicales avec l'Etranger) by the Faculty of Medicine in Paris. Here students and physicians are able to obtain any in-

formation they desire concerning postgraduate courses of hospital services

Foreign students or physicians should communicate with the Bureau of Medical Relations at the Faculty of Medicine in Paris and announce their arrival, a cordial welcome will be extended to them

AMERICAN MEDICAL GOLFERS PLAY IN KANSAS CITY, MONDAY, MAY 11

The American Medical Golfing Association will hold its twentysecond annual tournament at the Mission Hills Country Club and the Kansas City Country Club in Kansas City on Monday, May 11, 1936

To accommodate comfortably the large entry which is anticipated, the Kansas City Committee has arranged play over two very fine courses which touch corners the Mission Hills Country Club and the Kansas City Country Club. Their club houses are only one mile apart and ample transportation between the two has been arranged. Dinner for all players will be served in the Mission Hills Club House.

Seventy Trophies and Prizes will be awarded

There are 1,150 A. M. G. A. members. Every state of the Union is represented.

APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. The Executive Secretary, Bill Burns, 2,020 Olds Tower, Lansing, Michigan, will furnish application blanks.

UNITED STATES CIVIL SERVICE EXAMINATIONS

Clinical Director (Female), \$5,600 a Year

Director of Laboratories, \$5,600 a Year

Associate Psychotherapist (Female), \$3,200 a Year

Saint Elizabeths Hospital, Washington, D. C.

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than April 20, 1936.

Duties—Clinical Director (Female)—As general administrator of a major division of a psychiatric hospital, to direct the medical and nursing personnel in connection with the psychiatric examination, care and treatment of more than 1,800 women patients.

Director of Laboratories—As general administrator of the research activities in psychiatry, particularly from a laboratory standpoint, to direct the laboratory units in pathology, chemistry, bacteriology, and related groups, to conduct scientific conferences, and to participate in the various courses of instruction given to physicians and students.

Associate Psychotherapist (Female)—To conduct research and investigational work relative to the causes, symptomatology, and mechanisms of mental diseases, to treat individual patients by psychotherapy.

Applicants must have been graduated from a medical school of recognized standing with a degree of M.D.

REPORTS AND NOTICES OF MEETINGS

NEW ENGLAND HEART ASSOCIATION

The February meeting of the New England Heart Association was held at the Beth Israel Hospital on the evening of February 3, 1936.

The first paper of the evening was "A Case of Coronary Occlusion with Interesting Features," by Dr. Harry B. Levine. A sixty one year old man with a history of angina pectoris, and a high blood pressure, had a typical attack of coronary occlusion. The following day his apical rate rose to 180, there was a slight variation in the intensity of the first sound at the apex and vagal pressure had no effect. A diagnosis of ventricular tachycardia was made. Under quinidine therapy the rate dropped to 120. About two weeks later he developed auricular flutter with an auricular rate of 400, and ventricular rate of 200. Under digitalis the ventricular rate became 100. In spite of treatment, congestive failure set in about one month later and he had attacks of paroxysmal dyspnea. Several diuretics failed to help him and two years later he developed attacks of paroxysmal auricular fibrillation which were controlled by quinidine. From the onset of congestive failure, he received eighty-one injections of salyrgan and mercupurin. Recently a suppository form of mercurin has been used with marked diuresis, but it is sometimes necessary to use two suppositories in order to secure satisfactory results.

The second paper was on "The Evaluation of Medicinal Treatment of Angina Pectoris" by Dr. Joseph E. F. Riseman. The efficacy of medicinal treatment in angina pectoris was evaluated in twenty five patients by means of the standardized exercise tolerance test and by observing the effect on the clinical frequency of attacks. The latter method by itself was of little value, as the clinical history was influenced by many factors, such as the psychological effect of treatment, spontaneous variations in the severity of the disease, and changes in the physical and emotional activity of the patient. According to the clinical history, as many patients were benefited by placebo pills as by any other medication. It is evident that an objective measure of the clinical response, such as the standardized exercise tolerance test, is necessary. Improvement due to medication is indicated by an increase in exercise tolerance which disappears when the medication is omitted and placebo medication is substituted, and which reappears only when the medication is again given, even if the appearance of the drug is disguised. According to these criteria, no patient showed improvement following placebo pills, sodium bicarbonate, potassium iodide or oral tissue extract. About one third of the patients failed to improve following any of the fifteen different drugs. Slightly less than

one-half showed improvement following either aminophyllin (grains 8 four times daily) or quinidine sulphate (grains 5 four times daily). About one-third were benefited by erythral tetranitrate codeine sulphate or atropine sulphate, and about fifteen per cent were helped by sodium nitrate theophyllin calcium salicylate or small doses of dinitrophenol (grains 1½ daily). Digitalis caused a marked increase in pain in about one-half of the patients.

Complete disappearance of cardiac pain was rare. Aminophyllin caused the greatest increase in exercise tolerance 10 to 100 per cent, the remaining effective drugs allowed the patient to increase his work by about 20 to 50 per cent. For the routine treatment of angina, aminophyllin and quinidine sulphate offer the greatest possibility of giving benefit.

The third paper was on "Studies on the Effect of Nitroglycerine on Angina Pectoris" by Dr. Morton G. Brown. A group of patients with angina pectoris were given nitroglycerine gr 1/500 according to two procedures. Patients were instructed to place one tablet under the tongue every hour during the day. In order to determine how soon the action began and how long it acted, the patients exercise tolerance was determined at various time intervals after placing a tablet under the tongue. In about one-third of the patients the effect was marked and prolonged, lasting nearly an hour. In another third the effect was less prolonged and less striking. In the remaining patients it had no effect. The clinical results paralleled the exercise tolerance tests, in that those who showed the marked effect were free of angina while taking nitroglycerine at hourly intervals. Those in whom the action of nitroglycerine was of shorter duration derived benefit when they took the drug before that effort which usually precipitated the attack. The small dose of 1/500 gr of nitroglycerine was found nearly as effective as the usual dose of 1/100 gr and was unattended by untoward reactions whereas many of the patients receiving 1/100 gr of nitroglycerine had reactions.

The fourth paper was on "The Incidence of Coronary and Hypertensive Heart Diseases in Different Population Groups" by Dr. Louis Silver. A study of the incidence of angina pectoris and coronary occlusion among the patients with arteriosclerotic and hypertensive heart disease of the Massachusetts General Hospital, The Baker Memorial Phillips House and the Beth Israel Hospital representing the several different strata of society showed that the Jewish patients fairly outnumbered other races in the incidence of these diseases. In the Beth Israel Hospital there is an incidence of 56 per cent. It was shown that the incidence of angina pectoris and coronary occlusion is somewhat more frequent among Jewish immigrants than natives and less common among Italian immigrants. The total number of patients with arteriosclerotic heart disease with or without coronary occlusion did not fluctuate greatly in these groups indicating that the process of degeneration works about equally in the different groups. It is in the early stormy and malignant manifesta-

tions of arteriosclerotic heart disease where the fluctuations are marked. These two coronary conditions occur twice as frequently in men as in women.

The fifth paper was "The Cardiac Output in Patients with Congestive Failure after Total Thyroidectomy" by Dr. Mark D. Altschule. The cardiac output, vital capacity, pulmonary circulation time, venous pressure, and arterial pressure were measured in twenty-three patients before and after total thyroidectomy. The work of the heart was calculated from the cardiac output by means of the formula of Evans. It was found that the cardiac output and work diminished as the basal metabolic rate fell after operation. The cardiac output decreased about 10 per cent more than the basal metabolism especially in patients without congestive failure so that the arteriovenous oxygen differences increased. This was less striking in patients operated on for the relief of congestive failure since in such cases the cardiac output was low before operation. The relief experienced by the patients after operation was associated with a marked diminution in the work of the heart. In patients operated on for congestive failure, the cardiac output decreased to a level below which it merely balanced the oxygen consumption, thus giving such patients a margin in which to increase their cardiac outputs in response to activity.

The sixth paper was on "A Clinical and Pathologic Study of Aortic Stenosis" by Dr. Louis Wolf. This presentation is based primarily upon a study of sixteen cases of aortic stenosis without other valve lesions proved at autopsy. The youngest patient in this group was forty years old. Syncope occurred as a single episode in only one patient of this series. Angina pectoris occurred in two patients in one of whom there was no evidence of coronary artery disease at postmortem examination. There was a question of angina pectoris in a third patient. There were no sudden deaths. Considerable loss of weight occurred in seven of these patients, usually beginning before the onset of cardiovascular symptoms. The description of the pulse, the pulse pressure, the aortic second sound, and a systolic thrill at the aortic area cannot be depended upon in making the diagnosis of aortic stenosis on account of the infrequency with which these signs occur. The systolic thrill, however, may be regarded as the most significant sign, and if especial care and technique are used the thrill may be found in a high percentage of the cases.

The only constant sign occurring in aortic stenosis is a loud systolic murmur at the aortic area, and its only constant characteristic is transmission upwards into the vessels of the neck. This sign will be found in every patient with aortic stenosis unless there is a state of collapse or acute myocardial failure such as may follow coronary thrombosis and cardiac infarction. If we exclude cases of aortic stenosis a systolic murmur at the aortic area is found in 10 per cent of all patients who at autopsy show some form of heart disease. This murmur however is not always produced at

the aortic valve. If the murmur is produced at the aortic valve and is transmitted at all, it is to be expected that the direction of its transmission will be in the direction of the blood flow, i.e., upwards into the vessels of the neck. In a group of over 160 autopsied cases such a murmur was found in aortic stenosis, recognized by the pathologist from fusion of the aortic cusps or by measurements of the aortic ring, in hearts in which the aortic leaflets were sufficiently sclerosed and stiffened to interfere with the free mobility of the cusps causing an impediment to the flow of blood from the ventricle into the aorta, thus constituting a functional aortic stenosis, and in luetic aortic dilatation. When the characteristic murmur is produced, the dilatation of the aorta is sufficiently great so that its recognition by physical examination or fluoroscopy is easy. All the evidence available from a study of this group and by comparison with a similar group of patients with aortic stenosis with other valve lesions proved at autopsy indicates that the etiology of the aortic stenosis in at least most of these cases is arteriosclerosis. No evidence could be found that rheumatic infection or other infections played a rôle in this particular series.

The seventh paper was "Calcified Stenosis of Aortic Valve" by Dr. M. J. Schlesinger. Sixteen cases of heart disease with calcified stenosis of the aortic valve without any other valvular lesions were analyzed from the viewpoint of sex, age, heart weight, amount of arteriosclerosis of the coronaries and of the aorta, chronic passive congestion of the viscera, degree of terminal congestive failure and other causes of death. In eleven of the cases, the valve ring was calcified, the leaflets were fused, thickened, and calcified, and shelf like, and the opening was a slit, the others showed a less marked lesion. Only three of the patients were women, all of whom died of another disease. The youngest patient was forty and the oldest seventy-eight, and the ages were uniformly distributed in between. No correlation could be found with the degree of coronary sclerosis or arteriosclerosis of the aorta. One heart weighed 300 grams and one 840 grams. The others varied between 400 and 760 grams. The patient with the smallest heart died at fifty one of carcinoma of the stomach with no evidence of cardiac failure. The largest heart was from the youngest patient (forty years) who showed much chronic passive congestion of the viscera and died an uncomplicated congestive failure death. Only two other cases showed any appreciable chronic passive congestion of the viscera. However, in nine of the cases, congestive failure was an important part of the terminal picture. Death in the other cases was due to causes extrinsic to the heart.

It was concluded that calcified aortic stenosis was a lesion rather well tolerated by the heart and usually well compensated for by hypertrophy of the left ventricle. When congestive failure sets in, the prognosis is poor. Calcified aortic stenosis can be considered an independent pathologic entity of the nature of localized arteriosclerosis. The mechanism

of the localization on this valve is no more evident than is the mechanism of the localization of cerebral or coronary arteriosclerosis.

The eighth paper was "A Summary of Clinical Experience in the Treatment of Chronic Heart Disease by Total Thyroidectomy" by Dr. Herrman L. Blumgart. The results of total thyroidectomy at twenty six clinics were summarized. Of the 185 patients whose condition was evaluated, 121 patients suffered from congestive failure, sixty four from angina pectoris. Sixty three per cent of the patients with congestive failure showed either excellent or moderate improvement, 18 per cent slight improvement, and 18 per cent no improvement. Of the sixty four patients with angina pectoris, 86 per cent showed either excellent or moderate improvement, 9 per cent slight improvement, and 5 per cent no improvement. The operative mortality was 4.7 per cent. It was particularly encouraging to note that a large proportion of the patients had shown these results either one or two years after operation or two to three years after operation.

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held Friday, April 10, in the Auditorium of the Beth Israel Hospital, Boston, at 8 00 P.M.

PROGRAM

Speaker Dr. Elliott C. Cutler, Harvard Medical School

Subject "War Surgery"

Chairman Dr. Horace Binney, Professor of Surgery, Tufts College Medical School

AMERICAN HEART ASSOCIATION, INC.

The Twelfth Scientific Session of the American Heart Association will be held on Tuesday, May 12, 1936, from 9 30 to 5 30 P.M., at Hotel Phillips, Kansas City, Missouri. The program will be devoted to Cardiac Insufficiency.

GREATER BOSTON MEDICAL SOCIETY

Time Thursday, April 9, 1936, 8 15 P.M.

Place Auditorium, Beth Israel Hospital, Boston.

Results of Total Thyroidectomy in Twenty-Six Other Clinics. J. E. F. Riseman, M.D., Beth Israel Hospital.

A Social Study of Patients with Chronic Heart Disease Treated by Total Thyroidectomy. Miss Ethel Cohen, Director of Social Service, Beth Israel Hospital.

Meeting open to physicians, medical students, social service workers and nurses.

H. L. LINENTHAL, M.D., President,

D. B. STEARNS, M.D., Secretary

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, April 14, at 8 15 P.M.

PROGRAM

Presentation of Cases

Medical Inheritance By Dr Reginald Fitz.

Medical students and physicians are cordially invited to attend

MARSHALL N. FULTON M.D., Secretary

WORCESTER NORTH DISTRICT
MEDICAL SOCIETY

The annual meeting of the Worcester North District Medical Society will be held at the Burbank Hospital Fitchburg on Wednesday April 22 1938. The oration will be delivered by Dr Clifford L. Derick of Boston. His subject will be Staphylococcus Infection and Its Treatment.

Election of officers Dinner at 1 P.M.

GEORGE P. NORTON M.D., President

FRANCIS M. McMURRAY M.D., Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

Worcester Hahnemann Hospital Wednesday April 8 1938

PROGRAM

6:15 P.M. Dinner (Complimentary by Hahnemann Hospital.)

7:30 P.M. Business Session and Scientific Papers

1. Frontal Bone Osteomyelitis by C. A. Croissant, P. H. Cook and F. Wonsen presented by Drs. Wonsen and Cook
2. Undulant Fever—A Case Report with Necropsy by E. A. Fisher and J. Gottlieb presented by Dr. Gottlieb
3. Larostidin Treatment for Peptic Ulcer by J. A. Koraywo, D. G. Ljungberg, A. P. Lachance, L. P. Leland and A. D. Vamvas, presented by Dr. Koraywo

NOTICE

The next meeting of the Board of Censors for the Worcester District of the Massachusetts Medical Society will be held in the rooms of the Worcester District Medical Library 34 Elm Street, Worcester at four-thirty on the afternoon of Thursday May 7 1938. Application must be filed with the District Secretary two weeks before the time of the Censors Examination.

WILLIAM F. LYNCH M.D. President

ERWIN C. MILLER, M.D. Secretary

SOCIETY MEETINGS
CONGRESSES AND CONFERENCESCALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY APRIL 6 1938

Monday April 6—

4:30 P.M. Boston Hospital Council, Lower Amphitheatre of the Out Patient Department of the Massachusetts General Hospital.

Tuesday April 7—

9-10 A.M. Boston Dispensary 25 Bennet Street Boston. Discuss and Injuries to the Hip Joint. Dr. John D. Adams.

2:30 P.M. Pediatric Ward Visit. Massachusetts Eye and Ear Infirmary.

8:15 P.M. Greater Boston Medical Society Auditorium Beth Israel Hospital.

Wednesday April 8—

9-10 A.M. Boston Dispensary 25 Bennet Street Boston. Recognition of the Early Psychoses Their Differentiation from Neuroses (Continued) Dr. A. Warren Stearns.

11-12 M. Clinico Pathological Conference Children's Hospital

Thursday April 9—

8:30-9:30 A.M. Clinic, Surgical Staff of the Peter Bent Brigham Hospital at the Peter Bent Brigham Hospital.

9-10 A.M. Boston Dispensary 25 Bennet Street Boston. Development of Method in Psychopathology Professor Elton Mayo

3:30 P.M. Medical Clinic at the Peter Bent Brigham Hospital

Friday April 10—

9-10 A.M. Boston Dispensary 25 Bennet Street Boston. Rheumatoid Fever Dr. Clifford L. Derick.

12 M. Massachusetts General Hospital. Clinical Meeting of the Staff of the Children's Medical Service. Ether Dome

8 P.M. William Harvey Society Auditorium Beth Israel Hospital

Saturday April 11—

8-10 A.M. Boston Dispensary 25 Bennet Street Boston. Hospital Case Presentation Dr. S. J. Thannhauser

10-12. Staff rounds at the Peter Bent Brigham Hospital.

Open to the medical profession

Open to Fellows of the Massachusetts Medical Society

April 2—Faulkner Hospital Clinical Meeting 5 P.M.

April 3—Carney Hospital Clinical Meeting 8:30 P.M.

April 6—Boston Hospital Council See page 663 Issue of March 24.

April 8—Joint Meeting of the Massachusetts Tuberculosis League and the Hampden County Tuberculosis and Health Association See 'An address by Dr. Kendall Emerson. Page 488 Issue of March 5

April 9—Greater Boston Medical Society See page 71.

April 9—Medical Clinic, Peter Bent Brigham Hospital. See page 709

April 10—William Harvey Society Beth Israel Hospital See page 71.

April 10-17 24—Thomas William Salmon Memorial Lectures See page 660 Issue of March 24

April 14—Harvard Medical Society See page 712

April 20-24—A Postgraduate Institute in Philadelphia See page 497 Issue of March 5

April 27—Springfield Medical Association, 8:30 P.M. at the rooms of the Springfield Academy of Medicine 20 Maple Street The Development of Non Surgical Specialties. Dr. Allen S. Johnson The Development of Surgical Specialties. Dr. Eugene W. Beauchamp

May 1, 2, 3, and 4—The American Association on Mental Deficiency See page 610 Issue of March 15

May 11—American Medical Golfers Play in Kansas City. See page 710

May 12—American Heart Association Inc. See page 71.

May 12-18—The International Congress of Physical Medicine See page 443 Issue of February 27

June 15-19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore Md.

June 16-17-28—Summer Course in Bacteriology See page 445 Issue of February 20

September 1938—First International Conference on Fever Therapy See page 1325 Issue of December 26 1937

September 7-10—International Union against Tuberculosis. See page 554 Issue of March 12.

October 19-23—Clinical Congress of the American College of Surgeons. See page 180 Issue of January 23.

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 7—Thursday Censors' Meeting

May 13—Wednesday Annual Meeting. Salem Country Club. Dinner at 7 P.M. Speaker Dr. Paul White. Subject to be announced later

R. E. STONE, M.D. Secretary

28 Lothrop Boulevard Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

May 12—Weldon Hotel, Greenfield, at 11 A M

CHARLES MOLINE, M D, Secretary
Sunderland**MIDDLESEX EAST DISTRICT MEDICAL SOCIETY**

May 6—Bear Hill Golf Club, Stoneham, at 12 15 P M

K L MACLACHLAN, M D, Secretary
1 Bellevue Avenue Melrose**NORFOLK DISTRICT MEDICAL SOCIETY**

May—Annual Meeting (Place, date and subject to be announced)

The censors meet for the examination of candidates
May 7, 1936 November 5, 1936FRANK S CRUICKSHANK, M D, Secretary
1236 Beacon Street, Brookline**PLYMOUTH DISTRICT MEDICAL SOCIETY**

April 16—Brockton Hospital.

May 21—Lakeville State Sanatorium

G A MOORE, M D, Secretary
167 Newbury Street Brockton**SUFFOLK DISTRICT MEDICAL SOCIETY**April 29—Annual Meeting at the Boston Medical Library
The Treatment of Septicaemia, Dr Champ Lyons The
Pleurality of Scarlatinal Streptococcus Toxin, Dr San-
ford B Hooker Discussion Dr Hans ZinsserThe medical profession is cordially invited to attend
this meetingROBERT L DeNORMANDIE, M D, President
CHARLES C LUND, M D, Secretary**WORCESTER DISTRICT MEDICAL SOCIETY**

April 8—See page 713

May 7—Censors Meeting See page 713

May 13—Wednesday afternoon and evening Annual
Meeting of Society Time, place and details of program
to be announcedERWIN C MILLER, M D, Secretary
27 Elm Street, Worcester**WORCESTER NORTH DISTRICT MEDICAL SOCIETY**

April 22—See page 713

BOOK REVIEWS

**National Medical Monographs. The Management of
Colitis J Arnold Bargaen 234 pp New York
National Medical Book Company, Inc \$3 00**

In his recent book, Bargaen has given an excellent picture of certain disturbances of the colon, including so-called mucous colitis, and ulcerative colitis. The latter is discussed in great detail and is covered in an excellent manner so far as the pathology, the x ray findings, and the proctoscopic findings are concerned. So far as the etiology of the disease is concerned there is no doubt in the author's mind that he has found the cause of the disease when it is not due to tuberculosis, b dysenteriae, or amebiasis. Unfortunately, the majority of other investigators do not accept Bargaen's dictum as to the etiology of what is elsewhere called idiopathic ulcerative colitis, and it seems rather unfortunate that the matter should be treated in such a dogmatic manner as admitting of little or no doubt.

There is a welcome change in Bargaen's attitude as far as the results of treatment are concerned,—whereas, in previous years cure of the disease was the expected outcome of therapy, in this volume he says definitely "one should not speak of its cure but its control. This, of course, fits in better with the

experience of other men who realize the fundamental chronicity of the disease with a tendency to exacerbations and remissions

It also seems as if too little has been said as to the value of ileostomy in carefully selected cases, not from the point of view of curing the disease but as a life saving measure or as a means of placing a patient in the position of better economic security

Amebic dysentery is well described except for the fact that practically no mention is made of the fever which may accompany it in rather obscure cases due to its complication, liver abscess. Tuberculosis of the colon is well described. The discussion of mucous colitis is an excellent one from the point of view of description of the disease and treatment and could be read with profit by any practitioner

There is one fundamental mistake which appears in the book which the reviewer believes should be particularly noted. In one of the several illustrations, attention is called to the common reference of pain from various points in the large bowel. In his illustration, as well as in the text, it is noted that colonic pain is referred to a region high in the epigastrium in the midline, not far below the tip of the xiphoid. This is so far from being the case that it represents a very important diagnostic error inasmuch as colonic pain is almost always referred to a point well below the umbilicus

With the exception of the above criticism, the reviewer considers the book a valuable source of reference for the description of some of the major ailments of the colon

**Diseases of the Skin Frank Crozer Knowles Third
Edition 640 pp Philadelphia Lea & Febiger
\$6 50**

Dr Knowles' third edition has been thoroughly revised, with numerous new photographs. The field of general dermatology is well covered. Syphilis and the acute eruptive fevers are also considered. Numerous prescriptions and tables of diagnostic features are given and much that is new in therapy has been added

**Studies from the Rockefeller Institute for Medical
Research Reprints Volume 94 603 pp New York
The Rockefeller Institute for Medical Research.**

This group of reprints from the Rockefeller Institute covers a wide range of material from the various departments and from the hospital. Of special interest to clinicians are the various articles by Page and his associates on the relation of the renal nerves to hypertension. A group of papers from the Department of Plant Pathology cover various phases of the tobacco mosaic disease. One feature of special interest from the Department of the Laboratories is the report by Carrel and Lindberg on the culture of whole organs. This is an interesting and conservatively written report, giving in detail the procedures on which some press publicity developed last summer

The New England Journal of Medicine

VOLUME 214

APRIL 9 1936

NUMBER 15

THE DEVELOPMENT OF NEUTRALIZING SUBSTANCE FOR POLIOMYELITIS VIRUS IN VACCINATED AND UNVACCINATED INDIVIDUALS*

BY W LLOYD AYCOCK, M.D.† AND C C HUDSON, M.D.‡

THE observation made early in the study of poliomyelitis that one attack confers a lasting immunity suggested the possibility of artificial immunization. Many attempts have been made to protect against the infection particularly by the use of virus subjected to procedures designed to attenuate it. Aycock and Kagan¹ conducted a series of experiments with preparations of virus treated in various ways and failed to obtain either a highly efficacious or relatively safe method of immunization in fact the attenuated preparations proved but little if any safer than active virus. Since the method of attenuation seemed to have little bearing on the outcome, it was concluded that the result of injections of supposedly attenuated virus might have been determined rather by the particular tissue into which active virus was inoculated. The authors therefore attempted to immunize animals by such means as placing the virus in collodion sacs in the peritoneal cavity by intranasal instillation and by intracutaneous injection.

Through a long series of intracutaneous injections, it was possible to produce neutralizing substance uniformly, and the animals so vaccinated in the majority of instances resisted intracerebral inoculation of active virus eleven of twelve monkeys became immune. It is not clear whether the animal which succumbed (the second injected) developed the disease from intracutaneous injection or whether the virus was inadvertently introduced under the skin.

An additional thirty five monkeys were subjected to shorter series of intracutaneous inoculations, receiving in all 340 injections of virus. Neutralizing substance was produced in only about half of the animals half of this number later succumbed to intranasal instillation of active virus.

A further series of fifty four animals were injected subcutaneously with from 1 to 50 cc of

fully active virus or with virus preparations which had been subjected to attenuating procedures but which in all cases contained living virus. Each animal received from one to nineteen separate injections, 483 injections being given altogether. Only eleven of the fifty four animals succumbed to subcutaneous injections of material containing active virus. Some monkeys withstood as much as 30 cc of fully active virus, but failed to develop neutralizing substance succumbing either to intranasal instillation or intracerebral inoculation. Neutralization tests were done on sixteen of the surviving animals only nine neutralized the virus. Four of the ten monkeys later subjected to intranasal instillation of virus succumbed, six were able to withstand repeated intranasal instillation. Twenty five animals were later inoculated intracerebrally thirteen succumbing.

It appears from these experiments that the subcutaneous injection of active poliomyelitis virus, while relatively safe, is less effective in producing neutralizing substance or resistance to infection than intracutaneous injection. Furthermore it would seem that the artificial production of neutralizing antibodies in the blood serum of the experimental animal does not necessarily confer immunity to infection. However no firm conclusion can be drawn from these results concerning natural exposure, because it is not known how nearly intranasal instillation of virus approaches natural infection in regard to such factors as virulence and dosage.

DEVELOPMENT OF NEUTRALIZING SUBSTANCE IN THE HUMAN BEING FOLLOWING VACCINATION

During the summer of 1935 poliomyelitis was prevalent in a number of states on the eastern seaboard. An unusual increase in the number of cases in North Carolina in May marked the beginning of what was, for this southern state, an unusually severe outbreak. It reached its greatest intensity in the east central part of the state.² The outbreak attracted wide attention because the incidence is generally lower in southern than in northern states, and also because the seasonal increase was considerably in advance of that characteristic of northern states.

In the face of this unusual prevalence, vac

*This work was financed by the Harvard Infantile Paralysis Commission and the Rockefeller Foundation.

†Aycock, W. Lloyd—Director of Research, Harvard Infantile Paralysis Commission, 1100 Hudson, C. C.—Health Officer, City of Greensboro, North Carolina. For records and addresses of authors see "This Week's Issue," page 74.

†No attempt was made to use blint clype down since it was found that larger amounts so injected did not produce the disease nor did they produce immunity with tetanus.

cination, which has been recommended as a preventive measure against poliomyelitis, was used to a varying extent in a number of localities in North Carolina. Early in July, under the direction of the U S Public Health Service, a plan was formulated for administering the vaccine in such a way as to shed some light on its efficacy³. In Greensboro, somewhat to the west of the area of greatest prevalence, a group of about 300 children were chosen arbitrarily for vaccination and an equal number who applied were reserved as controls.

It was realized that statistically significant conclusions could be drawn from a comparative study of the occurrence of poliomyelitis in vaccinated and unvaccinated children only in the event that this particular city should be visited by an outbreak of a severe order, and of course this was questionable*. The authors felt that a study by means of the neutralization test on those vaccinated would afford evidence of the worth of the vaccine. The situation was particularly advantageous because tests could also be done at the same time on an equal number of individuals of the same ages who had not been vaccinated. From experience with the neutralization test, there are reasons for believing that an efficacious vaccine should produce neutralizing power in the blood serum.

In the experimental animal, infection with poliomyelitis virus results in immunity which can be detected by the neutralization test. This immunity is likewise present in human convalescents, as well as in a considerable proportion of individuals not known to have passed through an attack of the disease. From the distribution of this immunity in the population in general, the inference is that it results from exposure to the virus.

The parallelism of the results of the neutralization test to the incidence of poliomyelitis at different ages and in different populations makes it appear that the presence of neutralizing substance may be taken as an indication of immunity to infection with the virus. However, it is not known whether this neutralizing property in the blood in itself affords the protection, or is merely an accompaniment of what has come to be designated as "tissue immunity". That the presence of this neutralizing substance may not actually constitute protection is suggested by the fact that the experimental production of neutralizing substance does not necessarily confer resistance to intracerebral inoculation or even intranasal instillation of virus.

The procedure was carried out as follows. Blood was drawn from those to be vaccinated, usually just previous to the injection of the vaccine, and at the same time from a corresponding number of control individuals. Second bloods were taken from both groups from thirty-

one to seventy-seven days later (average sixty-one days), forty-eight being taken on the seventy-seventh day after the first bleeding.

The test was performed according to the method which has given fairly consistent results. A 5 per cent suspension of the spinal cord of a monkey sacrificed in the height of experimental poliomyelitis was mixed with an equal amount of the serum to be tested. The mixture was kept at 37°C for two hours, and overnight in the icebox. Usually six to ten sera were set up in each experiment. As controls, normal monkey serum and convalescent serum were included in each experiment.

In three of the thirty experiments done, none of the animals succumbed. All these were done with a single specimen of virus. These experiments are not included in the results, since the indications are that this particular sample of virus was not active. In all the other experiments, roughly one-half of the monkeys succumbed. In four instances, normal monkey sera apparently neutralized the virus, but when the test was repeated they failed to do so. This discrepancy is in keeping with our previous experience, where such a divergent result has been obtained on an average one out of six times. However, since this error is reversible, it is believed that readings on any considerable number of tests are dependable. In the whole series of experiments, only once did the convalescent serum fail to neutralize the virus, however, this serum did neutralize in a number of repetitions.

It may be objected that the technic used in the neutralization test was not sufficiently delicate to detect degrees of immunity which would protect against infection, but which would not neutralize the virus. It may be said that the test was not so severe but that approximately half the children neutralized the virus in the beginning, a figure which is in keeping with epidemiologic expectations for those of similar age. Furthermore, it would be expected that if the vaccine increased the titer of immunity, some who did not respond to the test in the beginning would do so after vaccination.

First and second bloods from the same children were usually included in the individual experiments, as well as sera from both vaccinated and controls. The results of paired tests on sixty-three children are shown in table 1.

Single tests were also done on sera from thirteen vaccinated individuals and nineteen controls whose immunity status was not expected to change. Experience has shown that if the sera of the first bleeding neutralized the virus it could be assumed that the second would do likewise, and that if the second blood tested initially, did not show neutralizing property, neither would the first. These single tests and the assumptions made on the other of the pair are shown in table 2.

*No cases of poliomyelitis occurred among the vaccinated children nor did any occur among those in the group who were not vaccinated.

TABLE 1

POLIOMYELITIS NEUTRALIZATION TESTS

Vaccine*	Vaccinated				Not Vaccinated			
	First Bleeding		Second Bleeding		First Bleeding		Second Bleeding	
	No	Result	No	Result	No	Result	No	Result
B	4	—	227	+	33	—	290	—
B	14	—	209	+	47	+	327	+
B	15	—	211	+	51	+	295	+
B	19	—	203	+	53	—	309	+
B	20	+	208	+	53	+	323	+
B	21	±	236	—	54	—	321	+
K	24	+	238	+	57	—	318	—
K	31	+	312	—	58	—	317	—
K	32	+	314	+	60	—	315	—
K	34	+	331	+	62	—	296	+
K	35	+	318	+	67	—	303	+
K	36	+	324	+	68	+	300	+
K	38	—	291	±	69	+	285	+
K	39	—	293	—	71	+	303	—
K	40	+	311	+	72	+	304	±
K	41	+	313	+	106	+	223	+
K	42	—	307	—	107	+	252	+
B	81	—	222	+	110	+	255	+
B	83	±	272	+	113	—	229	+
B	84	—	224	+	115	+	278	+
B	85	—	273	+	116	+	275	+
B	88	—	268	+	117	—	277	+
B	89	—	219	—	118	—	374	—
B	92	—	217	—	126	—	231	+
B	93	+	261	+	127	—	245	—
B	95	±	215	±	129	—	240	—
B	96	—	216	—	131	+	338	+
B	102	—	250	+	132	—	248	—
					135	—	262	—
					136	+	259	+
					137	—	247	—
					138	—	241	—
					139	—	235	—
					140	—	232	+
					141	—	246	—
13+				21+	14+	22+		
46.4%				75.0%	40.0%	62.8%		

+ indicates blood neutralized the virus

— indicates blood failed to neutralize.

* B Brodie vaccine K Kolmer vaccine

Attention should be called to the fact that the increase in immunity shown on table 1 cannot be interpreted as being of the order indicated, since there are included only those individuals on whom both tests were done.

In other words this tabulation considers those who became immune during the period of the experiment, but disregards a considerable number whose status obviously did not change. Table 3 summarizes the results of all the tests.

TABLE 2

POLIOMYELITIS NEUTRALIZATION TESTS

Vaccine*	Vaccinated				Not Vaccinated			
	First Bleeding		Second Bleeding		First Bleeding		Second Bleeding	
	No	Result	No	Result	No	Result	No	Result
B	1	+		+ A	27	— A	328	—
B	11	— A	202		46	— A	320	—
B	13	— A	310	—	61	— A	387	—
B	17	— A	204	—	64	— A	306	—
K	25	+	283	+ A	104	+	230	+ A
K	43	±	326	+ A	105	+	258	+ A
K	45	— A	322	—	109	— A	218	—
K	55	— A	289	—	111	±		+ A
B	80	+	270	+ A	114	+	280	+ A
B	86	+	267	+ A	119	+	278	+ A
B	90	+	220	+ A	122	+	283	+ A
B	94	+	254	+ A	128	— A	242	—
B	103	— A	253	—	130	— A	333	—
					134	— A	239	—
					142	— A	237	—
					147	— A	263	—
					148	— A	264	—
					150	+	265	+ A
					151	+	214	+ A
						8+		
		7+				42.1%		
		54.8%						

A indicates that the result was assumed that if the first blood neutralized the virus the second would do likewise if the second blood did not neutralize neither would the first.

* B Brodie vaccine K Kolmer vaccine

It will be noted that there was an increase in immunity in both groups under observation—19.5 per cent in the vaccinated and 14.9 per cent in the controls (table 3). In view of the irregularities of the neutralization test and the small number of observations, it is not clear that the slightly greater advantage of the vaccinated over the controls was the result of vaccine.

TABLE 3

POLIOMYELITIS NEUTRALIZATION TESTS

	Vaccinated						Not Vaccinated					
	Total	First Blood		Second Blood		% Increase	Total	First Blood		Second Blood		% Increase
		No	%	No	%			No	%	No	%	
Both bloods tested (Table 1)	28	13	46.4	31	75.0	28.6	35	14	40.0	32	62.8	22.8
One blood tested One assumed (Table 2)	13	7	54.3	7	54.3	0.0	19	8	42.1	8	42.1	0.0
	41	20	48.8	28	68.3	19.5	54	22	40.7	30	55.6	14.9

ination The immunity increase may have been due, at least largely, to natural exposure. The occurrence of eight cases of poliomyelitis in the city during the period of the experiment is evidence that the virus was prevalent there at the time. Other factors, too, are concerned in the evaluation of the vaccines. In the first place, about half of those who were vaccinated were already immune according to the neutralization test, and so presumably would not be benefited. Secondly, a change from non-immune to immune occurred in about 24 per cent of those vaccinated and 17 per cent of the controls, an advantage of only about 7 per cent for the vaccinated group. This figure is very small, even assuming that the production of neutralizing substance affords protection. As a matter of fact, the experimental production of immunizing substance does not always constitute adequate protection against infection. In any case, the results of this work indicate that the value of vaccination against poliomyelitis as carried out in Greensboro was slight.

Certain other tests were done, sometimes on the first blood and sometimes on the second, where contamination of the other of the pair precluded comparative readings. These are not included in the report, but it may be said that the addition of these tests would not alter significantly the percentage of positive or negative findings in any of the groups.

Perhaps there would have been less confusion if the blood sera had been paired beforehand and equal numbers of tests done on vaccinated and control individuals. It was thought best, however, to conduct the series of neutralization tests on the sera as unknown. To this end, the identity of the samples was withheld until the outcome of the test had been recorded. Later, in order to insure the inclusion of a sufficient number of paired sera (that is, first and second bleedings from the same individual), this information was furnished, although the status of the individual, whether vaccinated or control, was not revealed until the result had been recorded.

The outcome of these tests affords an opportunity for emphasizing the danger of attempting to draw conclusions from small series of neutralization tests. The results obtained by another observer of tests performed on six children in Greensboro, before and after vaccination, were submitted to us for comparison. Before vaccination, five out of six failed to neutralize the virus. Four individuals neutralized the virus after vaccination. Thus, it might be concluded from this small experiment that the vaccine was highly efficacious in producing neutralizing substance.

On table 1, which records the results of our

neutralization tests, the sera are arranged according to the numbers given when the blood was taken. Let us consider Nos 84 to 93. These individuals possessed the same immunity status as did those in the primary tests done by the observer referred to above, that is, five failed to neutralize the virus before vaccination. Four of these were immune after vaccination. Again, if we refer to the controls on table 1, we shall find six consecutive specimens, Nos 53 to 62, five of which failed to neutralize on the first test, three of these were immune on the later test. Thus, it will be seen that in dealing with a test of this sort, where on the average the results in the beginning are positive or negative in about 50 per cent, a reasonable number of tests must be done in order to show significant changes from this figure.

SUMMARY AND CONCLUSIONS

Tests to determine whether neutralizing substance was produced by two poliomyelitis vaccines in use in North Carolina were done on the blood of twenty-eight individuals before and after vaccination. It was found that 46.4 per cent were already immune. After vaccination, 75 per cent neutralized the virus, an increase of 28.6 per cent.

Neutralization tests on thirty-five control individuals showed 40 per cent immune on the first bleeding and 62.8 per cent on the later bleeding, an increase of 22.8 per cent.

It thus appears that there was a considerable increase in immunity in both vaccinated and control individuals. However, the actual increase in immunity is not so high as the figures indicate, for the reason that the tabulation does not include a number of individuals, both vaccinated and controls, in whom it was apparent from one test that there could be no change in immunity status. When these tests are included, the increase in immunity is 19.3 per cent in the vaccinated individuals and 14.9 per cent in the control individuals.

It is a question whether the somewhat greater increase in immunity in the vaccinated group is significant. Since an increase occurred in both vaccinated and control groups, it seems reasonable to infer that it was due, in large part at least, to natural exposure. The occurrence of eight cases of poliomyelitis in the city during the period of the experiment bears witness to the prevalence of the virus.

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A NOTE ON THE COMMON OCCURRENCE OF SERIOUS INVOLVEMENT OF THE HEART IN HYPERPIESIA

BY PAUL D. WHITE, M.D.*

IT is well known that essential hypertension (hyperpiesia) is compatible with seemingly good or excellent health in the first few years of its existence in the majority of patients and that it is in that period often an accidental discovery. It is also well known that if persistent and more than slight it usually leads, with or without other complications such as coronary disease, to enlargement of the heart and eventually to heart failure. As a cause of world wide heart disease it looms high. Unfortunately by the time hypertensive heart disease itself becomes evident the condition has advanced to a stage where little but palliation is possible. Heart failure may be checked or relieved for a few years but the fundamental factor—the hyperpiesia—is out of control, in the present state of our knowledge, despite the temporary effect of various more or less radical and nonspecific therapeutic measures.

Recently I have had occasion to make a survey of the cases of hypertension that I have seen in my practice as cardiac consultant. Certain interesting and somewhat unexpected findings and the depressing results of a follow up study have caused me to present this brief note.

In fifteen years among 5,808 patients (3,396 or fifty eight per cent males and 2,412 or forty two per cent females) with symptoms or signs suggesting the possibility of cardiac abnormalities there were 1,249 cases with hypertension (twenty two per cent).[†] Almost every case was of the type of essential hypertension or hyperpiesia only forty nine were thought to have any important degree of nephritis and only a few of those gave indications that the nephritis was primary rather than secondary. Only two cases were recognized as having congenital coarctation of the aorta. Almost every case had had hypertension for at least a few years before consulting me, a common duration of known hypertension was five to ten years, in a few cases the known duration was but a few weeks or months or as long as twenty or twenty five years.

Cardiac enlargement was discoverable with out great difficulty in the majority of the cases, and it was doubtless present even if not discernible clinically in many others, a few cases might be styled potential hypertensive heart disease but there were doubtless far fewer of these in my practice than in that of the average family doctor or insurance examiner or spe-

cialist in hypertension itself. It is probably the difference in the types of practice that explains some of the other findings which may be in contrast to those of general practice.

Among the 1249 hypertensive cases there were 644 males (fifty-one per cent) and 605 females (forty nine per cent) (making up nineteen per cent of the total of 3,396 males in the entire series of patients and twenty five per cent of the total of 2,412 females), in contrast to the reputed great preponderance of females with uncomplicated hyperpiesia.

Satisfactory analysis of the community at large has not yet been made, however with reference to the sex incidence of early or uncomplicated hyperpiesia. Certain selected groups have been reported in which the female incidence has been found greater than the male, for example in the Outpatient Department of the Boston City Hospital where women made up 76.1 per cent and men 23.9 per cent of 1,787 cases (corrected for sex incidence in total cases to 74.3 per cent and 25.7 per cent respectively).¹

My cases belonged preponderantly in the older age groups—thirty three under forty years, 126 between forty and fifty, 386 between fifty and sixty, 467 between sixty and seventy, and 237 over seventy, thus the great majority (sixty eight per cent) were between fifty and seventy. Males and females were almost evenly distributed in the age groups.

Angina pectoris was present in 329 of the cases (twenty six per cent) when they first consulted me. A fact of great interest concerning the relationship of hypertension and angina pectoris in the total series of 5,808 patients is that there were almost as many females as males with both conditions, 147 women compared with 182 men out of the total of 329 cases, in contrast to the great preponderance of men over women (782 compared with 247) of the 1,029 cases of angina pectoris in the entire group. Thus only 182 of 782 males with angina pectoris had hypertension while there were 147 hypertensive cases among the 247 females with angina pectoris.

Coronary thrombosis had occurred in recognizable form in ninety nine cases (eight per cent) and came later in others. Congestive heart failure was the chief cause for the consultation in 308 cases (twenty five per cent) and was a later complication in many more. It frequently took the form of pulmonary congestion, often acute as in cardiac asthma, in fact pulmonary congestion with dyspnea was the first evidence of failure in nearly every case except when the whole heart quickly failed or some

*White, Paul D.—Assistant Professor of Medicine, Harvard University Medical School. For record and address of author see "This Week Issue," page 74.

[†]If we exclude the unimportant cases of certain functional disorders the percent becomes twenty seven (of the so-called "real" cases).

complication like mitral stenosis was also present to cause earlier failure of the right ventricle with resulting dropsy. Coronary thrombosis sometimes seemed to be the exciting factor for the congestive heart failure in this series of hypertensive cases.

Rheumatic heart disease was definite in forty-three of the cases, with mitral stenosis in twenty-three of them. Cardiovascular lues was clearly present in only ten patients and thyrotoxicosis in six. Aortic regurgitation without evident stenosis was present in fifty-two cases, while aortic stenosis was present in thirty-three and was frequently of high degree—a surprising finding. At least two cases had dissecting aortic aneurysms, as proved by autopsy.

Auricular fibrillation was present in 170 of the cases, being paroxysmal in fifty-five. Fifty-eight patients complained of paroxysmal tachycardia with regular rhythm. Many cases had premature beats. The great majority of the patients were electrocardiographed, thirty-four showed auriculoventricular block and forty-three intraventricular block, most of the cases showed left axis deviation with or without inversion of the T waves in Lead I.

Neurocirculatory asthenia was present in easily recognized degree in 137 of the 1249 cases, diabetes in eighteen, and gout in seven. Seventy-four of the patients had had apoplexy and a number more developed this complication later.

The causes of death were determined in 100 consecutive cases (sixty-five male, thirty-five female). Ninety-five died "cardiovascular-renal" deaths: fifty-three from congestive failure (including seven from acute pulmonary edema), twenty suddenly (known angina pectoris in five of these and Adams-Stokes attacks in another), eleven from acute coronary thrombosis, six from apoplexy, and five from uremia. Five died as the result of infection, including three from pneumonia. The ages at death in this series of 100 cases were between thirty and forty years in two, between forty and fifty in five, between fifty and sixty in twenty-three, be-

tween sixty and seventy in forty-two, between seventy and eighty in twenty-six and over eighty in two.

Thus the great majority (seventy-two per cent) died before the age of seventy and of cardiovascular disease closely connected with the hypertension, few lived long lives.

It is true that our ignorance of the fundamental causes of hyperpiesia and of their cure does not allow us as yet to prevent the condition or to control it even at its inception, but it is also quite clear that the earliest weeks or months of the disease present the most favorable time for a study of its causative factors and for attempts to retard its progress. To discover the onset of hyperpiesia in any patient, to study it then, and to begin whatever sedative or other therapy seems effective should be, it seems to me, one of the aims of the practitioner of medicine whether he be engaged in family practice or in routine institutional or life insurance medical work as Palmer² and others have suggested. To accomplish this aim nothing short of annual examinations of all adults is possible. This will doubtless come to pass some day.

There has been a tendency in the postwar period to swing too far from the old extreme of great and general fear of high blood pressure to the other extreme of reassurance and relative neglect because we wish to avoid making our patients neurotic and particularly since we are still ignorant of the cause and the cure of hyperpiesia. We should, however, face the facts and take the middle course.

In conclusion, then, as the result of a discouraging experience with chronic and advanced hypertensive heart disease, I would urge the early discovery of hyperpiesia in patients and more intensive study and attempts at treatment at its onset.

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THE RADIOLOGICAL MANAGEMENT OF CANCER OF THE BREAST*

BY RICHARD DRESSER, M.D.,† AND VALMORE A. PELLETIER, M.D.‡

THE radiological management of cancer of the breast is not a standardized procedure. Much controversy still exists as to the indications for roentgen and radium treatment and

the dosages employed. It is the purpose of this article to set forth as concisely as possible the radiation methods now in use in several of the cancer clinics in Massachusetts. This is done with the full appreciation that some of these methods are at variance with those of other workers.

The treatment of early localized cancer of the breast is primarily a surgical problem. When the disease is confined to the breast and there are no axillary or distant metastases, five year

*Material for this publication has been collected from the Pondville Hospital at Norfolk (Massachusetts State Cancer Hospital), the Collis P. Huntington Memorial Hospital, Harvard University, and the Memorial Hospital, Worcester, Massachusetts.

†Dresser, Richard—Roentgenologist, Collis P. Huntington Memorial Hospital and Pondville Hospital at Norfolk. Pelletier, Valmore A.—Surgeon to Out Patients, Pondville Hospital, Wrentham. For records and addresses of authors see This Week's Issue, page 742.

cures should follow radical mastectomy in 50 per cent to 70 per cent of the cases. When the axillary glands are involved, this figure is reduced to about 25 per cent. The best radiological treatment can scarcely hope to improve or even equal these results. Unfortunately all cases are not amenable to surgery.

In a series of 600 cases collected from several representative cancer clinics, 38.5 per cent were considered suitable for radical mastectomy, 31 per cent were inoperable and 30.3 per cent showed recurrence after operation elsewhere. Most of the inoperable and recurrent cases (more than 60 per cent of the entire group) were treated radiologically and the roentgenologist was called upon for help in many of the more favorable cases.

One may conveniently establish four groups: (1), primary operable cases, (2) cases inoperable because of the extent of the disease, locally the presence of distant metastases, or the unfavorable general condition of the patient, (3), cases presenting local recurrence or metastases following surgical removal of the breast, (4) cancer of the breast in young women.

GROUP I PRIMARY OPERABLE CASES

The clinical criteria of operability are well known. The mass should be movable on the chest wall, the skin should not be extensively involved. A carcinoma which has eroded the skin and broken down may still be operable when as if there is a diffuse lymphatic invasion of the skin the so-called inflammatory type surgery is contraindicated. Moderate involvement of the lower axillary glands does not contraindicate operation but reduces greatly the chance of cure. Enlargement of glands above the clavicle contraindicates surgery.

The differentiation of benign and malignant tumors of the breast by means of soft tissue radiography as recommended by Warren has in our experience, proved of little value. In a series of 100 cases in which radiographs of the breast were made, we were usually able to confirm a positive clinical diagnosis of cancer but in those cases which were clinically doubtful the roentgenograph was often misleading. In several instances sharply defined nodules which were interpreted as benign proved on histological examination to be malignant.

One of the most important contraindications to surgery is the presence of visceral or bony metastases. Even though the local growth seems operable these secondary deposits may be present and give no symptoms. Metastases in the lungs and bones can usually, but not invariably, be demonstrated by roentgen examination.

The results in a series of 500 cases of cancer of the breast examined roentgenologically with

a view to determining the incidence of pulmonary and osseous metastases will be briefly discussed. A more detailed report of this study will be presented in a subsequent communication. Of the 500 cases examined, 293 showed no metastases, seventy-three showed metastases to the lungs only, eighty-six had metastases in the bones only, and forty-eight showed metastases to both bones and lungs. (Table I.) The

TABLE I
CARCINOMA OF BREAST

Total Cases Examined	500 — 100.0%
No Metastases	93 — 58.6%
Metastases to Bones or Lungs	207 — 41.4%
Metastases to Lungs Only	3 — 14.6%
Metastases to Bones Only	86 — 17.2%
Metastases to Both Bones and Lungs	48 — 9.6%

distribution of bone metastases in order of frequency is shown in table 2.

TABLE 2
CARCINOMA OF BREAST

Total Cases Showing Bone Metastases	134 — 100%
Pelvis	86 — 64%
Spine	84 — 62%
{ Lumbar Spine	68 — 50%
{ Dorsal Spine	51 — 40%
{ Cervical Spine	23 — 17%
Skull	60 — 44%
Extremities	57 — 42%
Shoulder Girdles	42 — 31%
Ribs and Sternum	42 — 31%

It will be noted that metastases in the bones occur with slightly greater frequency than metastases in the lungs. It is therefore fully as important to examine the skeleton preoperatively as it is the lungs. This immediately raises the question of expense. In only one case in the entire series was a metastasis discovered in an extremity without concomitant involvement of the skull, spine, pelvis or lungs. It is therefore not essential to include the long bones in the routine examination of the skeleton. This makes a very appreciable reduction in the cost. It is now our practice to take the following films preoperatively: a lateral view of the skull (8 x 10 film), a lateral view of the dorsal spine (14 x 17 film), an anteroposterior view of the lumbar spine and pelvis including the upper ends of the femora (14 x 17 film), a postero-anterior view of the chest (14 x 17 film). If this preoperative roentgen examination is carried out routinely a number of useless mastectomies will be avoided and the surgeon will be spared the discomfort of having patients return a few months or even weeks after operation with symptoms from metastases which were in reality present before operation.

If it is concluded that the local growth is operable and that there are no distant metastases

the question of preoperative radiation arises. There are many advocates of this procedure, foremost among them the Radiumhemmet in Stockholm. In our opinion there are several disadvantages to preoperative radiation which outweigh the possible benefits: first, many cancers of the breast are not particularly radiosensitive and the delay of several weeks which preoperative radiation entails should be avoided; secondly, to obtain regression of a cancer of the breast the radiation dosage must be sufficiently large to produce a severe erythema of the skin. This frequently causes some delay in healing of the wound postoperatively. More important, however, is the danger of late radio dermatitis. We have seen a number of cases of carcinoma of the skin which developed many years after the original cancer of the breast had been cured. There is also some danger of damage to the lungs which results in pulmonary fibrosis. When radiation offers the patient the only hope of cure or greatly enhances the possibility of cure, one is justified in chancing the development of late untoward radiation reactions. Surgery will eradicate the disease *locally* in about 80 per cent of the operable group. Most of those who die succumb to glandular, visceral, or bony metastases. Thus it seems unwise to subject this entire group to the hazard of radiation damage when benefit will accrue to hardly more than twenty per cent. It is our opinion that preoperative radiation should not be practised routinely, but should be limited to a small group of borderline cases in which there is some doubt as to the possibility of completely eradicating the disease by surgery.

Next to be considered is postoperative radiation. The danger of late untoward radiation reactions applies here as it does with preoperative radiation. We have discontinued routine postoperative treatment, but there are, however, certain cases in which it is indicated: first, when there has been a simple amputation of the breast without dissection of the axilla; secondly, when there is gross or microscopic disease in the axillary nodes; thirdly, women who have not passed the menopause. This last group will be discussed under a special heading.

A word should be said regarding the radium treatment of operable cancer of the breast. This is carried out by implanting long platinum needles of low radium content (2 or 3 milligrams) or "gold wires" containing radon (radium emanation). The implants are usually left in place for about a week giving a dose of from 10,000 to 20,000 milligram hours. This method is available in only a few clinics which possess the necessary apparatus. Although encouraging results have been reported by several workers, it is our belief that this procedure should not be recommended as a substitute for surgery in favorable cases.

GROUP II INOPERABLE CASES

About 60 per cent of the cases of carcinoma of the breast presenting themselves at a cancer clinic are unsuitable for surgery. Radiation is the best method available at present for the treatment of these unfortunates. If the disease has not progressed beyond the axillary and supraclavicular glands and the patient is in good general condition intensive radiation to these areas is indicated. Proper treatment will frequently result in regression of the disease and marked palliation. If distant metastases have developed, the case may be considered hopeless and one is scarcely justified in intensive radiation of the local lesion. High-voltage roentgen rays produced by at least 200 kilovolts peak with a filter of at least one-half millimeter copper are employed. The breast is irradiated by the "cross-fire" method with the patient lying on the affected side. The rays are directed from below upward through a large field covering the lateral aspect of the breast and axilla. When this area has been given the desired dosage the rays are directed from an overhead tube to the medial aspect of the affected breast with the patient still lying on the affected side. A third field including the supraclavicular area is frequently employed. With this technique excessive dosage to the lung is avoided since it is irradiated only through the lateral portal. The roentgen (r) unit which is based on the amount of ionization produced by the rays in one cubic centimeter of air is accepted as the standard of dosage. All measurements reported in this article are made without back-scattering of rays from the patient. Seven hundred r will produce a mild skin erythema when given through a fifteen by fifteen centimeter portal in one sitting. Treatments are given in daily doses of 300 r to 400 r. A total of 1500 r to 1600 r is delivered to the lateral portal and a similar dose to the medial portal. The entire treatment is completed in eight to ten days. About a week after the completion of the series, a stiff erythema with some blistering develops which may cause the patient much discomfort for several days. This reaction will always clear up and the patient should be assured of this fact. Following the treatment to the breast it is often advisable to irradiate the supraclavicular region giving a total of 1600 r to 1800 r in daily doses of 300 r to 400 r. Occasionally the local lesion is treated by the implantation of radium needles as described under Group I, and sometimes by a combination of radium and roentgen rays. One may expect regression of the disease in a large percentage of cases which are intensively irradiated. Following this intensive radiation subsequent treatment must be given with great caution, since the normal tissues never recover completely from this dosage.

When the disease recurs in an area which has been heavily irradiated it sometimes progresses

with great rapidity. This is particularly true of the inflammatory type of cancer. These extensive recurrences are sometimes mistaken for a radiodermatitis.

The direct effect of radiation on distant metastases is usually disappointing. Occasionally deposits in the parenchyma of the lung may regress with dosages of about 1200 r to the front and back of the chest, and the accumulation of fluid resulting from involvement of the pleura may sometimes be retarded. Metastases to the abdominal viscera, particularly the liver are refractory and it is useless to radiate them. Bone metastases show little response to direct radiation but in young women may regress secondarily following cessation of ovarian function. This will be discussed more fully under Group IV. Irradiation may have a marked analgesic effect, particularly in those cases with involvement of the spine. Complete relief from pain is often secured by moderate dosages even though there is no demonstrable regression of the metastatic process. As little as 600 r to 800 r delivered over the spine may serve to make the patient comfortable for a period of months.

GROUP III POSTOPERATIVE RECURRENCES

The percentage of local recurrences following radical mastectomy should be small provided the cases have been properly chosen for operation. These recurrences may appear as small superficial nodules in the skin, many of which may be easily palpated although they are not visible. Such lesions often do exceedingly well with roentgen ray dosages of 1500 r to 1800 r given in a period of a week or ten days. The larger, more indurated areas of local recurrence with involvement of the chest wall are less responsive but many of these lesions may also be controlled.

Postoperative axillary and supraclavicular recurrences are treated in much the same manner as described under Group II. When extension to the remaining breast occurs the technique of radiation is essentially the same as that employed in an inoperable case. In exceptional instances surgical removal of the second breast may be indicated.

The treatment of remote metastases has been discussed under the previous heading.

GROUP IV CANCER OF THE BREAST IN YOUNG WOMEN

Cancer of the breast in young women is generally more malignant than in those who have passed the menopause, and ends fatally in a large percentage of cases.

Lee has tabulated the results of 191 cases of cancer of the breast in women under forty which

were treated by radical mastectomy. At the end of three years only 15 per cent were alive and free of disease. A smaller series of forty-eight cases collected by one of us showed only 12.5 per cent free of disease three years after amputation of the breast. It is well known that a cancer of the breast may progress with unusual rapidity during pregnancy. There is much experimental evidence to show that some relationship exists between ovarian function and certain cases of breast cancer. Surgical removal of the ovaries was practiced in Germany as early as 1889 (Schmuzinger) and in England in 1896 (Beaton). Palliative results were obtained in about one third of the cases of cancer of the breast in young women subjected to oophorectomy. Castration can be more easily and safely carried out by high voltage roentgen radiation than by surgery. A dose of 600 r to the front and back of the pelvis respectively using a 15 x 15 centimeter portal at a distance of 50 centimeters will produce within two months a cessation of menstruation in the average sized woman thirty five or older. The dose in the region of the ovaries must be increased in younger women. This can best be accomplished by extending the focal skin distance from 50 to 80 centimeters.

The results of ovarian radiation in fifty-nine cases of cancer of the breast with bone metastases have been reported in detail in another article. Thirty of these cases were women who had not reached the menopause and twenty-nine had passed the menopause. In 30 per cent of the premenopause group there was definite regression of the bone metastases following roentgen castration. These patients were relieved of symptoms for periods varying from several months to three years. In the postmenopause group there was not a single instance in which bone regeneration following ovarian radiation could be demonstrated.

The results of ovarian radiation in the advanced cases of cancer of the breast in young women have led us to extend the method to a more favorable group. When the growth is locally operable, a radical mastectomy is performed. About ten days after the operation intensive postoperative roentgen treatment is given to the operative site. This consists of a series of daily treatments of 300 r to 400 r until a total of 1600 r to 1800 r has been reached. Radiation is then directed to the pelvis as above described. We are not prepared to draw definite conclusions from this group, but the results have thus far been encouraging. It is our hope that this regime may at least serve to delay local and metastatic recurrences in about one third of the cases. The danger of future pregnancy is eliminated which alone justifies the procedure.

DUODENAL STUMP CLOSURE IN GASTRIC RESECTIONS WITH A MODIFIED FURNISS CLAMP

BY HOWARD M. CLUTE, M.D.*

ALL surgeons who do resections of the stomach recognize both the importance of adequate duodenal closure and the difficulties which this maneuver may entail. No part of a gastric resection is more likely to be followed by fatal complications if improperly done than the closure of the duodenal stump. The writer has found that a modification of the Furniss clamp for intestinal anastomosis has been very successful in expediting and simplifying this stage of gastric resection, and wishes to report its use in several cases. It is felt that, with this modification of the Furniss clamp, a fairly standard technique of approach to duodenal closure can be established.

About a year ago an attempt was made by the writer to close the duodenal stump during a subtotal gastrectomy by placing the Furniss clamp on the duodenum and then folding over the cauterized surfaces while they were held by the Furniss pin. The procedure was accomplished with difficulty because the hinge of the clamp is at the distal end and because it was impossible to put the holding pin or needle in from the distal end (Fig 1).

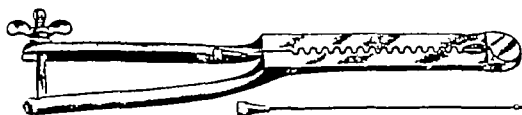


FIG 1 Plate from manufacturer's advertising, showing Furniss clamp. Note hinge at distal end. Pin can be inserted only from proximal end of clamp.

A modification of the Furniss clamp was therefore, worked out with the cooperation of Mr. George Hiller of Hiller & Heuser, Boston.

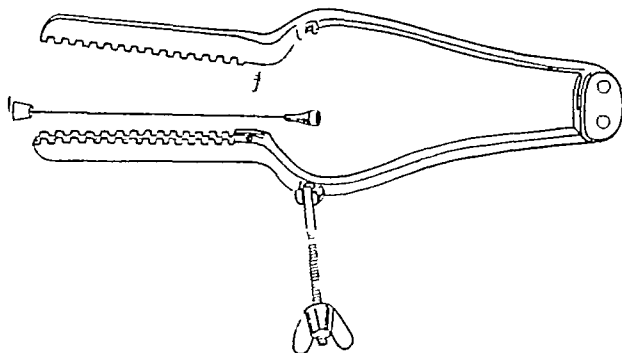


FIG 2 Author's modification of Furniss clamp. Hinge at proximal end of clamp. Pin can be inserted from either end of clamp. Less crushing pressure is obtained with turnbuckle at center.

Mass primarily for use in closing the duodenal stump in gastric resections. As will be noted in fig 2, the hinge of the clamp is at the proximal

end and a screw and turnbuckle for tightening the pressure is in the center of the clamp. The pin to hold the edges of the shrunken gut together may be inserted from either the proximal or distal end of the clamp. This point is most important since in closing the duodenum a needle with catgut swedged on may be inserted from the distal end of the clamp through the entire width of the gut. This is impossible in the original Furniss clamp.

The writer has now used this modified Furniss clamp in three cases of subtotal gastric resection with excellent results. In fig 3 the particular

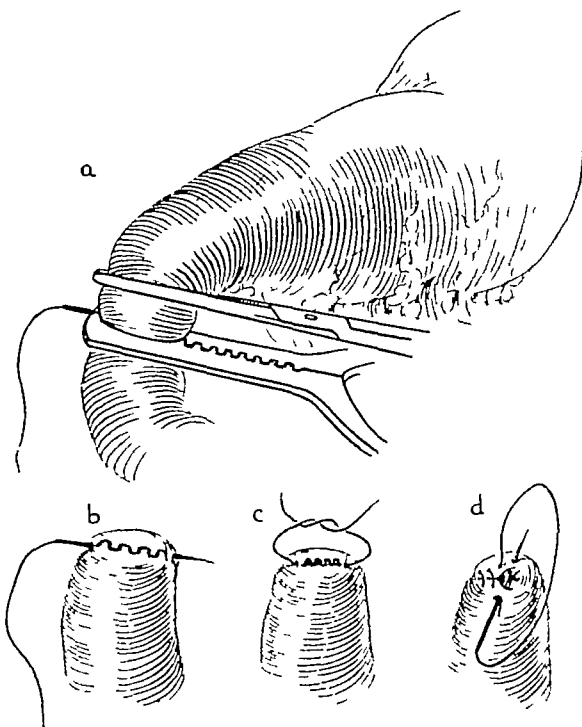


FIG 3 Method of closing duodenum with modified clamp using straight intestinal needle instead of pin to hold duodenum after division from stomach. Tying the suture closes the stump without soiling, and inversion can then be carefully done.

steps in the technique are shown. The stomach and duodenum are prepared for resection by ligation of the major blood supply along the greater and lesser curvatures. The modified Furniss clamp is applied in such a way that the edge of the duodenum as it is crushed comes just to the distal end of the clamp. In place of the usual Furniss pin a straight intestinal needle is inserted through the distal end of the clamp to hold the duodenum (Fig 3a). An occlusive Ochsner clamp is placed proximally on the stomach.

The duodenum is now divided with the actual cautery and the modified Furniss clamp removed. This leaves the duodenal stump held tightly shut by the intestinal needle (fig 3b).

*Clute Howard M.—Professor of Surgery, Boston University School of Medicine. For record and address of author see This Week's Issue, page 74.

which can then be drawn through so that its attached suture puckers the shirred end as it is tied (fig 3c). The duodenal stump is now still further occluded by either continuous or interrupted mattress sutures (fig 3d). Adjacent fat is caught in with a third layer of mattress sutures and the duodenal closure is complete. Once the duodenum has been sufficiently freed to receive the clamp its division and closure require but a few minutes.

The writer wishes to express his indebtedness to Dr. Furniss for the inherent advantages of this clamp and for the idea of using a threaded needle to close the end of the intestine. The change in Dr. Furniss's clamp which has been made in no way alters its fundamental principles but does, in the writer's opinion, make them more readily applicable in certain situations, such as duodenal stump closure.

RECRUDESCENCE OF OVARIAN FUNCTION AFTER HEAVY IRRADIATION*

Two Cases

BY GEORGE VAN S. SMITH, M.D.†

RADIUM applied inside the uterine cavity in doses under 1000 milligram hours practically never induces a permanent amenorrhea in women under the age of thirty-five. This statement is based on limited experience both at this clinic and elsewhere in the treatment of patients with excessive and/or prolonged uterine bleeding or fibroids. The amount of irradiation necessary to bring about a permanent amenorrhea in these cases or in women with normal ovarian function is not established although one would assume that at least 1200 milligram hours and probably 1600 to 2400 milligram hours would suffice. The size and position of the uterus and ovaries, the distance of the ovaries from the source of irradiation and the amount of filtration would have to be taken into consideration.

In the majority of women over the age of thirty-five intracavitary application of 1200 milligram hours is generally accepted as adequate to produce a permanent menopause providing there is no tangible structural abnormality of the internal genitalia and the filtration does not exceed the equivalent of one millimeter of platinum. This dose might not be sufficient in cases of fibroids since the tumors may displace the ovaries far enough away from the radium so that in reality they receive a comparatively small exposure. Nor would it be sufficient presumably in cases of ovarian tumors mistaken for fibroids since enough functioning ovarian tissue might lie beyond the range of the radium. Furthermore, exception should be made in cases of granulosa cell tumor, in which the cells are so active in secreting the female sex hormone that 1200 milligram hours of radium might not inhibit them even though the tumor was so small as to be impalpable and the ovaries were not displaced. At this clinic one such in-

stance in which radium failed to inhibit the bleeding associated with a granulosa cell tumor has been encountered.

The patient, Miss A. L. M., a private case of Dr. F. A. Pemberton, aged fifty-three was seen in July 1926 because of profuse bleeding four years after the climacteric. Biopsy revealed endometrial hyperplasia with polyp formation. At that time granulosa cell tumor was not suspected. The uterus was only moderately enlarged and no other pelvic abnormality was palpable. She was treated by the intracavitary application of radium (two 50-milligram glass capsules, screened by one-half millimeter of silver and one-half millimeter of brass for 24 hours)—2400 milligram hours. Seven years and three months later the patient returned because of almost constant flowing with hemorrhages at times. Complete hysterectomy was performed. The uterus was moderately enlarged. Marked endometrial hyperplasia bordering on malignancy, diffuse hyperplastic adenomyosis of the uterine wall and a four millimeter granulosa cell tumor (thecal cell type) at the median pole of the right ovary which was not displaced, were found. Convalescence was uneventful and the patient remains well two and one-half years after operation. At the present time irradiation would not be employed in cases showing hyperplasia of the endometrium some time after a well-established menopause since this finding constitutes an almost infallible criterion of the presence of granulosa cell tumor the accepted treatment of which is operation.

The report of the following two cases is prompted first because they experienced periodic uterine bleeding after truly large doses of radium, secondly because functioning endometrium was obtained thus indicating a return of ovarian activity and thirdly because a survey of the literature indicates that no similar instances have been recorded.

CASE 1. Mrs. C. B., aged thirty-eight was admitted on August 30, 1920 because of daily flowing for six weeks. She had had no pain and had been perfectly well until the present illness. She had had six children and three abortions. On examination the cervix was slightly lacerated and felt a little hard. No other pelvic abnormality was discerned. Biopsy revealed early but highly malignant squamous carcinoma in the endocervix and radium was applied. Two 50-milligram glass capsules screened by one-half millimeter of silver and one

* From the Free Hospital for Women, Brookline, Mass.

† Smith, George Van S.—Assistant Visiting Physician, Latham and Ed. Direct. of Research, Free Hospital for Women, Brookline, Mass. P. record and share of a free use "The Week" issue" page 74.

millimeter of red rubber, were placed in tandem in the cervical and uterine canals and four 25 milligram glass capsules, screened by one-half millimeter of silver and set around the periphery of a one-half millimeter brass pill box, were abutted against the cervix and vaginal vaults—200 milligrams in all—and were allowed to remain for thirty hours, giving a total dosage of 6000 milligram hours. The vagina was packed with gauze to hold the radium in place and to keep bladder and rectum away.

For six months following irradiation there was no flowing and only slight watery discharge. The patient then experienced what she considered regular and normal monthly periods. There were no hot flushes, she felt well and was gaining weight. In January, 1930, she had menorrhagia of three weeks' duration, followed by a return of normal cycles. During 1931 there was occasional slight intermenstrual staining. On examination in January, 1932, no palpable or visible evidence of pelvic disease could be found. She was again examined in April, 1932, because of menorrhagia of two weeks' duration and some scarring was felt in the broad ligaments. In May, 1932, she was examined under anesthesia. There was slight erosion of the cervix and biopsy showed only chronic inflammation. The fundus was enlarged to twice normal size, it lay in the second degree of retroversion and was freely movable. No adnexal abnormalities were palpable. The cervical canal was easily dilated and found to be smooth. The distance from the external os to the top of the uterine cavity was three and one-half inches. No polyps or irregularities were made out and the curettings showed the picture illustrated in figure 1. On rectal examination soft scarring was



FIG 1 Path no 20347 Photomicrograph of endometrium ($\times 80$) removed five years and eight months after the local application of radium 200 milligrams for 30 hours. It shows late proliferation and some dysplasia.

felt in the broad ligaments. Because of the menorrhagia and the endometrial activity the condition was considered dysfunctional and radium was the elected treatment, first, because the patient was well in all other respects, secondly, because the tissues had reacted so well previously to irradiation and thirdly, because excessive obesity seemed to be a contraindication to operation. Two 50-milligram capsules covered with one-half millimeter of silver

and placed in tandem in a one-millimeter brass tube were inserted into the uterine cavity and allowed to remain for sixteen hours—1600 milligram hours in all. Convalescence was satisfactory. When last examined, in January, 1936, nine years and four months from the time of her first admission, the patient was well and had had no flowing or discharge. No evidence of disease could be seen or felt.

CASE 2 Mrs B L O, aged twenty seven, entered the hospital in March, 1927. She had come to the outpatient department because of prolonged flowing following her previous menstruation and was referred to the house at once because of a suspicious lesion of the cervix. She had had six pregnancies. A rush biopsy during anesthesia showed only chronic cervicitis, but the celloidin section later disclosed early carcinoma. Radium was employed—50 milligrams, screened by one-half millimeter of silver and one-half millimeter of brass, were inserted into the cervical canal and 175 milligrams, screened by one-half millimeter of silver, were distributed about the periphery of a pill box of one-half millimeter of brass, which was placed against the cervix and fornices—225 milligrams in all—and allowed to remain for twenty four hours, giving a total dose of 5400 milligram hours. Convalescence was uneventful and an artificial menopause ensued. In August, 1928, the patient was examined under anesthesia because of occasional staining after intercourse. The upper third of the vagina was closed by adhesions, which were broken, the stenosed cervix was dilated. Biopsies showed only the reaction from irradiation. There was diffuse scarring across the pelvis, which was considered due to irradiation.

Again in September, 1931, the patient was examined under anesthesia. There was less induration across the pelvis, but the vaginal adhesions and cervical stenosis had recurred. The adhesions were broken and the cervix dilated. No evidence of cancer could be found, the curettings consisted of atrophied endometrium and necrotic tissue.

In 1933 the patient had what she considered regular and normal periods for six months. From January until August, 1934, she had had three periods. At this time she was again examined under anesthesia. No cancer could be detected, the uterine cavity was two inches deep and curettage disclosed a functioning endometrium, as shown in figure 2. Her latest follow up was in December, 1935, eight years and eight months from the time of irradiation. She was well except for a rare hot flush when tired. Menstruation had been regular and normal since the fall of 1934.

Discussion One's first thought is that these cases may have had ectopic ovarian tissue or a granulosa cell tumor. These possibilities cannot be ruled out in case 1, but seem unlikely, since the patient responded so well to the second treatment, remaining symptom free thus far for three years and eight months. The diffuse enlargement of her uterus at the time of the second treatment, on the other hand, is a finding suggestive of the presence of a granulosa cell tumor. If case 2 had ectopic ovarian tissue, a return of function would have been expected sooner. The fact that her menstruation has been normal since reestablishment is on the whole against the presence of a granulosa cell tumor, although one case with normal menstruation, normal endometrium and a granulosa

cell tumor has been encountered at this clinic. The finding of an endometrium showing the corpus luteum effect does not bear any weight for or against granulosa cell tumor, since secretory endometrium has been found in patients with these tumors when no other source of progesterin could be demonstrated.

It could be argued that, since all the radium was not placed in the uterine cavity the ovaries

Furthermore the distance between the lateral fornices and normally located ovaries may not be more than one and one half centimeters greater than that between the uterine cavity and the ovaries and may even be less to the outer poles than that from the uterine cavity.

It has been commonly accepted that ovaries are endowed at birth with their full quota of primordial follicles. The hormone studies of recent years have cast doubt on this concept and suggest that follicles may be developed from the ovarian stroma in extrauterine life. The fact that case 2 had a secretory endometrium (indicating the presence of a corpus luteum and hence previous ovulation) after so long a period of amenorrhea may be interpreted as evidence for the evolution of a new crop of primordial follicles. It does not seem at all likely that any follicles which might have survived irradiation would have remained inactive for so long a time. Since only one biopsy of the endometrium from case 1 was made and did not show any corpus luteum effect, no deductions can be drawn as to whether follicles may have developed *de novo*.

SUMMARY

Two cases are reported which experienced cyclic uterine bleeding following massive doses of radium and from which biopsies revealed functioning endometrium thus indicating a recrudescence of ovarian activity. The finding in case 2 of an endometrium showing the corpus luteum effect is taken as presumptive evidence for the development *de novo* of ovarian follicles after a long period of quiescence.

FIG. Path. no. 33276 Photomicrograph of endometrium (X 50) removed seven years and four months after the local application of radium, 215 milligrams for 24 hours. It shows the mid-secretory phase and some dysplasia.

really may not have received much of the massive dose. In this connection it can only be stated that thus far, none of nine similar cases similarly treated and surviving for the same periods have had a return of cyclic bleeding.

BENJAMIN SHATTUCK OF TEMPLETON— MEDICAL PRACTITIONER*

BY GEORGE CHEEVER SHATTUCK M.D.†

ANCESTRY

BENJAMIN SHATTUCK the subject of this paper was of the fifth generation of Shattucks in this country. He belonged to the Littleton branch of the family, was born on November 11, 1742 in Littleton (Middlesex County) Massachusetts, but moved to Templeton (Worcester County), Massachusetts and died there on January 14, 1794.

Besides the Shattucks of Littleton other branches of the family were already established in Deerfield, Cambridge, Andover, Pepprell

Groton and Holms in Massachusetts and there were still others in New Hampshire and in Connecticut.

The name of Shattuck has since become widely diffused in the United States but it is possible that the lineage of all persons in America now bearing the name of Shattuck might be traced to a common ancestor namely to William Shattuck who was born in England in 1621 or 1622. There is no doubt at any rate that our Benjamin was descended directly from this William Shattuck, who arrived in Boston as a boy without parents or resources. As early as 1642 William Shattuck's name was recorded as owner of a small grant of land in Watertown. Probably most of his time was de-

*Read at a meeting of the Boston Medical History Club at the Boston Medical Library December 16, 1935.

†Shattuck, George Cheever—Assistant Professor of Tropical Medicine, Harvard University Medical School. For word and address of author see "This Week's Issue" page 74.

voted to farming but he bequeathed a loom to his son William

William the younger (1653-1732) continued to live in the homestead in Watertown where he followed farming, brick-making and other employments such as were usual in the frontier life of those days. This William had a son, the Reverend Benjamin (1687-1763), who was graduated from Harvard College in 1709 studied theology there and, subsequently was ordained the first minister of Littleton. The Reverend Benjamin had eleven children, of whom Stephen was the eldest. Stephen (1710-1801) became a farmer in Littleton and, at the age of sixty-five, took part in the Concord fight on the 19th of April, 1775, and followed the enemy to Cambridge.

Our Benjamin Shattuck, the second son of Stephen, became the first physician in his direct line of descent which, in the four succeeding generations, counts five physicians*. Among Benjamin's forbears and close relatives of the name of Shattuck, there had already been three other physicians*. They belonged respectively to the second, third, and fourth generations.

BACKGROUND

Although the massacre of the people of Deerfield by the Indians in 1703 could only have been remembered by old people at the time when Benjamin was born, there was, even in his youth, a line of forts in the southern part of New Hampshire. One of these built by Capt Daniel Shattuck (1692-1760), was called "Shattuck's Fort"†. It was near the Connecticut River in Hinsdale and it consisted of two houses built on either side of a brook. They were enclosed in a strong palisade of timbers and thick planks surmounted by pickets. In the upper part were posts for sentinels and holes to fire through. During the Indian Wars in 1745, and subsequently, the whole people of the neighborhood came to this fort to live. When the men of Hinsdale labored in their fields or went to church, they had then guns with them, and there were always sentinels on guard. In 1746 the Indians fired upon four men near Shattuck's Fort, but hurt none and, in 1747, they set fire to the fort at night and part of it was destroyed.

Although Benjamin's family and then neighbors had nothing to fear from Indians, the French and Indian Wars did not terminate until 1763 and while Benjamin was growing up, stories of Indian fighting must have been narrated at the Shattuck fireside by actual participants.

As a boy Benjamin doubtless made himself generally useful on his father's farm. He must have turned his hand to many things for, in

those days, families living in the country produced the food they ate and raised the flax and wool which were to become linen and homespun, or knitted socks and undergarments for winter wear. The candle-mold was part of the necessary equipment and the warming-pan was in common use until a much later day. Travel was by stage-coach or on horseback. Boston thirty miles away as the crow flies, could not be visited easily.

I imagine that the school at Littleton in those days was extremely elementary and that it absorbed little of the time or energy of the pupils. Benjamin was fortunate, however, in having been fitted to enter Harvard College by Jeremiah D. Rogers, son of the clergyman of Littleton.

An old pamphlet entitled "A Memoir of Dr Shattuck", which is both anonymous and undated, bears internal evidence of having been written some years after the death of Benjamin. It seems quite possible that the author may have been Benjamin's son, Dr. George Cheyne Shattuck the elder. Extracts from this quaint document read as follows:

"While at Cambridge Shattuck was considered a young man of good capacity, a hard student, with an original cast of thought which sometimes appeared like eccentricity.

"It was then a period remarkable for boldness of thinking, and freedom in the expression of liberal opinions on great national questions. The spirit of liberty has always been first invoked in the groves of learning. The sacred flame which was soon to burn through the land and warm every breast was frequently seen at that time to flash and enlighten in the halls of Harvard. Among those whose observations are remembered by those few who were students at that time and are still living Dr Shattuck held a distinguished rank. In questions of philosophy as well as of government he was one of the pioneers in liberal discussion."

The freedom of thought and boldness of expression which existed in Harvard College in these early days indicate the political temper which led to revolution and denotes a falling away from the Calvinistic concepts of the Puritan settlers.

Benjamin Shattuck was graduated from Harvard with the Class of 1765, which, although it numbered only 54 members, was considerably larger than any of the earlier classes.

MEDICAL CAREER

After graduating from College, Benjamin went to Groton where he became apprenticed to Dr. Oliver Prescott, an outstanding physician and patriot. Prescott, also a graduate of Harvard College, had been trained in medicine by the apprentice system but, many years later, he received an honorary *M.D.* from Harvard.

*Appendix I

†Captain Daniel Shattuck of the Hinsdale branch of the family was a distant cousin of Benjamin. See Memorials of the Descendants of William Shattuck by Lemuel Shattuck, 1855 Boston: Dutton and Wentworth.

for the proposed hospital in Philadelphia. Probably, he knew more about certain aspects of medicine than did many a practising physician of the time. In the words of Mumford (page 82)

"He recognized the futility of asking for subscriptions for so novel a project before a popular demand had been created, so he proceeded to create the demand. As he says, 'Previous, however, to the solicitation I endeavored to prepare the minds of the people by writing in the newspapers on the subject, which was my usual custom in such cases, but which Dr. Bond had omitted'."

In the following year, 1752, a house was rented and made ready for patients. Such was the humble beginning of the Pennsylvania Hospital, the precursor of all our great general hospitals. The second great hospital, that of New York, was granted its charter in 1770 (Mumford page 101). It was not equipped and started, however, until 20 years later (1791)*, and the Massachusetts General Hospital did not admit its first patient until 1821 when our Benjamin had been for many years in his grave.

Academic medical training began in Philadelphia in 1765 when Morgan and Shuppen were appointed respectively to the chairs of the "Theory and Practice of Medicine" and of "Anatomy and Surgery". Three years later, Kuhn became Professor of "Materia Medica and Botany" and, in the year following, the great Benjamin Rush began his lectures as "Professor of Chemistry". It was during these years that Benjamin Shattuck was getting his medical training in Gtoton. Dr. Prescott must have known of the new School in Philadelphia but he may have hesitated to recommend it to his pupil until its worth had been proved by time. Probably, too, the pupil could not have afforded a visit to Philadelphia.

Be that as it may, in subsequent years Benjamin Shattuck studied the writings of Cullen of Edinburgh and of other leaders of medical thought in Great Britain. Apparently, he admired particularly the works of George Cheyne of London and Bath, for he named a son George Cheyne Shattuck. This son succeeded his father as a physician and became a leading practitioner and medical teacher in Boston.

Two years after beginning his medical practice, Benjamin Shattuck married Lucy Barron† of Chelmsford. They had seven children, of whom Dr. George Cheyne Shattuck the elder was the fifth.

When Benjamin Shattuck went to Templeton, the nearest sizable town was Worcester, which was about twenty-five miles distant in a direct

line, whereas Boston was fifty-five miles away and it was forty-three miles to Springfield.

Worcester* had been settled in 1685, wiped out by the Indians in 1701, and resettled in 1715. By 1790, while Benjamin was still in active practice, the town of Worcester had 2095 inhabitants. Much Indian corn and rye were raised in Worcester County, but not much wheat, because rye did better there. The natural forest growth consisted largely of oak, walnut, chestnut, and pine. In or near the town were grist mills, sawmills, fulling-mills and trip hammers.

Moreover, from Worcester as the center, "West India goods" were supplied to the surrounding country, for Worcester was on the great post-road from Boston to Springfield, and various other roads converged there.

I imagine that Benjamin Shattuck occasionally went to Worcester on horseback to see a patient or to make a purchase. His medical equipment must have been carried in saddle-bags. In them he may have had a variety of potent purgatives and emetics, some surgical instruments and a lancet for blood-letting. Certainly, he did not have a stethoscope, for Laennec did not publish this great discovery until 1819. Neither could Benjamin have had a clinical thermometer for the "Medical Reports" of James Currie of Liverpool, describing the use of thermometers in medicine, did not appear until 1798†, four years after Benjamin's death. Moreover, the clinical thermometer did not come into general use until after Wunderlich's treatise appeared in 1868‡.

Unless my memory plays me false, Dr. Frederick C. Shattuck told me years ago that the clinical thermometer was first used at the Massachusetts General Hospital by Benjamin Shattuck's grandson, George Cheyne Shattuck the younger. The thermometer which he used was shaped like a fish-hook. The short arm was placed in the axilla and the temperature was read on the longer, projecting arm.

Quoting again from the old "Memoir" "For twenty-four years Dr. Shattuck continued his labours in the County of Worcester and the neighboring Counties until his strength sank under his efforts." "He died of a pulmonary complaint in the year 1794. His mind continued bright and active until the last moments of his life. He reasoned and judged upon his own case with the calmness of one not interested in the event, and named to his medical friends with present accuracy the number of hours the mortal machine would, by the common course of Nature, continue its functions."

"Those who lived with him and were the best judges of his talents and acquirements

*Mumford page 102

†Appendix III

‡Mrs. Shattuck survived her husband and subsequently married the Reverend Asaph Rice of Westminster

*Collections of the Massachusetts Historical Society for the year 1792. Vol. I page 112. Published in 1806 by Timothy Paine et al.

†Fielding H. Garrison M.D. 1914. An Introduction to the History of Medicine. Phila. and London.

uniformly agree that no physician of that time was more acute in discovering the seat and causes of a disease than Dr Shattuck. To quick discernment was added a patience of investigation of all the circumstances relating to the subject under consideration which naturally led to correct views and happy results.

"His knowledge was considerable but his wisdom was superior to his knowledge. He knew much of the thoughts of other men but was governed by a system formed from his own. He hailed with delight the works of Cul len and other distinguished lights in his profession, but received their opinions as intellectual food, for digestion, rather than absolute guides of his own practice. He was systematic in his course of examining, reasoning, judging, and acting but was not, like many wedded to systems." "He was often consulted by his professional bretheren in stubborn cases and his judgment was considered by

them as the '*ultima ratio medicæ*' " "There were several physicians highly respectable in their day and generation, who were on most friendly terms with him, and years after he was gone, bore testimony to the soundness of his judgment and the success of his practice. Drs. Foxcroft Atherton and Frink were among the number, all men of distinction in their profession."

At Benjamin Shattuck's funeral, a eulogy was delivered by the Reverend Ebenezer Sparhawk and on the death of Benjamin's wife in 1821 (then Mrs. Rice) a sermon was preached by the Reverend Charles Wellington. The eulogy and the sermon were printed for private distribution and were bound together at the request of George Cheyne Shattuck the elder but little can be found in them about the life of Benjamin or that of his wife.

Such is the simple story of Benjamin Shattuck of Templeton medical practitioner

APPENDIX I

PHYSICIANS CLOSELY RELATED TO BENJAMIN SHATTUCK

Direct Line of Descent

William Shattuck 1621 or 1622-1675

William Shattuck 1653-1732

Rev Benjamin Shattuck 1687-1763

Stephen Shattuck 1710-1801

Benjamin Shattuck, physician 1742-1794

George Cheyne Shattuck M.D. 1783-1854

George Cheyne Shattuck M.D., 1813-1893

Frederick Cheever Shattuck M.D. 1847-1909

George Cheever Shattuck M.D. 1849-

Collateral Lines

Phillip Shattuck, physician 1648-1722

Joseph Shattuck physician 1687-1729

Benjamin Shattuck physician 1713-1790

George Brune Shattuck M.D., 1844-1923

APPENDIX II

ORIGINAL SOURCES OF INFORMATION ABOUT
BENJAMIN SHATTUCK

- (1) Discourse delivered January 18 1794 at the Interment of Benjamin Shattuck, Esq. an Eminent Physician of Templeton.
By Ebenezer Sparhawk Boston 1830
E and W Bellamy
- (2) "Memoir of Dr Shattuck"—Anonymous and undated but published probably early in the 19th Century
- (3) "Memorials of the Descendants of William Shattuck"
By Lemuel Shattuck Boston, 1855 Dut ton and Wentworth Printed for the Family
- (4) "American Medical Biography" 2 volumes
By James Thacher M.D. 1828 Richard son & Lord and Cottons & Barnard
- (5) Registry of Probate. Worcester County Massachusetts
No 53003 re Administration of an Estate
No 53004 re Guardianship

APPENDIX III

SOME BOOKS BY GEORGE CHEYNE, M.D. F.R.S.,
WHICH MAY HAVE BEEN FAVORITES OF
BENJAMIN SHATTUCK

- (1) An Essay of Health and Long Life London 1724
- (2) "The English Malady or a Treatise of Nervous Diseases of all Kinds as Spleen Vapours Lowness of Spirits Hypochondriacal and Hysterical Distempers etc.
In Three Parts London 1733
- (3) "An Essay on Regimen. Together with Five Discourses Medical Moral and Philosophical serving to illustrate the Principles and Theory of Philosophical Medicine and point out some of its Moral Consequences
London 1740
- (4) The Natural Method of Cure for the Diseases of the Body and the Disorders of the Mind depending on the Body
In Three Parts London 1742

DOES MODIFIED MEASLES CONFER LASTING IMMUNITY?

BY JAMES H. TOWNSEND, M.D.*

SINCE the adoption of various methods for modifying measles by the use of immune blood, convalescent serum, or placental extract, the question has been raised whether the disease, so attenuated, would confer an immunity of long duration. If it were shown that an appreciable number of persons having the modified disease later developed it again within a few years, this would constitute a valid objection to the widespread use of this treatment.

With this question in mind a follow-up was made of a group of individuals who experienced modified measles approximately ten years ago.

In a boarding school epidemic of sixty-five cases of measles in February 1926 thirty-two individuals received 9 cc of convalescent whole blood at least eight days before the development of the rash and experienced distinctly milder symptoms than their confreres who were not so treated. The differences in maximum temperature, duration of febrile period, occurrence of complications, and character of rash were described at that time.¹

Replies have recently been received from all thirty-two of these individuals who were con-

sidered to have had modified measles ten years ago. In no case have any of them experienced a subsequent attack of measles. Nine individuals indicated in their replies that they had, to their knowledge, come into intimate contact with the disease, some of them several times. Five others stated that they had been present in communities while measles epidemics had been in progress, but did not know of direct contact. The others made no observations about possible exposures, but most of them were in school or college for about six out of the ten years, and probably had ample opportunity for exposure.

Conclusion Replies from thirty-two individuals who had modified measles ten years ago indicate that none of them have experienced a subsequent attack of measles although many of them are known to have been amply exposed. There is no evidence to date that the active immunity conferred by modified measles is any less satisfactory than that conferred by the unmodified disease.

REFERENCE

*Townsend, James H. — Assistant Physician, Massachusetts General Hospital. For record and address of author see *This Week's Issue*, page 742.

1. Townsend, James H. Measles prophylaxis. The use of blood from convalescents in a school epidemic. *New Eng. J. Med.* 194: 869 (May 13) 1926.

ERADICATION OF TUBERCULOSIS

With improved measures of control which are within the limits of practicability, including better detection and isolation of open cases, with higher standards of living and personal hygiene, there appears to be no fundamental reason why tuberculosis may not be virtually eradicated from large areas in this country. While there are certain contingencies which obviously might bring about a recrudescence after the disease has reached an extremely low level, it does not appear that this result is inevitable in accordance with any accepted biological law or that it is especially to be anticipated.

Admitting that we cannot actually know the future of tuberculosis, it is none the less important that we should clearly define what are reasonable expectations in the light of present knowledge, since present activities in study and control necessarily are directed chiefly toward the future. If, as I believe it is reasonable to anticipate control to the point of permanent regional suppression, the establishment of this as the objective has obvious and important implications as to the scope and intensity of control measures. It has less obvious but important implications with respect to indicated lines of

investigation—*Excerpt from an address by Wade H. Frost, Am. Rev. of Tuberc., December, 1935*

DO YOU KNOW?

DEMENTIA PRAECOX

Each year from 15,000 to 20,000 individuals fall victims to what is known as dementia praecox soon after adolescence or in the first flush of manhood or womanhood. Properly handled about 40 per cent of these can be returned to effectual life, but the other 60 per cent will go on to a disorganization of personality that will be associated sooner or later with the intellectual deterioration that will make it necessary to segregate them.

Announcement has just been made that a fund of \$40,000 has been made available for a program of investigation and study of dementia praecox under the guidance of leaders of American psychiatry. The National Committee for Mental Hygiene states that the money has been given by the Ancient Accepted Scottish Rite, Northern Masonic Jurisdiction.—*Bulletin, Public Relations Bureau, New York State Medical Society*

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

ANTHROPOMETRIC AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22151

PRESENTATION OF CASE

A forty five year old white American salesman entered complaining of pain in the right leg.

The patient had been perfectly well until about fifteen hours before entry, at which time while writing at his desk he was suddenly seized with a terrific pain in the upper portion of his chest both anteriorly and posteriorly. The pain moved downward through the epigastrium and finally remained constant in the lower mid abdomen. Almost immediately afterward both legs became numb and cold. The skin became blue and the slightest movement caused severe pain. He was removed at once to a hospital. About five hours after the onset the left leg became perceptibly warmer but the right remained unchanged. Two hours later he was catheterized. Examination of the urine sediment was negative. The pain in the abdomen and the entire right lower extremity remained unabated despite the administration of morphin. Eleven hours after the onset the right leg was definitely colder and more cyanotic than at the previous examination. No pulsations were palpated in the femoral artery or any of its branches. Pulsation of the arteries in the left leg was present but weaker than normal. He was transferred to this hospital shortly afterward.

Physical examination showed a well-developed and moderately obese man unable to walk and complaining of pain in the right lower extremity. The fundi showed slight nicking of the vessels. The heart was moderately enlarged to the left. The sounds were strong, regular and there were no murmurs or thrills. The blood pressure was 190/110. The lungs were negative. The right lower abdomen was found to be slightly cooler than the left. The left leg was warm, normal in color and showed a moderately strong dorsalis pedis pulsation. There was no palpable arterial pulsation in the right leg and the limb was anesthetic to the hip. Its surface was cool but not cold. The toes were bluish and color was regained ten seconds after applied pressure was removed. The leg blanched rapidly upon

elevation. Movement of the hip was extremely painful. Oscillometric studies showed no pulsation in the right leg. On the left side the oscillation was three points stronger than in the arm.

A catheterized specimen of urine showed total hematuria.

X ray examination showed slight elevation of the left diaphragm. The aorta was quite tortuous but not dilated.

Directly after admission by a transperitoneal route a three inch thrombus was removed from the right common iliac artery. No bleeding occurred from the proximal segment of the vessel. Eight hours postoperatively the right leg was unchanged in appearance. The blood pressure was 130/60. Excretion of urine was quite scanty and the patient was catheterized. The urine continued to be bloody. A few rales were heard at the lung bases but the heart findings were unchanged. Three hours later the patient became anuric. Cyanosis and dyspnea ensued and the chest became filled with bubbling rales. He went rapidly downhill and died thirty six hours after the onset of his illness.

DIFFERENTIAL DIAGNOSIS

DR. SOMA WEISS* This is then an unusual and dramatic story of a middle aged man who after enjoying good health is seized by pain and in whom thereafter within thirty six hours preceding his death disturbances in several parts of the body follow in rapid succession. These disturbances at first seem somewhat bizarre and unrelated.

1. A "terrific pain" was felt in the upper portion of his chest anteriorly and posteriorly which soon moved down through the epigastrium into the lower mid abdomen where it remained persistent.

2. Both legs became numb and cold. He was unable to walk. The skin became blue and as I understand it the movements of both legs caused severe pain.

3. The ischemic state of the left leg gradually improved in the course of hours so that eleven hours later, fair, though weaker than normal pulsations are observed. Oscillometric reading also revealed fair pulsations. The skin was of normal color.

4. As these improvements occurred in the circulation of the left leg, the ischemic state of the right leg progressed and no pulsation was obtained over the femoral and other arteries below Poupart's ligament. The limb became anesthetic up to the hip and movements of the right hip were extremely painful. Tests indicated nevertheless that the ischemia was not complete and gangrene was not present.

5. The right side of the lower portion of the abdomen became slightly cooler.

*Associate Professor of Medicine, Harvard Medical School, Assistant Director of Thorndike Laboratory, Boston City Hospital.

6 In spite of the fact that the urine sediment was normal two hours after the onset of the seizure, about eleven hours after onset there developed a "total hematuria"

7 The heart was somewhat enlarged. The arterial pressure was elevated. The aortic shadow was tortuous.

We have no additional laboratory tests of aid.

(May I ask, if the question is permitted, what the temperature, the heart rate and serology were at entrance to the hospital? After all, even we of the City Hospital have such information.)

DR. TRACY B. MALLORY: The pulse rate was 90, and the temperature 99° at entrance.

DR. WEISS: It is at this point of the clinical story that a clinical diagnosis had to be made. Let us try to make it. I must say I am somewhat embarrassed, for you have invited me to discuss the differential diagnosis of this case, and I cannot offer one. There is but one condition, as far as my interpretation goes, which is characterized by all manifestations presented by this patient, and that is *dissecting aneurysm* of the aorta. It would be far-fetched to suspect multiple embolism here. I realize on the other hand, that dissecting aneurysm is a rare condition, and instances of its correct diagnosis are even rarer.

But, if a man in middle age or later as a result of hypertension and focal medial degeneration of the arch of the aorta develops a slit through the intima and media within the arch, he can have exactly the same type of pain as this patient has had. As the dissection proceeds downward toward the iliac artery, the pain will travel down into the lower abdomen, particularly if the intercostal and lumbar branches are compressed or torn off. If the dissection involves both iliac arteries, ischemia may result in both lower extremities. But why should the circulation improve in the left leg? The answer to this question is not clear, but one conjecture is that the dissection may have reruptured into the main arterial and hitherto compressed lumen. The coldness of the right lower abdomen suggests that in addition to the compression of the common iliac, compression or tearing off of right lumbar branches of the arteries was present. The total hematuria is a rather unusual feature of dissection-aneurysm. It must indicate dissection of at least one renal artery or compression of its orifice, and infarction of the kidney.

Is the fact that x-ray revealed a "tortuous but not dilated" aorta for or against dissecting aneurysm of the thoracic portion of the aorta? This, in my opinion, is neither for nor against, but entirely compatible with dissecting aneurysm. The x-ray picture of the dissecting aneurysm can vary from no change to fusiform dilatation of the descending aorta at times with

a darker central and a lighter peripheral shadow, or there may be wide shadows of one or more of the large branches of the aortic arch. All these changes depend on the width and on the direction of the dissection which can be narrow and partial or wide and complete with all transitions. The tortuous picture obtained in this case indicates either that the aorta was tortuous as a result of sclerosis and the associated section was narrow or that the tortuosity was caused by the irregularity of the dissection.

Let us now examine the sequence of events after admission. Do they confirm or contradict our diagnostic impression? The patient was operated upon apparently for a suspected embolus in the right iliac artery. This is entirely compatible with a mistaken diagnosis of a dissecting aneurysm. I know of two cases in which embolectomy was performed for suspected embolus in the brachial artery, imitated by the dissected and compressed artery. In a third case "acute abdomen" was suspected but no pathology was found on exploration. Postmortem examination revealed dissection of the abdominal aorta.

The fact that after removing three inches of thrombus no bleeding occurred from above, confirms the suspicion that the acute ischemia of the right leg was caused by the dissection of the iliac artery rather than by an embolus. The anuria that followed may well have resulted not only from dissection and compression of the renal arteries but also as a result of the added factor of shock.

Death was rather sudden, associated with cyanosis, dyspnea, and pulmonary edema. This is entirely compatible, though the evidence is inadequate to call it characteristic, with cardiac tamponade, by far the most common cause of death in dissecting aneurysm.

In conclusion, to me the simplest and most obvious interpretation of the sequence of events in this case is as follows:

1 Arterial hypertension. Cardiac hypertrophy.

2 Focal degeneration of the media of the arch of the aorta. Medionecrosis aortae cystica.

3 Intimal tear within the arch invading and dissecting the media, causing thoracic pain.

4 Dissections down to and involving the iliac arteries. Possible rerupture of the dissection into the left iliac artery. Dissection and compression of the right iliac artery. Circulatory ischemia of the right leg.

5 Dissection of the renal arteries with compression and possible infarction with resulting hematuria and anuria.

6 Possible compression or tearing of the lower intercostals and lumbar arteries (right) causing pain and coolness over the right side of the abdomen.

7 Probable hemopericardium and cardiac

tamponade from the dissection rupturing into the pericardium causing pulmonary edema, circulatory collapse and death.

Dr. MALLORY Dr. Holmes, can you add anything?

Dr. GEORGE W. HOLMES The diaphragm is obviously high on the left side. That is difficult to explain unless there was something directly below it pushing it up or possibly paralysis of the phrenic nerve. The heart is enlarged to the left and shows a characteristic picture of hypertrophy of the left ventricle. The supra-cardiac shadow is increased and the aorta looks actually wide in this film. Of course this is not a film taken at seven foot distance and there is a good deal of magnification but I think one would almost be justified in saying there was slight dilatation of the aorta. It may all be due to tortuosity. There is nothing in this film that would allow me to interpret a dissecting aneurysm but I would agree that there is not evidence against it.

CLINICAL DIAGNOSES

Embolus, right iliac artery
Ascending thrombosis of abdominal aorta
Hypertensive and coronary heart disease

Dr. SOMA WEISS'S DIAGNOSES

Dissecting aneurysm of the abdominal aorta and mediocystic cystica, with the complications as listed above

ANATOMIC DIAGNOSES

Dissecting aneurysm of the thoracic and abdominal aorta and with partial dissection of the left renal and left common iliac arteries
Mediocardic cystica.
Cardiac hypertrophy hypertensive type
Infarcts of the kidney
Pulmonary edema and congestion bilateral
Operative wound removal of thrombus of right iliac artery

Dr. MALLORY I think it is probably only fair to say that the history as Dr. Weiss had it was obtained at successive intervals and a good deal of it was not known at the time the patient was operated on. His diagnosis is entirely correct and is accurate down to many of the small details. There was a dissecting aneurysm. In most of the dissecting aneurysms that we have seen the rupture in the intima has been a relatively short distance above the aortic valve and the dissection has run over the arch and down the remainder of the aorta. In this case the rupture in the intima was just at the apex of the arch, and the ascending aorta was not involved. The dissection carried the entire length of the aorta and extended down into the left iliac artery for a distance of six

or seven centimeters where a rupture had again occurred in the intima and the stream of blood came back into the iliac artery, accounting in that way for the return of pulsation in the right leg. On the right side the dissection did not go so far. It stopped just before the bifurcation, and the aortic intima at this point was ballooned up to form a valve across the mouth of the right iliac artery completely occluding it. The thrombus which Dr. Smithwick found was the ordinary secondary thrombosis of stagnating blood beyond a point of vascular obstruction. The dissection had involved the left renal artery but not the right. The affected artery beyond the point of obstruction was thrombosed and multiple irregular small infarcts were found throughout that kidney. It is a little hard to understand why with obstruction of the main renal artery one should not get total infarction of the kidney, but only the cortical part and not all of that was infarcted. There must have been a fairly extensive collateral circulation. With the point of intimal rupture as high as it was in this case, actually in the arch with the ascending aorta uninvolved there was no chance for rupture into the pericardium. The exact mechanism of death was not apparent.

Dr. HOLMES Was the left kidney large?

Dr. MALLORY There was no difference in the two in gross.

Dr. HOLMES Any explanation for the high position of the diaphragm?

Dr. MALLORY No.

A PHYSICIAN What was the clinical discharge diagnosis?

Dr. MALLORY Embolus of the right iliac artery and thrombosis of the abdominal aorta.

Dr. WEISS Was there any involvement of the branches of the lumbar or intercostal arteries?

Dr. MALLORY Not so far as we could tell. In these cases, however, the layers of the aortic wall are sometimes separated several millimeters from each other. The various branches of the aorta, unless they are torn free from their intimal attachment, must traverse this space where they are subjected to external pressure from the surrounding blood which may be of a magnitude equal to or even greater than that within their lumina. In this way they are subject to compression which may or may not lead to obliteration and circulatory arrest. It would obviously be impossible from the anatomic findings to determine what the relative pressure relationships may have been during life.

Dr. WEISS What did histologic examination of the aorta itself show?

Dr. MALLORY The aorta in various places showed a definite though mild degree of mediocardic cystica. It is a degree of the process that we find quite often in routine autopsies,

not so severe in fact as several that I have picked up in routine sections. Just why in this particular case rupture and dissection should have occurred is not clear. In the entire group of dissecting aneurysms that we have seen there was less abnormality of the aorta in this case than in any of the preceding ones.

A PHYSICIAN: Can it be said definitely that the phrenic arteries were not involved?

DR MALLORY: We did not specifically investigate them.

DR HOLMES: The dissection extended up to what we call the aortic knob?

DR MALLORY: Yes, it began at just about that point, I should say.

DR HAMPTON: Was it all around the aorta or just on one side?

DR MALLORY: It ran about two-thirds of the way around. They rarely are complete.

The correct diagnosis in this case was made by Dr. Thompson, the resident in cardiology, and various other people.

CASE 22152

PRESENTATION OF CASE

First Admission. A fifty-one year old white American dining car steward was admitted complaining of pain and swelling of the right fifth toe.

The patient, a known diabetic for two years, had sharp steady pain in his right fifth toe for about a week. This had begun as a small reddened area with subsequent swelling of the toe. Later the entire foot and ankle became swollen and tender and yellowish discharge exuded from the primary area.

The patient had been treated satisfactorily for his diabetes with insulin and diet for two years. A year before a lumbar puncture showed 192 cells per cubic millimeter, all of which were lymphocytes. A Wassermann test of the spinal fluid was positive. The total protein was 60 milligrams. An x-ray taken at that time showed no enlargement of the heart or any abnormality of the lung field.

Physical examination showed an elderly man lying flat in bed coughing occasionally. The skin and mucous membranes were pale. The left pupil was irregular but both pupils reacted to light. The heart was not enlarged. A coarse blowing systolic murmur was audible at the aortic area and was transmitted into the vessels of the neck. A_2 was clear and sharp. The blood pressure was 188/80. There was a slight increase of tactile fremitus and coarsening of the breath sounds at the right base, where a few coarse râles were audible. All the pedal arteries showed normal pulsation. A local area of necrosis with a foul-smelling discharge was observed upon the right foot. The entire foot was reddened, edematous, and tender. The reflexes were all normal.

The temperature was 102.5°, the pulse 100. The respirations were 20.

Examination of the urine was entirely negative. The blood showed a white cell count of 19,300.

On the day following admission the right fifth toe was amputated. His temperature continued to show daily rises to 100° or 101°. He continued in good condition for about a month and a half except for small sloughs arising in the region of his operative wound. At this time routine examination showed bile in his urine. He became rapidly jaundiced and had an icteric index of 25. Both the liver and spleen became palpable but he complained of no discomfort. The stools persistently contained bile. About ten days later the jaundice which had been slowly progressive, subsided slightly and a guillotine amputation of the right lower leg was done. The jaundice deepened thereafter and a liver function test showed 100 per cent retention. The icteric index was 80. Four weeks after its onset the icterus again began to subside. Skin grafts were applied to the stump of the leg. Three months after admission the patient developed herpes zoster of the right flank. At the end of ten days this had completely subsided, as had the jaundice. He was discharged three and a half months after entry with his diabetes well controlled.

Second Admission, two and a half years later.

The patient had been treated during the interval with several courses of tryparsamide, but both spinal fluid and blood Wassermann tests had remained positive. His diabetes was well controlled by diet alone. The stump of the leg had healed well. He had worked for a year preceding his reentry. Two days before his return he injured the small toe of his left foot. This became swollen, red, and tender.

Physical examination showed the patient to be well nourished. A few transient râles were audible at both bases. The heart was not enlarged and the murmur heard previously was still present, and in addition a diastolic murmur was now heard in the aortic area. The blood pressure was 190/80. There was a slightly infected ulcer on the left fifth toe.

The temperature was 100°, the pulse 100. The respirations were 25.

Examination of the urine showed a specific gravity of 1.025, a trace of albumin and a green precipitate with the Benedict test. The sediment was negative. The blood showed a white cell count of 5,400 and a hemoglobin of 90 per cent. The nonprotein nitrogen of the blood was 32. Hinton and Wassermann tests were positive.

X-ray examination showed slight increase in the transverse diameter of the heart, with a pressure defect in the region of the left auricle. The aortic knob appeared to be at the upper

limit of normal. The fluoroscope showed vigorous pulsation of the ventricle and aorta.

On the second day the patient developed a generalized urticaria which was relieved by adrenalin. At the end of the first week the left fifth toe was amputated. The patient responded well and was discharged afebrile two weeks later.

Final Admission, seven months later

A week before reentry, after a picnic, the patient was awakened during the night by severe pain in the anterior portion of the chest. Its location was vaguely recorded. This was followed by severe rigor. The pain continued undiminished up to admission. A few days after the onset he developed an unproductive cough which was hacking in character. Both the cough and deep inspiration aggravated the pain which later became worse in the region of the lower sternum and precordium. There was no radiation. Since the onset of his illness he suffered a severe chill each day. At one time his temperature was 104° .

Physical examination showed the presence of a pale lavender cyanosis. The patient appeared to be mildly prostrated. The skin was cold and clammy. The pulse was thready with a rate of 120. The heart appeared slightly enlarged to the left. The sounds were of very poor quality. No murmurs were audible. A_2 was greater than P_2 . The blood pressure was 80/55. At the left lung base from the angle of the scapula down there were bronchovesicular breath sounds of diminished intensity accompanied by many crackling râles. The abdomen was distended tympanitic and slightly tender. There was a small gangrenous area on the left second toe.

The temperature was 102° , the respirations were 32.

Examination of the urine showed a trace of albumin. The sediment contained a few coarsely granular casts. The blood showed a red cell count of 3,400,000 with a hemoglobin of 6 per cent. The white cell count was 13,000, 78 per cent polymorphonuclears. The stools gave a positive reaction to the guaiac test. The chlorides were equivalent to 87 cubic centimeters of N/10 sodium chloride. The nonprotein nitrogen of the blood was 97.

X-ray examination showed what appeared to be dilatation of the heart in the region of the left ventricle. The aorta was tortuous and slightly dilated. The left lung field was dull and showed hazy outlines.

The patient became quite toxic, weak and eventually semicomatose. No acetone appeared in the urine. He began to vomit went rapidly downhill and died on the third hospital day, three and a half years after the first admission.

DIFFERENTIAL DIAGNOSIS

Dr. ROBERT S. PALMER. Summarizing the first admission we have here a patient who had

known diabetes and known central nervous system lues. He came in with a septic toe and on examination had a normal cardiovascular system except for a very wide pulse pressure. It was significant that no aortic diastolic murmur was heard. He also had a few rales at one base. There was a moderately elevated temperature 102° , the pulse was only 100, I do not think he had real congestive failure. The only unusual thing in the course of this admission was that he had two attacks of jaundice, one a rather long one and no particular details are given except that it was of gradual onset and it gradually passed off. He was operated on a second time and had a recurrence of jaundice. It might be the jaundice one occasionally gets with congestive failure. I wonder if with syphilis and diabetes he did not have a so-called low reserve liver. The x-rays showed a heart of normal size and shape. We know he had central nervous syphilis. We know he had large vessel sclerosis which would explain his wide pulse pressure. Syphilis of the liver may have been present. The record does not state that he was under antiluetic treatment which could have given toxic jaundice.

He came in a second time two and a half years later. He had been under treatment with tryparsamide. His diabetes was apparently well controlled and the stump of the leg had remained all right but now he came in a second time with more diabetic gangrene. The heart was not enlarged. Again he had wide pulse pressure and this time an aortic diastolic murmur was heard in addition to a systolic murmur. Only the latter had been heard before. There was nothing unusual in the laboratory examination except that the Hinton and Wassermann tests still remained positive. The x-ray examination showed slight increase in the transverse diameter of the heart with pressure defect in the region of the left auricle. The aortic knob appeared to be at the upper limit of normal. Fluoroscopic study showed vigorous pulsation of the ventricle and aorta. That would be against there being any particular failure at the time and would be consistent with a development of regurgitation which we assume is syphilitic in origin. Of great interest is the pressure defect in the region of the left auricle. What we want to know is, was it pulsating and in the oblique position was it seen to be coming from the aorta possibly or was it a mediastinal tumor?

X-RAY INTERPRETATION

Dr. GEORGE W. HOLMES. We have one film of the gallbladder region. Apparently the patient was not given the Graham test. He has no calcified gallstones.

We have a series of films of the lower legs and feet requested. I presume to show calcification in the arteries if present and they do show some calcification. The most interesting part of the examination is the

chest This is one of the earlier films taken in 1932 That film was taken with the tube in front and the film behind, which accounts for the widening of the heart shadow and the great vessels This is a film taken at seven foot distance and it gives a much more accurate idea of the heart His diaphragm, you will notice, is high on both sides This is a gas bubble which is causing the high position of the left diaphragm That probably has something to do with the increase in width of the heart shadow, but I think it would be fair to say that the heart was somewhat enlarged and that the aorta was tortuous without evidence of dilatation In this oblique view you get a fairly good idea of the distance between the esophagus and the anterior wall of the aorta which allows us to estimate the diameter of the aorta in the region of the arch and it certainly is not much dilated I do not see sufficient evidence in these films to justify a diagnosis of luetic aortitis

DR PALMER It does not look particularly tortuous or sclerotic

DR HOLMES He was fifty-one There is a little more prominence of the knob than a man of fifty-one should have

DR PALMER There is a notch in the region of the left auricle

DR HOLMES There is no definite evidence here But I do think the auricle encroaches on the mediastinum more than it should What evidence I have is simply enlargement of the left auricle He has at this time, at least, no dilatation of the vessels in the region of the heart This is a plate taken in 1935 and here again nothing definite is found so far as the heart is concerned

DIFFERENTIAL DIAGNOSIS CONTINUED

DR PALMER So about three years after his first admission he came in for his final admission From his previous admissions, noting his diabetes, noting his syphilis and noting that he had aortic regurgitation of syphilitic origin, he has two of the things that are prone to lead to aneurysm, or to defect in the first portion of the aorta and either of which may lead to rupture of the aorta These are two possibilities I think it is unusual for a person to have chills every day, and rigors, with a temperature as high as 104° if he had rupture of the aorta into the pericardium or rupture of an aneurysm

The thing that I would like to know most and the thing that would be most important in making a differential diagnosis in this case is not mentioned, namely, the condition of his neck veins Any patient who is cyanotic, has a sudden marked fall in blood pressure, has very weak heart sounds and disappearance of murmurs previously heard, *if he does have engorged neck veins*, one can certainly say is suffering from acute cardiac compression In cases of aortic rupture into the pericardium one sees

very high venous pressures and there ought to be no doubt about the condition of the neck veins If he did not have engorged neck veins and a high venous pressure, and particularly in view of the fact that he has had chills, rigor and high temperature every day, you would think of a different process, a septic affair, possibly involving the chest, although I do not see how it would explain the sharp, severe or continued pain So we must think of metastatic sepsis from the focus on his foot Another possibility is that from the sepsis in the foot he had phlebitis and he might have had a large pulmonary embolus This might explain the fever and the chills, presumably might have given an x-ray picture which we will hear about, but I do not think the distribution and type of pain are just right

I think the last two findings in the history are consistent with infection I think perhaps the blood findings would go with either possibility

If his heart area is much increased it would be in favor of possible rupture into the pericardium The other thing is, you wonder if he could have pulmonary embolism, and acute cor pulmonale I take it he did not have any pulmonary collapse on that side or his heart would be pulled over

DR HOLMES One other possibility I think you should consider is fluid in the pericardium from rupture

DR PALMER Yes, I said that blood in the pericardium would give the picture

The urine examination makes us sure he did not die of diabetic coma anyway

From the first two admissions we know that he had syphilis and diabetes and we know that he had marked sclerosis, presumably of the large vessels, even if it does not show up particularly in the aorta. In the last admission we have a history of sudden onset of severe vaguely localized upper precordial and lower sternal pain and we find a person who is cyanotic with faint heart sounds, murmurs previously well heard which disappear, a rapid pulse, plus pain, plus fall in blood pressure, and we would like to know whether or not he had a markedly raised venous pressure which is characteristic of acute cardiac compression It seems to me, though I am not certain of this, that it is not characteristic for a person to have chills and rigors for three days from blood in the pericardium Now if he has blood in his pericardium and it is acute cardiac compression, it can come from rupture of the aorta which might be due to sclerosis, syphilis, or congenital defect Coronary arteries can rupture, the auricle can rupture Those are the usual ones that give this hemopericardium I think, as I have said, that the temperature and rigor are against its being due to blood in the pericardium

Could it be due to septic pericarditis? Usually it is a complication of pneumonia or mediastinitis or something else you would know about, and whether such a thing could happen in this person from his septic foot I do not know. I think it is a possible cause of the septic sort of temperature. It seems unlikely, and I do not think this possibility would fit the severe and continued pain he had in the last three days of his illness. There is nothing in the x-ray to indicate that it was due to any other compression. One can get cardiac compression from pulmonary rupture and pneumothorax. Even rare things have been reported, such as gas bacillus infection involving the mediastinum. I will say that he had general arteriosclerosis, syphilitic heart disease and will show evidence of aortitis even though dilatation does not show up by x-ray. He had aortic regurgitation and I think that he died of acute cardiac compression and that probably it is due to rupture of the aorta with blood in the pericardium hemopericardium. Where the rupture is from I do not know. It might be from the base of the aorta, from an aortic aneurysm in the first portion, or from the auricle.

I suppose one has to consider the possibility of acute coronary thrombosis and a rupture of the ventricle but I do not see any reason to ask for that in addition when you already have the possibility on the basis of lues.

A PHYSICIAN: Does "pale lavender cyanosis" mean anything or is it just another descriptive term for cyanosis? I was wondering about the blood.

DR. TRACY B. MALLORY: I should imagine it was just a combination of cyanosis and pallor as indicated.

CLINICAL DIAGNOSES

Diabetes
Central nervous system lues
Arteriosclerotic heart disease
Amputation of right lower leg and left fifth toe
Bronchopneumonia
Uremia

DR. ROBERT S. PALMER'S DIAGNOSES

Diabetes
Arteriosclerosis
Syphilitic heart disease
Syphilitic aortitis

Syphilitic aortic regurgitation
Rupture of aorta into pericardium
Cardiac compression the cause of death

ANATOMIC DIAGNOSES

Pericarditis acute fibrinopurulent
Aortitis syphilitic
Coronary thrombosis with occlusion and without infarction, old
Cardiac hypertrophy, slight hypertensive type
Septic infarcts of the lung bilateral
Bronchitis, acute purulent
Hydrothorax bilateral
Pulmonary edema and congestion
Pyelonephritis left
Hydronephrosis, left
Cystitis chronic
Hyperplasia of prostate obstructing
Esophageal varices
Meckel's diverticulum
Arteriosclerosis, marked aortic
Operative wounds old amputation of right lower leg, amputation of left fifth toe
(Diabetes)
(Syphilis)
Septic spleen.

PATHOLOGIC DISCUSSION

DR. MALLORY: This man was quite a museum of pathology. Most of the things that he had Dr. Palmer has already suggested and I think he was quite correct in his belief that the man died of acute cardiac tamponade. It was not, however, due to blood in the pericardium but to acute purulent pericarditis. He had generalized sepsis with multiple septic infarcts in the lungs, an acute pyelonephritis and thus extensive acute pericarditis. He did have a typical luetic lesion of the aortic valve and a moderate degree of dilatation in the first portion of the aorta just above the valve with typical scarring and wrinkling which we can feel sure was due to syphilis. His left descending coronary was completely obliterated by atheroma but there was no infarction. A few of the various other findings were a hydronephrosis, a hyperplastic prostate, esophageal varices for which we could find no cause and a Meckel's diverticulum, though these by no means exhaust the list. The liver, gallbladder and bile ducts were all negative.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS: \$6.00 per year in advance postage paid
for the United States; Canada \$7.04 per year; \$8.52 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine 8 Fenway, Boston, Mass.

THE CHALLENGE OF THE GONOCOCCUS

THE decrease in typhoid fever, diphtheria and tuberculosis is a matter of common knowledge and gives us just cause for pride in the accomplishments of the various services that care for the public health. The incidence of gonorrhea, on the contrary, appears to have decreased little if at all. Studies by Usilton show that in the United States there are approximately 493,000 individuals constantly under treatment or observation for gonorrhea, the number of fresh infections occurring annually is 8 per 1000, which means that approximately one million cases occur each year in the whole country.

It is difficult to believe that this situation should exist without determined effort being made to find a solution. The problem presents two possible points of attack: first the prevention of infection and secondly, the rapid cure of those infected.

The first phase—that of prevention—is one

of the chief objectives of such organizations as the American Social Hygiene Association and the Massachusetts Social Hygiene Association. These societies endeavor, by means of education, to limit the number of possible exposures to infection. It has seemed to their directors unwise to attack the problem by advocating individual venereal prophylaxis.

No such scruple existed for the New York *Daily News*. This paper, stimulated by a statement made by the Health Commissioner of New York City to the effect that the prevention and treatment of syphilis was the gravest single problem facing his department, launched a campaign to give the public full and free knowledge of venereal prophylaxis. The *News* published a series of articles on gonorrhea and syphilis how to cure them and where free treatment might be obtained. These articles were reprinted bound in a pamphlet entitled "Venereal Diseases and Prophylaxis" and placed on sale at five cents a copy. This action of the *Daily News* should be welcomed by those engaged in the fight against gonorrhea and syphilis for it is generally believed that once this problem is driven out of its entrenched secrecy and into the open it can be attacked with much greater probability of success.

The second point of attack has to do with the rapid cure of gonococcus infections. Rapid cure is most essential, both to reduce the enormous economic loss incident to the disease and to prevent the infection of others, since such infection is caused largely by patients who believe themselves cured or whose infection is in a subacute stage. Yet in spite of the urgent need for improvement in the treatment of this disease, our methods are essentially the same as they have been for the past twenty years.

Not until the past five or at most ten years has there been any attempt on the part of more than an occasional bacteriologist to discover certain fundamental facts about gonococcus infections. Without knowledge of these facts, which have to do with the immunity of the host, the resistance of the gonococcus to heat, and various other aspects of the problem a rational, aggressive therapy cannot be defined.

It is encouraging to learn that at last the light of scientific research is being focussed upon this field. In 1932 the Division of Medical Sciences of the National Research Council voted favorably upon a proposal of Doctor Keves, President of the American Social Hygiene Association, that a cooperative project be undertaken with the object of promoting the study of the gonococcus and gonococcal infections. In January, 1936 the Committee appointed for this purpose, with Doctor S. Bayne-Jones as Chairman, published its first report.*

*Supplement to the American Journal of Syphilis, Gonorrhea and Venereal Diseases. Vol. 20, No. 1.

In this report is summarized all the important work done on this subject within the past five years, as well as certain outstanding work done previous to that period. The report is divided into two principal sections: (1) the biology of the gonococcus, including morphology, staining reactions, methods of culture, chemistry, and its resistance to physical and chemical agents; (2) gonococcal infections, including types and modes of infection, pathology, diagnosis and therapy. Material of the greatest value in laying a foundation for future research has been collected yet in reading this compilation one is impressed by the gaps still existing in our knowledge of the subject. Many encouraging leads have been opened but we still do not know why gonococcus infections clear up nor has any really valuable measure been discovered whereby we can hasten their cure. At the present writing, the methods which have been employed for the past thirty years are the ones upon which we must rely in treating the vast majority of gonococcus infections.

We do not believe that this problem any more than the problem of cancer will forever resist the investigations of scientific research. The time will surely come when gonorrhea with its attendant tragedies and economic waste will yield to a specific therapy as completely as diphtheria responds today.

THE USE OF DUST RESPIRATORS IN INDUSTRY

At the annual meeting of the American Society of Mechanical Engineers four papers* featuring the prevention of industrial diseases were presented. One of the papers by Professor Philip Drinker of the Harvard School of Public Health dealt with the uses and limitations of respiratory protective equipment. Drinker described and illustrated self-contained oxygen breathing equipment, masks supplied with fresh air, gas masks and dust respirators. The important work of the United States Bureau of Mines in developing codes for testing and certifying the performance of these various devices was stressed and industry was urged to take advantage of the Bureau's service.

It has been claimed as the result of an incomplete press release that Drinker condemned the use of dust respirators in industry. He did no such thing. Like others whose chief interest is in industrial hygiene, he emphasized that respiratory protective equipment and particularly dust respirators, are not a substitute for clean air. There are hundreds of jobs to which respirators are well adapted—they should not

be condemned as they are much too useful but they are not a substitute for clean work places. They are a second line of defence, and as such, they are used throughout the industrial world.

THE BOSTON HEALTH LEAGUE

ANNUAL MEETING

The Boston Health League on Wednesday, March 11 held its annual dinner and meeting at the Hotel Vendome. Miss Margaret H. Tracy, the executive secretary of the League, reported on its activities for the year 1933 and other important events that have had a bearing on health, such as the formation of the Community Federation and the Hospital Council and the organization and work of the Massachusetts State Health Commission. In addition to the regular monthly meetings of the Executive Committee, the various sub-committees have held numerous special meetings.

Seven talks to lay groups have been given by the Cancer Committee and a study has been made of one hundred consecutive admissions in each of the eight cancer clinics. The Health Education Committee has sponsored a series of food exhibits demonstrating elementary principles of nutrition. The Pneumonia Committee has continued to publicize the State's pneumonia service and the Social Hygiene Committee, with the Boston Council of Social Agencies, has sponsored the monthly meetings of the Staff Council on Syphilis and Gonorrhea. The Summer Camp Committee has again issued a pamphlet in order that leaders and others responsible for children in summer camps may have available a guide for measuring to some extent equipment and standards.

Dr. William B. Keeler was introduced as Boston's new Health Commissioner and announced the following Advisory Council to the Health Department:

Dr. John W. Bartol
Professor Alexander S. Begg
Professor Samuel Prescott
Dr. Roger I. Lee
Rev. Richard J. Quinlan
Professor Wilson G. Smilie
Dr. George C. Shattuck
Dr. Hyman Morrison
Mr. Horace Morrison
Miss Gertrude Peabody

Dr. Reginald M. Atwater, Executive Secretary of the American Public Health Association, spoke on "Team Work in Public Health."

The following officers were elected for the coming year:

Honorary President Dr. William B. Keeler
President Dr. John W. Bartol

Vice-President Rev Robert P Barry
Treasurer Dr Richard G Wadsworth
Secretary Dr Charles F Wilmsky

EXECUTIVE COMMITTEE

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Mr Arthur G Rotch
Dr Ben M Selekman
Dr George C Shattuck
Dr Wilson G Smilie
Dr Richard M Smith
Mr Frank E Wing

TREASURER'S REPORT—JANUARY 1, 1935 TO
DECEMBER 31, 1935

INCOME			
Subscriptions and Donations			\$5,350 30
EXPENSE			
Rent	\$	664 20	
Salaries		3,689 22	
Postage, Printing, Office Supplies		287 60	
Telephone		233 00	
Miscellaneous Expenses			
Contribution to Boston Council of Social Agencies	\$25	00	
Society Dues	12	00	
Travel	30	00	
Reprints	35	66	
Repairs	35	00	
Sundries	28	68	219 34
	\$5093 36	\$5,350 30	
*BALANCE Jan 1, 1935—		2,028 35	
*BALANCE Dec 31, 1935—	2,285 29		
	\$7,378 65	\$7,378 65	

*The balance at the beginning of the year and that at the end appear very favorable because in December 1934 and again in December 1935 the Health League received a special donation of \$1500 to carry the work of the organization for the first three months of the next calendar year

The Massachusetts Medical Society

THE ANNUAL MEETING

"Are you planning to go to the Springfield meeting of the Society June 8, 9 and 10?"
"Too far"
"I haven't time"
"Well, I haven't thought about it"
"No, I'm sick of medical meetings, they're all the same"
How easy it is to rationalize our laziness and

indifference If the Annual Meeting served no other purpose it would still be worth while just because this annual question reminds us that our obligations extend beyond the little daily world of our own practice or our own hospital. And surely not one of us would question that they do' If all interchange of medical knowledge and thought were suspended tomorrow, how quickly medical progress would stop'

But that is considering our professional obligations in their broadest sense They may be brought much nearer home than that To our own patients and colleagues we owe the refreshed enthusiasm and new ideas awaiting us in the section meetings, exhibits, entertainments, chance encounters, and change of scene which together make up the Annual Meeting of the Society

"Yes, I most certainly am going to Springfield June 8, 9 and 10"

BOSTON MEDICAL LIBRARY

INAUGURATES NEW SERVICE

The Library has made special arrangements to display for its members the important new medical books as issued by all American publishers The books will be constantly changing as new books are received and will be kept on exhibit for thirty days in the Director's office on the first floor of the Library

They may be examined on application to the Director's Secretary

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

AYCOCK, W LLOYD MD University of Louisville Medical School, Kentucky 1914 Assistant Professor of Preventive Medicine and Hygiene, Harvard University Medical School Director of Research, Harvard Infantile Paralysis Commission Address Harvard University Medical School, Boston, Mass Associated with him is

HUDSON, C C MD University College of Medicine, Richmond, Va 1910 Health Officer, City of Greensboro, North Carolina Address Health Department, Greensboro, N C Their subject is The Development of Neutralizing Substance for Poliomyelitis Virus in Vaccinated and Unvaccinated Individuals Page 715

WHITE, PAUL D AB, MD Harvard University Medical School 1911 Physician Massachusetts General Hospital Assistant Profes

sor of Medicine Harvard University Medical School His subject is A Note on the Common Occurrence of Serious Involvement of the Heart in Hyperpnea. Page 719 Address Massachusetts General Hospital, Boston, Mass

DRESSER, RICHARD Ph B, M D Johns Hopkins University School of Medicine 1921 Roentgenologist, Collis P Huntington Memorial Hospital and Pondville Hospital at Norfolk Visiting Roentgenologist, Massachusetts General Hospital Address 695 Huntington Avenue, Boston, Mass Associated with him is

PELLETIER, VALMORE A. A B M D Harvard University Medical School 1926 Surgeon to Out Patients Pondville Hospital Wrentham Mass. Member of Associate Staff, Norwood Hospital Address 38 Cottage Street, Norwood Mass Their subject is The Radiological Management of Cancer of the Breast. Page 720

CLUTE, HOWARD M B Sc., M D Dartmouth Medical School 1914 F A C S Professor of Surgery Boston University School of Medicine Surgeon in Chief Massachusetts Memorial Hospitals Surgeon New England Deaconess and New England Baptist Hospitals His subject is Duodenal Stump Closure in Gastric Resections with a Modified Furness Clamp Page 724 Address 171 Bay State Road Boston Mass.

SMITH GEORGE VAN S A B M D Harvard University Medical School 1926 F A C S Assistant Visiting Surgeon, Pathologist and Director of Research Free Hospital for Women, Brookline, Mass Research Fellow in Gynecology, Harvard University Medical School His subject is Recrudescence of Ovarian Function After Heavy Irradiation Two Cases Page 725 Address Free Hospital for Women Pond Avenue, Brookline, Mass.

SHATTUCK GEORGE CHEEVER. M D Harvard University Medical School 1905 Assistant Professor of Tropical Medicine, Harvard University Medical School Assistant Visiting Physician, and Physician in Charge of Service for Tropical Diseases, Boston City Hospital Consultant in Tropical Diseases, Massachusetts Central Hospital and United States Marine Hospital No 2 Chelsea Mass His subject is Benjamin Shattuck of Templeton—Medical Practitioner Page 727 Address Harvard University Medical School, Boston Mass.

TOWNSEND, JAMES H A B M D Harvard University Medical School 1921 Assistant Physician Massachusetts General Hospital Instructor in Medicine Harvard University Medical School. His subject is Does Modified Measles Confer Lasting Immunity? Page 722. Address 319 Longwood Avenue Boston Mass.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

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Chairman

524 Commonwealth Ave
Boston, Mass

R S TITUS, M D.,
Secretary

472 Commonwealth Ave.,
Boston Mass

POSTPARTUM HEMORRHAGE

PART I

Hemorrhage that occurs after the birth of the baby, regardless of whether the placenta has been delivered, is postpartum hemorrhage. The amount of bleeding may be a prolonged trickle, the total amount ultimately reaching that point where life is threatened. Other times the bleeding is tremendous in volume almost as though one had turned on a large faucet. There is nothing so upsetting there is nothing so fearsome as serious blood loss particularly as it oftentimes occurs after the baby and placenta have been delivered and everything seems favorable.

The causes of postpartum hemorrhage are as follows:

- 1 Lacerations
- 2 The rupture of varicose veins.
- 3 Atony of the uterus.
- 4 Conditions associated with the placenta

The proper treatment of postpartum hemorrhage, of course depends upon an intelligent diagnosis. Postpartum hemorrhage from lacerations occurs as soon as the baby is born and of course has no relation to whether the placenta has separated. In the old days when accouchement forcé was an operation of daily occurrence postpartum hemorrhage from a badly torn cervix was a very common thing. Nowadays, when that operation has been intelligently cast into the discard, postpartum hemorrhage from a laceration of the cervix is a very uncommon episode. A badly scarred cervix may suffer a very deep tear in normal or operative delivery, particularly in versions when a cervix without scar would not tear so badly.

The diagnosis of a torn cervix is made by inspection. Its treatment is ligature. When a cervix has been torn badly up into the vault one must always remember the possibility of an incomplete rupture of the uterus. This if diagnosed, means laparotomy with or without hysterectomy, depending upon conditions found when the abdomen is opened. The other common site of lacerations which cause too free

* A series of short selected articles by members of the Section is being published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

bleeding are vessels lacerated anteriorly near the clitoris or posteriorly in the perineum. These should readily be diagnosed by sight and are always easily controlled by ligature.

It is always well to remember that big veins may rupture during labor or at delivery. If they are large enough they cause the loss of a tremendous amount of blood, but these again should rarely prove serious because they can readily be seen and a ligature properly placed will always control the bleeding.

Atony of the uterus means simply that the uterus has lost its normal tone, when following the birth of the placenta the periods of uterine relaxation are much longer than the periods of uterine contraction. The perfectly normal uterus, after the birth of the placenta stays firm almost all the time, relaxing very little and staying relaxed only a short time between much longer periods of contraction. An atonic uterus is oftentimes associated with precipitate labors, with cases of twins or hydramnios, where the uterine musculature has been unduly stretched, and with long drawn-out labors, and in cases where the third stage has been poorly handled.

No attempt ever should be made to crede a placenta until there have been evidences of separation, such as the descent of the cord and moderate spasmodic bleeding. Of course it is folly to allow a placenta to remain in the uterus after it has separated. On the other hand one should never attempt to credé it until one is certain separation has occurred. Provided one has had evidence of separation, that is, descent of the cord or spasmodic loss of blood associated with contractions, one is justified in attempting to credé the uterus. If the placenta has not separated entirely too rigorous attempt at credé oftentimes results in more separation, without complete separation, and much more bleeding. If the placenta does not readily come and the uterus is behaving itself, without any undue loss of blood, it is wise to leave existing conditions alone for one-half hour or an hour even and most often in this interval the placenta will be delivered naturally. I am a firm believer in having the uterus definitely held. I think that if it is held, a separated placenta lodged at the internal os, causing a good deal of concealed hemorrhage, is in this way avoided and in any case that has bled unduly I feel that the uterus should be watched carefully, until it stays practically continually in contraction, after the placenta is born.

The treatment of atonic uterus is directed toward restoring the tone of the organ. One of the most valuable procedures in the control of hemorrhage of this sort is the use of one or two minims of pituitrin intravenously. Ampules of pituitrin or ampules of the new ergot may be given intramuscularly, and there is no real limit to the amount of these drugs that may be

so used. Occasionally an atonic uterus has to be packed, but fortunately this is rare.

Intelligent knowledge of how the uterus behaves after the birth of the baby is necessary to diagnose and treat postpartum hemorrhage due to any pathology associated with the placenta. This means that the uterus must be carefully held after the birth of the baby.

Part 2 will appear in next week's *Journal*.

THE TREASURER'S REPORT

COVERING REFUND DISTRIBUTION

THE Treasurer of the Massachusetts Medical Society makes the following report regarding the refund to District Societies for 1936.

The Council voted to distribute the sum of \$5000 to District Societies. The total number of payments of annual dues received by the Treasurer, by March 2 to be counted for the refund, was 3516. Therefore the refund to the District Societies for each paid Fellow is \$1.422.

The following table gives the number of payments in, and the refund to, each District.

District	Number Reported Paid	Check
Barnstable	42	\$59.74
Berkshire	83	118.04
Bristol North	58	82.50
Bristol South	155	220.42
Essex North	149	211.89
Essex South	169	240.33
Franklin	37	52.63
Hampden	204	290.10
Hampshire	42	59.74
Middlesex East	84	119.47
Middlesex North	93	132.26
Middlesex South	696	989.72
Norfolk	602	856.05
Norfolk South	83	118.04
Plymouth	98	139.38
Suffolk	528	750.82
Worcester	321	456.47
Worcester North	72	102.40
	3516	\$5000.00

In 1935, for comparison, the total number of payments for the refund was 3279.

CHARLES S. BUTLER, M.D.,
Treasurer

April 2, 1936

AIDS TO THE COMMITTEE OF ARRANGEMENTS

SUFFOLK DISTRICT

Dr. J. P. Monks, 264 Beacon Street, Boston, Mass.

Dr. G. Kenneth Coonse, 370 Commonwealth Avenue, Boston, Mass.

Dr Elizabeth DeBlow, 45 Bay State Road
Boston, Mass

THE ANNUAL MEETING

The list of Springfield hotels with rates is published below for the convenience of those who may wish to secure reservations.

	Single		Double	
	Running Water	With Bath	Running Water	With Bath
Belmont		1.50-2.50		2.50-3.00
Bridgway	1.50-1.75	2.50-3.00	2.50-2.75	4.00-1.50
Charles	1.50-2.00	2.25-3.25	3.00-3.50	3.50-5.00
Clinton	1.50	2.00-3.00	2.50-3.00	3.50-5.00
Coaldge	1.25	1.50	2.00	2.50
Crown	1.50	2.00-2.50	2.50	3.00-3.50
Hawkins	1.00-1.50	2.00-2.50	1.50-2.50	3.00-4.00
Highland	1.50-2.00	2.00-3.00	2.50-3.00	3.50-5.50
Kimball	2.50	3.50-3.75	4.00	5.50-6.00
Oaks	1.50	2.50-3.00	3.00	3.50-4.00
Pynchon	1.00-1.50	2.00-2.50	1.50-2.50	3.00-5.00
Springfield	1.50	2.00	2.00	3.00
Stonehaven		2.50-4.00		5.00-7.00
Victoria	1.50-2.00	2.50	2.50-3.00	3.50
Worthy	1.50-2.00	2.50-3.00	2.50-3.00	3.50-6.00

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the
Committee for the week beginning April 12

Berkshire

Thursday April 16 at 4 30 P.M. at the House of
Mercy Hospital Pittsfield. Subject *Diseases of the Liver* — Surgical Problems in
Diagnosis of Acute Disease of Gallbladder
and Liver Instructor H. M. Clute Mel
vin H. Walker Jr. Chairman

Bristol North

Wednesday April 15 at 7 30 P.M., at the Mor-
ton Hospital Taunton Subject *Lung Dis-
eases (Medical)* — (a) Differential Diagnosis
and Treatment of Lobar Pneumonia (b)
Symptoms and Signs in Chronic Lung Dis-
ease Tuberculosis Bronchiectasis etc In-
structor T. L. Badger Arthur R. Crandell
Chairman

Bristol South (New Bedford Section)

Friday April 17 at 4 00 P.M. at the St. Luke's
Hospital New Bedford Subject *Pediatrics
(Surgical)* — Abdominal Disease in Child-
hood Instructor W. E. Ladd Harold E.
Perry Chairman

Franklin

Wednesday April 15 at 8 00 P.M., at the Frank-
lin County Public Hospital Greenfield
Subject *Cancer of Breast and Uterus*
Instructor G. A. Leland Halbert G. Stetson
Chairman

Middlesex North

Friday April 17 at 7 00 P.M., at the Lowell
General Hospital Lowell Subject *Acute
and Chronic Nephritis* Instructor J. P.
O'Hara, Leonard C. Dursthoff Chairman

Norfolk

Friday April 17 at 8 30 P.M. at the Norwood
Hospital Norwood Subject *Review of Re-
cent Progress in Medicine* Instructor
L. M. Hurxthal. H. B. C. Blomer Chairman.

Worcester (Milford Section)

Wednesday April 15 at 8 30 P.M. at the Mil-
ford Hospital Milford Subject (a) *Can-
cer of Stomach and Bowel. Modern Care of
Inoperable Cancer* (b) *Cancer of Genito-
Urinary Tract* Instructors E. G. Crab-
tree and C. C. Lund Joseph I. Ashkins
Sub-Chairman

MASSACHUSETTS LEGISLATIVE NOTE

HOUSE BILL 1035

In this bill Frank L. Whipple Henry E. Oxnard
John Hall Smith Horatio S. Card Herbert Hitchcock
Howard C. Gale John M. Russell their associates
and successors ask to be constituted a body cor-
porate under the designation of the "Trustees of
Middlesex University and that they and their suc-
cessors and others to be elected members of the
Corporation shall remain a body corporate by that
name forever. The duties of this corporation are
set forth together with its educational functions
and specifically the authority to confer degrees which
other colleges and universities have.

The Middlesex College and University of Mass-
achusetts Inc are authorized under the bill to
transfer to the Middlesex University the various
schools now maintained by these two institutions
all franchises property claims trusts and estates
now held by them and after these transfers the Mid-
dlex College and the University of Massachusetts
will pass out of existence except as the Middlesex
College may be a department of the Middlesex Uni-
versity.

The report of the Department of Education of
Massachusetts by the Commissioner James G. Reard-
on recommends that this petition be not granted.
Since the attitude of Commissioner Reardon is evi-
dently founded on a study of the University of Mass-
achusetts and its component institutions his opinion
should be given due weight.

MISCELLANY

LARGE ATTENDANCE EXPECTED AT POST GRADUATE INSTITUTE

Provision has been made for an expected attend-
ance of at least 1000 at the Philadelphia County
Medical Society's Postgraduate Institute to be held

in the Bellevue-Stratford Hotel, Philadelphia, April 20 to 24, inclusive

Response to the preliminary announcements has exceeded the committee's expectations. Letters of inquiry have been received from physicians in twenty-five states—as far west as Missouri, as far south as Alabama and as far north and east as the New England States.

In view of the widespread interest in this initial effort by the county society of an outstanding medical center to provide advanced instruction for practicing physicians, it is virtually certain that the Institute will become an annual event.

This year's program, dealing entirely with cardiovascular and renal diseases and their far-flung ramifications, is being presented by fifty-three leading members of the faculties of the University of Pennsylvania School of Medicine and Graduate School of Medicine, Jefferson Medical College, Temple University School of Medicine, and the Woman's Medical College of Pennsylvania.

Registration, open to all physicians who are members of their local county medical societies, will begin at 10 A. M., Monday, April 20. The only charge is \$5.00 to help defray the expenses of the Institute. Following a luncheon in the hotel, the scientific program will get underway at 2 P. M. Morning and afternoon sessions will be held on Tuesday, Wednesday, Thursday and Friday. There is no division of the program into sections. One paper will be read at a time, and all attending will be able to listen to the entire program.

In addition to the program there will be an interesting arrangement of technical exhibits in adjoining rooms, covering a wide range of articles used by the physicians or their patients.

The detailed program may be secured on application to Dr. Henry G. Munson, 4935 Catherine Street, Philadelphia.

THE NEW YORK HOSPITAL PLAN

The Executive Director of the Associated Hospital Service in and about New York City has disclosed that this organization will have 10,000 persons enrolled within a short time and expects to offer a special family membership plan very soon. In order to enlarge this scope of the service, studies of actual facts are underway.

The treasurer of the service reported that the three cents a day plan had invested \$101,844 in U. S. Treasury bonds and that all expenses had been met promptly. One hundred and seventy-four hospitals in the metropolitan area are giving service under the plan.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DIVISION OF ADULT HYGIENE

Number 33 Cancer Clinic Bulletin April 1, 1936

Due to the large number of requests from physicians for suggestions regarding public speeches in

the Coöperative Cancer Control Committees, we are publishing sample addresses written by different physicians in the bulletins of April, May and June.

The cancer problem comes home to every one of us because once past the age of forty, one out of every eight may expect to die of this disease, unless our present handling of the problem can be improved. This means that hardly a family is exempt. More than any other disease, cancer is a difficult one to treat because of the insidiousness of its onset, the difficulty of accurate diagnosis, the virtual impossibility of treatment in certain localities and the long period of painful illness involved. The three methods of treatment available are all costly, whether it be surgical, high voltage x-ray machines, or the use of radium. This cost rests on the community as well as the individual.

We are not all concerned with the treatment of cancer, but we are all concerned with its early recognition, because cancer is at first a local disease restricted to one organ or portion of an organ, and later becomes widely disseminated throughout the body. At this time cure is obviously impossible. The time, then, at which cancer can be most successfully treated is while it is still local. To establish diagnosis at this period, the medical profession must have the coöperation of all, because unless a person comes for diagnosis and treatment early, it is apt to be too late. The time to start treatment of cancer is as soon as possible after symptoms have appeared. Consequently all must be on the alert for the danger signs of the disease.

The most obvious and important of these symptoms is a sore which does not heal, a lump, particularly in the breast, or abnormal discharge of blood from any of the body cavities. These are not necessarily symptoms of cancer, but they should lead one to a physician in order to determine whether they are dangerous. Only through the alertness of each person can the present heavy toll of cancer be reduced.

One of the reasons that cancer is so insidious is that it is a disease of the body's own cells. It is not an invader attacking from without, but a treacherous change of one's own tissues. The essence of cancer is an abnormal uncontrolled growth of cells. These cancerous cells have a power of invading all parts of the body and may be carried there by the blood or the lymph stream as blazing brands are carried by the wind in a conflagration. Wherever these cancer cells may lodge, they grow true to their initial type and their behavior remains the same. Thus if we have a cancer develop in the stomach, its secondary deposit or metastasis will look like the cells of the stomach whether they occur in the lungs, liver or bones. This power of spread is what makes early treatment of cancer so essential. Obviously the disease can be treated while it is local, but once it has become disseminated to other organs, treatment is virtually hopeless.

Often the question comes up as to what causes cancer. In all probability, there is no one cause. The search for a single cause is as hopeless as that

for the philosopher's stone. There are a number of causes for cancer some of these we know others we do not know. We know that there are certain complex hydrocarbon substances which can be developed from coal tar products that have the power of producing cancer to an extraordinary degree. If one takes certain of these substances and applies them to the skin of a mouse or rat or injects them into the tissue beneath the skin a cancer will develop at the site of application within a few weeks. These so-called carcinogenic substances are somewhat related as regards their chemical formulae. Their mode of action is apparently through causing continued destruction of tissue with repeated efforts at repair so that one has a continuous active growth of cells which ultimately will develop into cancer. It has long been known that workers handling aniline were particularly apt to develop cancer. Many of you will remember the cancers that developed in the New Jersey girls who swallowed minute amounts of radio-active compounds in the course of painting luminous dials on watches.

The early workers in x-ray give us still another example of a means by which cancer can be produced. These men enthusiastic over the great benefits that the x-ray gave in establishing diagnosis, were alert only to its good features and did not realize the danger of repeated exposure to so powerful a force. As a result, most of the pioneer workers in the field have developed cancer of the skin at various points exposed to the x-rays particularly the hands. There is but little danger attached to a single exposure but repeated exposures are dangerous.

Many of the cases of cancer can be traced to what is called chronic irritation that is repeated injuries to various tissues of the body and attempts of the cells of which those tissues are made up to repair the injuries. We may say that cells have two chief aims, one to multiply the other to function. Normally a balance is maintained between these two. With repeated attempt of repair and growth the function of multiplication becomes more and more improved until the cell runs wild so to speak and multiplies rapidly at the expense of the adjoining structures. This in essence is a cancer. Instances of cancer due to chronic irritation are constantly presented. Cancer may develop in a long standing sore of the cheek caused by a jagged tooth or an ill-fitted plate. Cancer of the intestines may develop in a polyp subject to irritation. Cancer of the skin may develop at the edge of a varicose ulcer. One of the most interesting forms of cancer due to chronic irritation is that provided by a tribe in the vicinity of Kashmir in India. This tribe lives in a high altitude. They are nomads. Consequently in the absence of houses in which to shelter themselves they carry beneath their clothing an earthenware pot which is filled with glowing charcoal (in order to keep warm). Not infrequently they develop burns of the abdominal wall from this so-called "kangri" basket, and in the site of these burns cancer very frequently develops.

Chronic irritation, then we may consider as one cause of cancer. The tissue changes brought about by exposure of x-ray and radium under certain conditions we can regard as a cause of cancer. In lower animals there are certain types of cancer which develop as a result of parasitic virus infection and there are those who have attempted to ascribe human cancer to the action of a virus but this is regarded as definitely unlikely.

Heredity has been spoken of as still another cause. We know enough from work with animals to realize that heredity may play a part. We know we can breed a strain of animal in which tumors develop and another strain in which they rarely develop. But these strains must be carefully inbred over long periods of time and as long as human beings select their mates for looks, brains or wealth there will be no chance of getting at the cancer problem from the angle of heredity. Moreover before heredity can be surely established as a cause of cancer we should have accurate records for at least fifteen or twenty generations. With all our science and with all the progress that medicine has made there are few people who can tell what all four of their grandparents died of let alone their great grandparents. Probably two or three centuries must pass before we can get accurate information as to hereditary cancer in human beings.

We do know however that certain people are more susceptible than others to cancer and that a person who has had one cancer is far more likely to develop a second even though the first may be cured than is a person who has had no cancer. There is then a definite susceptibility to cancer but what determines that susceptibility we cannot say. The experimental work done on lower animals has been and is a tremendous help in solving various phases of the cancer problem. Cancer can be transplanted from one animal to another and placed in any locality desired so that its effect can be studied and the most safe treatment be developed.

The question is often raised as to whether cancer is contagious whether there is any possibility of getting cancer while nursing a patient who has cancer or in using the same article which he has used. There is none because cancer can be transmitted only through the direct inoculation of tumor cells from one living body directly to another and even this practically never occurs in human beings although with suitable operative procedures it can be carried out in animals. The one outstanding point for us to keep continually in mind is that if we are to prevent the tremendous amount of human suffering and economic loss entailed by this disease we must recognize it early and treat it vigorously.

CERTIFIED MILK REPORT OF THE MEDICAL MILK COMMISSION OF BOSTON FOR 1935

The Medical Milk Commission of Boston Inc. submits this report of its activities during 1935 in the hope that a glance at its contents will make the reader realize that present-day Certified Milk is a far

better and safer product than that in bygone years. The members of the Commission believe that in its raw state the milk is as nearly safe as is humanly possible and when pasteurized it is the best milk obtainable anywhere.

Certified Milk is produced under the regulations of the Massachusetts Department of Public Health and the annually revised Methods and Standards of the American Association of Medical Milk Commissions. These form the strictest code of milk produc-

Units per quart until December, 1935, when the new U S P Vitamin D units were followed (160 Steenbock Units equal 430 U S P Vitamin D units). In the fall of 1934 the manufacturer of the irradiated yeast advised the farms to reduce slightly the amount of yeast fed, with the result that Hampshire Hills fell below the established standard in the November test and Cherry Hill and Walker Gordon in the February test. The Commission immediately ordered the farms to resume the earlier dosage and

TUBERCULIN TESTS FOR 1935

Name of Farm	Date of Test	Number of Cows Tested	Number of Reactors	Per Cent of Reactors
Cherry Hill	August 17, 1935	181	3*	1.66
Hampshire Hills	January 19, 1935	230	0	—
Walker Gordon	April 4, 1935	363	0	—
Total		774	3	0.39

*No visible lesions on postmortem examination. Accredited herd certificates continued by Bureau of Animal Industry.

tion with which we are familiar. We believe that our producers are in good faith trying to live up to the code. If we did not so believe, we would not be willing to grant them our certificate.

The herds are all accredited, that is, free from tuberculosis according to the tests and rules of the Federal Bureau of Animal Industry.

They are almost free from contagious abortion (Bang's Disease). Of 1433 samples of blood tested during the year only two gave a positive agglutination test. These animals were immediately removed from the herds.

forbade them to vary the dosage in the future without our permission.

We believe that "Vitamin D Milk" containing 430 U S P units per quart is as adequate an antirachitic agent as cod liver oil or Viosterol in their usual dosage and that it is more palatable, convenient and likely to be taken by the patient. It must be sharply distinguished from irradiated milk which contains only 50 Steenbock or 135 U S P units of Vitamin D per quart.

The health of the cows is supervised by Dr. W. T. White, a veterinarian appointed by and responsible

AGGLUTINATION TESTS FOR 1935

Farm	Date	Total Samples	Negative	Positive	Doubtful
Cherry Hill	January	161	158	0	3
	May	182	152	0	30
	July	180	166	0	14
	September	179	164	1	14
Hampshire Hills	May	217	193	0	24
	December	225	216	1	8
Walker Gordon	June	289	260	0	29
		1433		2	

The feed of the milking cows is selected with the ideal of maintaining optimum mineral, protein and vitamin content in the milk the year round and not solely from the point of view of maximum milk and butterfat output.

The feed of approximately three quarters of the cows is specially reinforced by the addition of irradiated yeast. Bio-assays of the resulting Vitamin D Milk are made for the Commission by Professor J. W. M. Bunker of Massachusetts Institute of Technology. The results were reported in Steenbock

to the Commission. No serious conditions among the herds were discovered during the year.

The health of the men is supervised by physicians living near the farm. These men are appointed by and are responsible to the Commission. They make a physical examination of all new employees before they are allowed to handle milk. This examination includes cultures from the nose and throat and of the stools. They also see immediately all sick employees and quarantine or exclude from contact with the milk any men with diseases possibly transmissible.

BIO-ASSAYS FOR VITAMIN D

Name of Farm	Oct. 1933 Steenbock Units per quart	March 1934 Steenbock Units per quart	Nov., 1934 Steenbock Units per quart	Feb., 1935 Steenbock Units per quart	Dec., 1935 U S P Units per quart
Cherry Hill	160	more than 160	160	less than 160	more than 430
Hampshire Hills	160	more than 160	less than 160	more than 160	430
Walker Gordon	more than 160	more than 160	160	less than 160	more than 430

BACTERIA COUNTS 1935

CERTIFIED MILK RAW

Name of Farm	Number of Bacteria Counts	Number Over 10 000	High Counts in Detail
Cherry Hill	109	4	11 000 11 700 11 900 13 900
Hampshire Hills	109	3	11 800 15 700 19 100
Walker Gordon	109	3	11 500 11 900 19,200

Summary—Certified Milk Raw

	Times	Per Cent
5 000 and below	231	85.93
5 001 through 10 000	36	11.01
	267	96.94
10 001 through 15 000	7	2.14
15 001 through 20 000	3	.93
Over 20 000	0	0
	397	100.00

CERTIFIED MILK PASTEURIZED

Name of Farm	Number of Bacteria Counts	Counts of —100	Counts of 100	Counts of 200	Counts of 300	Counts of 400-700	Counts of Over 700	High Counts in Detail
Cherry Hill	98	67	23	4	2	2	0	500 600
Hampshire Hills	107	82	22	3	0	0	0	
Walker Gordon	106	69	29	7	1	0	0	

Summary—Certified Milk Pasteurized

	Times	Per Cent
Counts of less than 100	113	70.09
Counts of 100	74	23.80
	187	93.89
Counts of 200	14	4.50
Counts of 300	3	.96
Counts of 400-700	2	.65
Counts of over 700	0	—
	311	100.00

through milk During 1935 there were no serious diseases reported although a number of minor infections were so excluded

Bacteria counts are the best laboratory check we have on the conditions under which milk is produced and handled Our samples are collected by our agent from the distributing depots and delivered to the laboratory of the Department of Comparative Pathology at the Harvard Medical School where the counts are made The standard plate method is used except that 6 per cent defibrinated horse blood is added just before the plates are poured This enables the laboratory to detect the presence of hemophilic organisms, but has the disadvantage of giving counts approximately 20 per cent higher than those obtained by the unmodified standard plate method

One of the requirements for Certified Milk is that it shall be bottled on the farm where it is produced The same rule applies to pasteurization Each farm has its own pasteurization outfit which is used for no other grade of milk Cherry Hill and Walker Gordon pasteurize in holding tanks and then cool and bottle Hampshire Hills pasteurizes in the bottle

"Methods and Standards for the Production of Certified Milk" state that the milk shall contain not over 10,000 bacteria per cubic centimeter, and after pasteurization not more than 500 per cubic centimeter In 327 counts of Certified Milk Raw only 3 per cent of these counts were over 10,000 bacteria per cubic centimeter and 86 per cent were 5,000 and under In 311 counts of Certified Milk Pasteurized in only one count was it over 500 bacteria per cubic centimeter and in 94 per cent the counts were 100 or less

J HERBERT YOUNG, M D ,

Chairman,

LEWIS WEBB HILL, M D ,

FRANKLIN G BALCH, M D ,

JOSEPH GARLAND, M D ,

ALBERT A HONOR, M.D. ,

WILLIAM B KEELE, M.D. ,

Health Commissioner of Boston,

EDWIN T WYMAN, M.D. ,

ELMER W BARBON, M D ,

STEWART H. CLIFFORD, M D ,

R CANNON ELEY, M D ,

RICHARD S EUSTIS, M D ,

Secretary and Treasurer

AN HONOR TO THE MEMORY OF DR NATHAN COOLEY KEEP

As an especial feature of the annual Alumni Day or joint clinical meeting of the Harvard Dental Alumni Association and the Harvard Odontological Society, April 3, 1936, a portrait of Dr Nathan Cooley Keep was unveiled in Vanderbilt Hall, the gift of the artist, Mrs Marie Danforth Page, whose husband is a grandson of Dr Keep The portrait was unveiled by Miss Elizabeth Keep, the great granddaughter of Dr Keep Dr Leroy M Miner received the portrait in behalf of the school and Mr Henry L Shattuck,

Treasurer of Harvard College, accepted it in behalf of the Harvard Corporation

Dr Keep graduated from the Harvard Medical School in 1827 and practiced dentistry in Boston for many years He was interested in the founding of the Massachusetts Dental Society, serving as its first president and the first dean of the Harvard Dental School

SOCIAL SECURITY BOARD APPROVES PUBLIC ASSISTANCE PLANS OF OHIO, MASSACHUSETTS, ARKANSAS, VERMONT, WASHINGTON AND OKLAHOMA

The Social Security Board approved public assistance plans of six States on March 31 the Arkansas State plans for aid to the needy aged, the blind and to dependent children, the Vermont State plans for aid to the blind and dependent children the Washington State plan for aid to the blind, the Ohio State plan for aid to the needy aged, the Massachusetts State plan for aid to the needy aged and the Oklahoma State plans for aid to the needy aged and to dependent children

As a result of the Board's action these States will receive allotments of funds from the Federal Government to match their own expenditures for assistance to the needy aged, dependent children, and the blind The Federal grant will be as much as the States themselves spend in the case of assistance to aged persons and aid to the blind, up to a combined total of \$30 a month per person, plus 9 per cent of the amount of the Federal grant to help cover the States' administrative expenses For aid to dependent children the Federal grant to States with approved plans will be one dollar for every two dollars the State spends, up to a combined total of \$18 per month for the first dependent child in any one family and \$12 per month for each additional child in the family

This approval by the Social Security Board brings the number of States with approved public assistance plans to 27 in the case of aid to the needy aged, 18 for aid to the blind and 17 for aid to dependent children Almost 500,000 individuals are affected by these plans, 390,000 aged men and women, 86,187 dependent children and 17,543 needy blind

The public assistance plans approved on March 31 are expected to provide aid to 91,167 aged persons in Ohio, 25,600 aged persons in Massachusetts, 11,000 aged, 300 blind persons and 550 dependent children in Arkansas, 175 blind persons and 577 dependent children in Vermont, and 700 blind persons in Washington

In Massachusetts the average rate is \$25.55 per person Payments to the blind in Vermont are estimated at an average rate of \$11.50 per month to each individual and payments to dependent children at \$9 per month

To be approved by the Social Security Board, under the terms of the Social Security Act, a State public assistance plan must provide for cash pay

ments to needy aged persons to dependant children living with relatives, or to the needy blind in all parts of the State. A single State agency must administer the plan or supervise its administration if

it is directly administered by the Counties. This State agency must grant the opportunity for an appeal from the decision of any county denying assistance to an applicant.

CASES AND DEATHS IN MASSACHUSETTS WITH CASE AND DEATH RATES PER 100 000
POPULATION FOR REPORTABLE DISEASES DURING THE YEARS 1934 AND 1935

MASSACHUSETTS

Diseases	1935 Cases	1934 Cases	1935 C R per 100 000* Pop	1934 C R per 100 000† Pop	1935 Deaths	1934 Deaths	1935 D R per 100 000 Pop	1934 D R
Actinomycosis	3	1	0.1	†	3	1	0.1	†
Ant Polio.	1,393	76	31.9	1.8	61	9	1.4	0.3
Anthrax	3	5	0.1	0.1	—	—	0.0	—
Chickenpox	10 836	10 990	248.4	253.3	9	12	0.2	0.3
Diphtheria	390	629	8.9	14.5	26	50	0.6	1.0
Dog Bite	10 481	8 863	240.3	204.3	—	—	—	—
Dys Amebic	12	31	0.3	0.7	1	3	—†	0.1
Dys Bacillary	24	238	0.5	5.5	6	17	0.1	0.4
Enc. Lethargica	16	36	0.4	0.8	16	25	0.4	0.6
Ep C S Meningitis	83	66	1.9	1.5	55	28	1.3	0.6
German Measles	33 265	1 005	762.7	23.2	6	—	0.1	—
Gonorrhea	6 193	6 538	142.0	150.7	7	11	0.2	0.3
Hookworm	1	—	—†	—	—	—	—	—
Lob Pneumonia	4 370	3 976	100.2	91.6	1 731	1 601	39.7	36.9
Malaria	17	27	0.4	0.6	1	3	—†	0.5
Measles	13 862	44 817	233.2	1 032.3	37	91	0.8	2.1
Mumps	5 620	4,310	128.8	99.3	3	2	0.1	0.5
Oph Neon	1 076†	1 072†	24.7	24.7	—	—	—	—
Paratyphoid	5	6	0.1	1	1	1	—†	†
Pellagra	17	9	0.4	†	16	13	0.4	0.3
Rabies	2	1	0.1	†	2	1	0.1	†
Scarlet Fever	8 304	8 391	190.4	193.4	57	76	1.3	1.8
S S Throat	195	201	4.5	4.6	39	60	0.9	1.4
Smallpox	—	—	—	—	—	—	—	—
Syphilis	5,317	4 471	131.9	108.0	177	159	4.1	3.7
Tetanus	23	20	0.5	0.5	20	20	0.5	0.5
Trachoma	31	33	0.7	0.8	—	—	—	—
Trichinosis	47	46	1.1	1.1	3	4	0.1	0.1
Tuberculosis, Pul	3 592	3 585	82.4	82.6	1,813	1 902	41.6	43.8
Tuberculosis O F	387	448	8.9	10.3	148	214	3.4	4.9
Tbc. Hilum	622	855	14.3	19.7	—	—	—	—
Typhoid Fever	113	134	2.6	3.1	10	13	0.2	0.3
Typhus Fever	2	2	0.1	0.5	—	—	—	—
Undulant Fever	42	15	1.0	.3	1	—	—†	—
Whooping Cough	5 566	12 850	127.6	291.7	67	125	1.5	2.9
	110 397	113 558			4 315	4 410		

Population 1 361 870

†Less than 1

130 of these were gon. oph

Population 4,313 10

126 of these were gon. ph

incomplete ly reported.

—Bulletin State Department of Public Health

AFFAIRS IN CONNECTICUT

SILICOSIS IN CONNECTICUT

Vernie A. Zimmer director of the federal bureau of labor standards created considerable discussion in

Connecticut recently by stating that approximately 133 332 or 37 per cent of Connecticut industrial workers are exposed daily to industrial silicosis. In the same statement Mr Zimmer branded the Connecticut state compensation law "Inadequate and

unfair' both to workmen and employers as to its silicosis provisions

All this controversy has arisen as an aftermath of the recent revelations of its prevalence among the unfortunates who are employed on the Gauley Bridge, West Virginia, tunnel project. Mr Zimmer makes a point of the fact that the Connecticut compensation laws make no special provision for silicosis. To mention specifically the occupational diseases for which compensation can be awarded would weaken the laws, for it would be virtually impossible to list by name all of the diseases that may result from employment. Instead, the law declares that wherever "personal injury" appears it shall be construed to include $\lambda \lambda \lambda \lambda$ occupational disease," and occupational disease itself is defined as "a disease peculiar to the occupation in which the employee was engaged and due to causes in excess of the ordinary hazards of employment as such. Under that definition not only the sufferer from silicosis but those affected with glass blower's cataract, miner's ankylosis, pitch cancer, caisson disease, etc., are protected.

Mr Zimmer also stated that silicosis, because of its special effect on workmen, cannot be compensated for as are other industrial diseases. The 1935 session of the Connecticut Legislature made one important change in the Compensation Code which provides that an application may be filed at any time within a year after the first manifestation of an occupational disease, and defines "first manifestation" as the first appearance of the effects of the disease "in such manner as is or ought to be recognized by him (the employee) as symptomatic of the occupational disease for which compensation is claimed." Mr Zimmer apparently was not aware of this recent change in the Code.

It is difficult to see how any serious silicosis condition could exist in Connecticut, provided the laws are properly administered. The Health Code of the State provides that all occupational diseases must be reported by the physician in attendance, to the State Department of Health. An investigation by the State Department follows. In the event that conditions dangerous to the health of the workers are found the installation is required of protective devices or such other measures as may be necessary to safeguard the employees. Connecticut's compensation laws as they apply to industrial diseases are among the most advanced in the country. In fact, the Compensation Code as it exists in Connecticut today has been urged on states possessing lower standards as a model on which to pattern their own laws.

The federal bureau of labor recommends the following standards for employers

(1) Prevention of silicosis lies entirely in keeping the dust from getting into the air, and therefore, prevention is mainly an employer's problem.

(2) Control of dust at the point of origin by the use of local exhaust systems or wet methods, or a

combination of both. Wetted dust may dry out and reenter the air, therefore dust must be removed and disposed of.

(3) General ventilation will help reduce silica concentration which should never exceed 5,000,000 particles of pure silica per cubic foot.

(4) Clean floors, walls and benches regularly by vacuum, or wet brushing and sweeping, and preferably outside of working hours. Wet down foundry floors at frequent intervals.

(5) Have sand blasting done only with articles completely enclosed or protect workers by positive pressure masks.

(6) Have medical examinations, with lung x-rays, of employees at intervals not exceeding one year. Remember that most workers with simple silicosis may safely continue at work if the dust hazard is removed.

(7) Make dust surveys and analyses frequently to determine exactly the dust hazard of the plant.

ANNUAL MEETING OF HARTFORD MUNICIPAL HOSPITAL

James C. Wilson, M.D., was elected president of the staff of the Municipal Hospital at its annual meeting on March 3, 1936, to succeed Anthony W. Branon, M.D. A new office was created, that of vice-president, and to this office Harry L. F. Locke, M.D., was elected. Walter L. Hogan, M.D. was elected secretary. New appointments and promotions included the following: James E. Davis, bronchoscopist; H. N. Hurwitz, orthopedist; A. Samponaro, otolaryngologist; Milton F. Little, ophthalmologist; Elliot S. Cogswell, roentgenologist; Louis H. Gold, assistant neuropsychiatrist; Edgar Butler and J. L. Gothers, assistant dentists; Philip Adelman and A. R. Schwartz, assistant ophthalmologists and otolaryngologists; J. R. Glazier and J. F. McGrath, assistant surgeons; Charles Bingham, assistant physician; C. J. McCormack, assistant gynecologist; E. H. Crosby, assistant orthopedic surgeon; H. M. Glaubman, assistant pediatrician.

INFANT MORTALITY

The State Department of Health has announced the infant mortality for 1935 in Connecticut to be 43.2 under one year of age per 1000 births. Actually there were 944 deaths and 21,860 living births. In 20 years, from 1916 to 1935, the death rate for infants under one year of age has dropped from 100.8 to 43.5. More than one half of the deaths occurred during the first week after birth, and of these the greater part occur the first day. The greatest single cause of death is prematurity.

FEDERAL FUNDS RECEIVED

On March 2, 1936 Governor Cross received from the Social Security headquarters at Washington a check for \$6,379.16, the first installment of a contribution the Federal Government is making for the extension of maternal and child care under the Connecticut State Department of Health. Dr. Os-

born State Health Commissioner recently expressed the hope that these funds will permit the State among other activities to undertake a broad study of cancer control. Already there is a statute authorizing the State Department of Health to make certain investigations concerning the prevention and treatment of cancer and to take such action as it may deem of assistance in bringing about a reduction in mortality from this disease.

Connecticut has made decided progress in cancer prevention work but it has not developed as unified and comprehensive a plan as has Massachusetts in the past ten years. The Connecticut State Medical Society in addition to supporting the cancer control act, has formed a special tumor committee under the chairmanship of Dr. Thomas H. Russell of New Haven. As a result of this committee's work there are now nine or ten cancer clinics in operation in the State and work in research and publicity is progressing.

TITLE OF NORWICH HEALTH OFFICER CONTENDED

Dr. Harrison Gray, Health Officer of Norwich for a four year term up to October 1, 1935, claims the appointment to the office on November 4, 1935, by County Health Officer Richard L. Norman and his claim was substantiated by Judge Allyn M. Brown in Superior Court. Dr. Albert Quintiliani has appealed from Judge Brown's decision to the Supreme Court, claiming that he was appointed by Mayor Moran on the same day and the appointment confirmed by Court of Common Council. Dr. Quintiliani's appointment seems to have missed out by a few hours.

CONNECTICUT MUTUAL LIFE INSURANCE COMPANY PAYS TRIBUTE TO DR. CHARLES D. ALTON

On March 2, 1936, Dr. Charles D. Alton, twenty years old, was tendered a dinner at the Hartford Golf Club by the official staff of the Connecticut Mutual Life Insurance Company. This occasion marked the completion of sixty years of continuous service by Dr. Alton. James Lee Loomis, president of the company and toastmaster at the dinner lauded the "splendid fidelity" of Dr. Alton in discharging his duties with the company over more than half a century, praised the retiring medical referee's rare philosophy of life and his "internal resources of character" and presented to him the company's service medal with a specially inscribed bar in token of his sixty years of service. A gift of a morocco portfolio containing some three hundred testimonial letters from friends in the life insurance business and medical profession was presented to Dr. Alton also a silver tray equipped with decanter and wine glasses, the bottom of the tray being inscribed with the names of the officers of the company.

Dr. Alton in his remarks narrated the difficulties the company experienced in its early days in ob-

taining competent medical examiners in those places where the physicians "knew nothing of insurance and hardly more about medicine. In a few words he painted "the sombre heaviness of Savannah Ga. during a trip he made there in 1877 when a yellow fever epidemic was lifting. Humorously Dr. Alton described some of the adventures that comprised the "routine" of his early days as medical examiner for the Connecticut Mutual referring to the manner in which he built up the company's field medical examining resources.

Dr. Charles D. Alton has been active in medical circles, being a past president of both the Hartford Medical Society and the Hartford County Medical Association. He was also formerly vice-president of the American Climatological and Clinical Association.

RECENT DEATHS

BATEMAN—FRANK E. BATEMAN, M.D., of 163 Highland Avenue, Somerville, Massachusetts, died at his home, April 5, 1936. Dr. Bateman was born in Fitchburg, Massachusetts, in 1866. After graduating from the Harvard Medical School in 1894, he began practicing in Charlestown but after four years moved to Somerville.

Dr. Bateman was a Fellow of the Massachusetts Medical Society and the American Medical Association.

His widow, Mrs. Sophie C. Bateman, two daughters, Mrs. Robert Jones of West Medford and Miss Silvia Bateman of Somerville, and a son, Leon W. Bateman of West Acton, survive him. There are also five grandchildren.

BONGIORNO—FELICE BONGIORNO, M.D., died at his home in Waltham on February 20, 1936. Death was due to coronary thrombosis.

Dr. Bongiorno was born in Malfa, Italy, on June 14, 1893. He was educated in Italy and served with the Italian Medical Corps for five years, being wounded once and receiving the Croix de Guerre. He graduated in medicine from the University of Naples in June, 1919, coming to this country in 1922 and locating in Waltham, Massachusetts, at that time. He was licensed to practice medicine in the State of Massachusetts in 1923 and he became a Fellow of the Massachusetts Medical Society in 1928.

He was married in 1930. Dr. Bongiorno is survived by his widow, nee Rosanna Gaudreau, and two children.

BARRETT—ALBERT MOORE BARRETT, M.D., formerly associated with the Massachusetts Department of Mental Diseases, died at his home in Ann Arbor, Michigan, April 2, 1936. He began his career in the field of Mental Diseases and served on the staff of the Iowa State Hospital for the Insane. Dr. Barrett then went to the Danvers (Mass.) Hospital for the Insane and after serving there about four years,

was advanced to the position of Assistant Psychiatrist at the Worcester Insane Hospital

In 1906 he was called to the University of Michigan and became the organizer of the first university hospital and clinic for mental diseases in the United States. This institution was a part of the University of Michigan and Dr Barrett had been the Professor of Psychiatry at this University Medical School since 1920.

He had been president of the American Psychiatric Association, the American Neurological Association, and the Psychological-Pathological Association. A son, Edward Bowman Barrett, survives him. His wife, Mrs Eliza Jane (Bowman) Barrett, died several years ago.

NOTICES

AN EXHIBIT OF ATHLETIC SCULPTURE BY DR R TAIT MCKENZIE

Dr R Tait McKenzie of Philadelphia will exhibit his conceptions of artistic athletic development at the Doll and Richard's Gallery, 138 Newbury Street, Boston, from April 12 to April 25, 1936.

Dr McKenzie has an established reputation in the field of physical education and during the World War organized the first rehabilitation camps in England, United States and Canada.

BOSTON UNIVERSITY SCHOOL OF MEDICINE SURGICAL CLINIC AT THE BOSTON CITY HOSPITAL

Friday, April 17, 121, Cheever amphitheatre

Dr Richard H Miller, Assistant Professor of Surgery, Harvard Medical School, and Visiting Surgeon, Massachusetts General Hospital, will speak on Acute Abdominal Pain.

Physicians and medical students are invited.

THE NATIONAL TUBERCULOSIS ASSOCIATION

The National Tuberculosis Association has a membership of physicians, nurses, health workers, public spirited citizens and other individuals and agencies which furnish to it a means for moral support of its work. Membership in the National Tuberculosis Association is semiprofessional. Individual membership is open to anyone who wishes to join. The membership fee for regular individual membership is \$5.00 a year. The Association also has associate memberships at \$10 a year, sustaining memberships at \$20 a year, and life memberships at \$100. All members of the Association are given free a subscription to the monthly Bulletin of the National Tuberculosis Association, the annual volume of Transactions containing papers read at the annual meeting or a choice of several other publications. An application card for membership will be sent on request. Checks should be made payable to Collier Platt, Treasurer, and sent to 50 West 50th Street, New York, N Y.

CALENDAR OF LECTURES AND RADIO TALKS LISTED IN BOSTON HEALTH LEAGUE OFFICE —APRIL, 1936

April 13—*Self Measurement as a Group Guidance Technique*—Richard D Allen Sponsor, B U School of Education 29 Exeter Street 7 15 P.M. \$1.50

April 14—*Metabolism*—WBZ, 4 45 P.M. Sponsors, Massachusetts Medical Society and Massachusetts Department of Public Health

April 14—*Preparation for Vacation*—Sponsor, Class Rm Teachers' Sect., New England Health Education Association Emma Rogers Room, M I T Supper at 6 P.M., 60c, talk at 7 P.M.

April 14—*Leanness and Fatness in Terms of Body Build*—Dr S J Thannhauser Sponsor, Massachusetts Dietetic Association 8 P.M. 46 Beacon Street Non members 25c

April 16—*State Private Duty Nurses' Dinner*—Sponsor, Massachusetts State Nurses' Association. 6 30 P.M. Hotel Bancroft, Worcester Ticket for dinner and transportation, through Alumnae

April 21—*Health of the School Child*—WBZ, 4 45 P.M. Sponsors, same as April 7 and 14

April 21—*Field Trip, E L Patch Company*—Sponsor, Massachusetts Dietetic Association 46 Beacon Street 2 P.M.

April 21—*Some Fallacies in Social Hygiene Teaching*—Dr Helen McGillicuddy Sponsor, Full Time Teachers' Sect., New England Health Education Association Emma Rogers Room, M I T Supper at 6 P.M., 60c, talk at 7 P.M.

April 27—*The Problems of the Adolescent*—Augusta F Bronner, Ph.D. Sponsor, B U School of Education 29 Exeter Street 7 15 P.M. \$1.50

April 28—*Cosmetics and Common Sense*—WBZ, 4 45 P.M. Sponsors, Public Education Committee of Massachusetts Medical Society and Massachusetts Department of Public Health

Tuesdays 1 30 P.M.—*Health Review*—Courtesy WEEI Sponsor, Massachusetts Department of Public Health

Fridays 4 45 P.M.—*Health Forum*—Courtesy WEEI Sponsor, Massachusetts Department of Public Health

INTERNATIONAL CARDIOLOGICAL MEETING ROYAT (AUVERGNE) ASSEMBLY OF PHYSIOLOGISTS PATHOLOGISTS AND THERAPEUTISTS, MAY 31-JUNE 1, 1936

Various professional groups of Royat, namely, the Medical Society, the Mineral Water Company, the Publicity Commission, the Hotel Syndicate, the Local Information Bureau and the Municipalities, have decided to organize at regular intervals International Cardiological Meetings to be held at Royat. Questions will be discussed at each meeting from

the physiological, pathological and therapeutic point of view

Each question will be chosen from among the problems of present-day science and will be discussed by lecturers whose personal research competence and recognized authority are certain guarantees of the value and importance of each session.

The reports will be printed and distributed in the form of brochures. Each brochure will contain a summary of the latest developments concerning the question studied and in all will constitute a cardiovascular library of great value to the practitioner. The unpublished documents, valuable diagnoses and therapeutic indications can be used advantageously by the physician in daily practice.

The first International Cardiological Meeting will be held at Royat during Whitesunside 1936 (May 31 June 1). The question to be discussed is Vascular Spasm.

Professor Vaquez will preside at the meeting. Reports will be delivered by Professors C. Heymans of Ghent and Lucien Brouha of Liege. Physiological Aspect of the Vascular Tonus.

Professor Riser of Toulouse. Vascular Spasm of the Brain.

Professors Leriche and Fontaine of Strasbourg. Vascular Spasm and the Limbs.

Professors Maranon and Duque of Madrid. Relation of Vascular Spasm to Endocrinology.

Professor Loeper of Paris. Treatment of Vascular Spasm.

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M. on Thursday April 16 in the Amphitheatre of the Peter Bent Brigham Hospital Dr. Henry A. Christian, Physician in Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students.

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12 staff rounds will be conducted by Dr. Christian.

A PHOTOGRAPH OF DR. IRA VAN GIESON WANTED

In connection with the compilation of the history of the New York Psychiatric Institute Dr. C. O. Cheney, 723 West 168th Street, New York City would like a photograph of Dr. Van Gieson.

REPORTS AND NOTICES OF MEETINGS

NEW ENGLAND HEART ASSOCIATION

The monthly clinical meeting of the New England Heart Association was held at the Memorial Hospital Worcester on February 24, 1936.

The first paper of the evening was given jointly by

Dr. O. H. Stansfield and Dr. E. H. Halloran and was devoted to the early and remote effects of acute contagious diseases upon the heart. The effect of diphtheria toxin on the myocardium was taken as an extreme example. In diphtheritic myocarditis the mortality was high but if recovery occurred it was almost always complete. It is reasonable to assume however that in some apparently completely recovered cases scars are left in the myocardium which may contribute to heart failure in later life. In scarlet fever in addition to direct cardiac damage the risk of renal injury must be borne in mind as this may lead eventually to cardiovascular renal disease. Influenza may be followed by circulatory weakness which persists for months or even years. In all acute contagious diseases the possibility of cardiac involvement must be considered and violent exertion during convalescence prohibited.

Dr. Frank B. Carr reported his observations on six cases of acute benign pericarditis occurring in otherwise healthy young people without evidence of myocardial or endocardial involvement. These cases were considered to be analogous to cases of acute fibrinous pleurisy in which there is no significant involvement of the parenchyma of the lung and no pleural effusion. It was suggested that such cases frequently had escaped recognition because the onset is often that of an acute respiratory infection accompanied by the generalized muscle pains usually associated with grippe, and the pericardial friction rub may not appear until relatively late in the course of the infection.

Dr. John J. Dumphy spoke on the subject of Angina Pectoris Complicating Pernicious Anemia. In a group of thirty-one cases of pernicious anemia seen by the author nine presented the typical anginal syndrome. Eight of them were followed over a period of from two to eight years, averaging five years. All were relieved of anginal attacks while under treatment of the anemia, but four subsequently developed acute coronary thrombosis with definite clinical and electrocardiographic evidence. It was also noted that several patients in this series developed significant rises in blood pressure as their anemia improved under treatment.

SOUTH EASTERN MASSACHUSETTS HEALTH OFFICERS ASSOCIATION

Some thirty health officials of towns from Brockton to the tip of Cape Cod met in Hyannis on Wednesday January 29 for the regular quarterly meeting of the South Eastern Massachusetts Health Officers Association. The president called for the regular business meeting in the course of which Mr. A. J. Strawson, the recently appointed Executive Secretary of the Massachusetts Tuberculosis League, was made honorary member of the association.

The principal speaker was Dr. Mary R. Lakeman of the Cancer Division of the Massachusetts Department of Public Health who outlined the efforts of

the division toward the control of cancer on Cape Cod. In this work Dr Lakeman is visiting every town in the district, making direct contact with the officers and directors of the many local associations, women's clubs and social groups, with due attention to the organizations of men. For the past fifteen years there has been an increasing realization of the necessity of caring for chronic diseases, and success has been achieved to the extent of adding about five years to the average human life.

Since 1925 legislation has been chiefly for large hospitals to care for older persons, and in 1926 a cancer division was added to the other State Health Department activities. Dr G. H. Bigelow, the then Health Commissioner of Massachusetts, undertook the problem of proper development of the work, secured the advice of the cancer experts of the medical societies, men with wide experience, and in addition, undertook extensive local studies. One outcome was the realization of the fact that the malady often needs long care that hospitals cannot give. Boards of health were not brought into the matter at the time, but steps were taken to build up clinics, with some hospitals. There are eighteen such clinics today.

Especial reference was made by the speaker to a later work of research undertaken by Dr Bigelow and Dr Herbert L. Lombard, published in book form with the title, "Cancer and other Chronic Diseases in Massachusetts." In accord with the growing realization that education of the people is fundamental to progress, the State Department has devoted two of its recent bulletins to cancer, while the American Society for the Control of Cancer has done much toward interesting the health departments and the public in the subject.

The speaker sketched some of the problems presented by other chronic diseases, among them heart ailments, arthritis and diabetes. They all present some similarities, in that prevention is the modern resource of their elimination. Here Dr Lakeman emphasized the importance of early discovery, the means for which include periodical medical examination. In cancer approximately half of all the cases are curable if recognized in time, but in cancer of the skin, a very large percentage will yield to treatment.

A campaign for the information of the "man on the street" is now underway, and by means of local groups, as already suggested. These should include professional groups like boards of health and medical societies as well as the lay professional business and social associations. There is now an earnest endeavor to interest the latter in organizing educational meetings, at which the medical men will provide facts and information. It is hoped that centres may be established with active leaders in all the towns. Thus public education in prevention and in general health may be promoted.

Mr Bernard E. Bradley of the Cancer Division continued the general subject with facts and figures. Two difficulties of the day are delay in treatment

and refusal to recognize the symptoms. Inasmuch as physicians in Massachusetts are caring only for a small ratio of the actual cases, it is necessary to bring the matter into the open and talk about it. Since the people have begun to understand about tuberculosis, the death rate has been very materially lessened. In cancer, likewise, the responsibility is on the people. There are facilities for treatment and care, but the patient should get this treatment in early stages of the disease.

Mr Strawson voiced the greetings of the Massachusetts Tuberculosis League, and stated that clinics should be provided for promptly to the end that the plan under Dr Chadwick's supervision should be carried forward. The people must be educated to full coöperation with existing facilities including sanatoria and clinics.

The meeting then resolved itself into a "round table", with free discussion, some of the participants being Dr Richard P. MacKnight, State District Health Officer, Dr E. F. Curry of Sagamore, Dr A. P. Goff, County Health Officer, and Mr Charles R. Stowers of the Falmouth Board of Health.

Mr W. Fred Delano, health officer of Fairhaven, discussing the special subject of diphtheria, advocated the general immunization of school children, with the schools asking for information on this subject. Dr Swift, reporting for Falmouth, noted that in 1930 and 1931, the deaths from diphtheria were thirty-eight and twenty-one, respectively, and in 1932, one. In 1933, 1934 and 1935 there were none. Dr MacKnight, reporting for New Bedford, said that with a population of 110,000, the years 1934 and 1935 had no deaths from diphtheria.

HARVARD MEDICAL SOCIETY

The Harvard Medical Society met at the Peter Bent Brigham Hospital on January 28, 1936, Dr J. C. Aub presiding. The medical case was presented by Dr John Alsever. A forty-two year old housewife entered the hospital sixteen days previously complaining of tender nodules over her extremities of three days' duration. She had had five such attacks during the preceding twenty-four years, the last in 1930. The attacks always began with sore throat and diarrhea of two or three days duration, followed by the development of skin lesions over the forearms and legs, which persisted for three or four weeks, and gradually disappeared. The attacks were accompanied by malaise, and generalized joint pains. Physical examination was negative except for a red, inflamed throat, and a skin rash over the arms, thighs, and knees. The skin lesions over the arms were red and erythematous, with irregular outline and sharp border. The nodular lesions were limited to the legs, and were acutely tender. Her temperature was moderately elevated, and the white blood count varied between 12,000 and 24,000. Other laboratory studies were essentially negative. The diagnosis of erythema nodosum and erythema multiforme was made. The nodules slowly regressed,

and became less tender the joint pains subsided and the rash over the upper extremities desquamated.

Dr. Fulton remarked that although the disease is spoken of as allergic it is seldom possible to demonstrate specific hypersensitivity. It was impossible to do so in this case. The patient was illustrative of the type of recurrent erythema with visceral manifestations. The same type of process observed in the skin also occurs in the internal organs with resultant varying symptoms thus signs suggestive of acute hemorrhagic nephritis or renal colic have occasionally been described.

The surgical case was presented by Dr. Robert Bates. A fifty-one year old housewife entered the hospital seven days previously with the history of a lump in the right breast five years ago at which time bilateral simple mastectomy had been performed. One year ago she began to experience vague aching pains in her back and legs which had progressed in severity and which kept her confined to bed for the past six months. Physical examination showed a well nourished woman in no acute pain resting quietly in bed. There were scars of the bilateral simple mastectomy and in the right third interpace there was a hard nodule adherent to the skin and underlying tissues. There was acute pain on manipulation of the right hip and muscular atrophy of the right leg. X-ray studies showed many of the ribs and vertebrae to be involved in a widespread destructive process and there was a large area of destruction in the right ilium in the region of the hip joint.

Dr. Aub commented on the marked improvement shown by some patients with metastatic carcinoma of the breast after the production of artificial menopause. Dr. E. C. Cutler stated that patients past the menopause received no benefit from radiation of the ovaries.

Dr. Edgar Allen, Professor of Anatomy at Yale University School of Medicine, delivered the paper of the evening speaking on "Reactions to Ovarian Hormones: Growth, Normal and Atypical in Genital Tissues."

Both ovarian and testicular hormones are essential for the growth and maintenance of the genital tissues. Recently developed synthetic preparations are able to induce development and stimulate growth processes, replacing the endocrine function of the gonads.

So great is the growth stimulus furnished by the ovarian follicular hormones that by administering relatively small dosages to ovariectomized mice and rats the vaginal wall can be replaced with new epithelium within forty-eight hours. On withdrawal of the hormone there is an enormous leucocytic infiltration of the vaginal wall and a sloughing of all but a few basal layers.

Since normal growth processes of genital tissues are so greatly accelerated by estrogenic substances it is conceivable that irregularities in the duration or mode of hormone action may result in the development of neoplastic processes. Various examples

of excessive or atypical growths induced by estrogens were then illustrated.

During pregnancy the vaginal epithelial cells of rodents are loaded with mucus and are of an appearance entirely different from that observed in epithelium under theelin stimulation. By injection of theelin in doses one-third that used to produce estrus, a picture similar to that observed in pregnancy can be produced.

Smith and Engle by implants of anterior pituitary produced an excessive number of active Graafian follicles, an increased secretion of theelin and hyperplasia of the uterus—demonstrating the anterior pituitary's influence on the ovary. The ovary also influences the pituitary. In ovariectomized animals there is an increase in the basophilic elements of the pituitary which returns to normal after injections of theelin.

Gillies theory explaining the freemartin, postulated the restraining influence exerted on the ovaries by the hormone secreted by the testes of the male twin which develop at an earlier time than the ovaries. This restraint results in the sterility of the female.

As a test of this theory injection of ovarian extracts into incubated eggs (genetic males) has produced development of Müllerian rudiments in male embryos. Injection of potent extracts into male chick embryos has caused not only a swing toward female characteristics but has caused the development of an ovarian cortex in the male gonad and example of true "sex reversal" (Willier).

Injections of theelin into monkeys cause growth of the uterus with great mitotic activity in the surface epithelium and glands. Injections of corpus luteum hormone cause rapid changes in the endometrium—the disappearance of mitotic activity and transformation of glands to the premenstrual type.

The junction between the stratified and columnar epithelium of the cervix is a point of physiological "weakness" and it is here that carcinomatous changes frequently occur in the human female. Injection of large amounts of theelin into monkeys with or without traumatizing the cervix will result in metaplasia of cervical glands—a stratified epithelium developing beneath the columnar epithelium in a fashion suggestive of malignant change (Overholser and Allen). This type of metaplasia has been prevented by injections of corpus luteum hormone (Hilaw). In women at the menopause there is cessation of ovulation and corpus luteum formation with a persistence of theelin secretion. It is possible that this endocrine unbalance may be a factor in the development of cervical neoplasms although the long latent period between the action of the stimulus and the appearance of the cervical tumor is not easily explained.

The genital swelling of the chimpanzee and the "sexual skin" of the Macaca monkey can be stimulated to extreme development by prolonged injections of theelin. Swelling and wrinkling of the skin of large areas of the body may be produced by extreme dosages (Bachman et al.) and histological

inspection of the subcutaneous connective tissue shows a mucoid change, similar to that observed in the cock'scomb following injections of the male sex hormone

Long continued injections of folliculin benzoate into male mice caused the development of scrotal herniae, overgrowth and distention of the bladder, hydronephrosis, and ligamentous replacement of the symphysis pubis. Similar injections into female mice resulted in death due to overgrowth of the uterus, subsequent breakdown, and fatal peritonitis. The changes observed in the symphysis pubis following these injections are of interest. There is an actual decrease in size and weight of the pelvic bones, and an active proliferation of periosteal cells. The joint cavity is obliterated and the symphysis replaced by a ligament (Gardner).

Studies of the mammary glands have shown that there is marked growth of the mammary tree as a result of theelin stimulation. In the rabbit the corpus luteum hormone is necessary for growth of the alveoli, but such growth occurs in the guinea pig under the stimulus of theelin alone.

By means of ovarian transplant in male mice of cancer susceptible strains, or with injections of a concentrated estrogenic hormone, overgrowth of the mammary rudiments of the male has been produced (Lacassagne, Gardner). Atypical growths appear in the form of multiple nodules and hyperplastic areas persist after the withdrawal of the hormonal stimulus. Some of the animals actually develop carcinoma of the mammary gland. These tumors have been transplanted in males as well as in females and continue to grow without further hormone treatment. Genetic factors for cancer are present in these mice but the males do not have mammary carcinoma because of absence of the ovarian hormone necessary for mammary development. Six animals have also developed sarcomata at the sites of injection.

Several instances of multiple tumors in physiologically related tissues have been observed. One animal with a chromophobe adenoma of the anterior lobe of the pituitary fourteen times the weight of the normal gland also had granulosa cell tumors of both ovaries, extreme hyperplasia of the uterus, and multiple (six) mammary cancers.

Dr Fuller Albright in commenting on the paper questioned whether mammary acini could be caused to develop from injection of estrin alone in pituitarectomized animals, since estrin induces the production of a corpus luteum like hormone from the pituitary, which might be responsible for the stimulation of the acinar elements. Dr Allen replied that in the guinea pig complete development of the mammary tissue may be produced by theelin alone.

Dr J C Aub emphasized the fact that so far experimental neoplasms have been produced only in highly susceptible strains of animals, and that conclusions from these experiments should not be applied as yet to general problems of neoplastic diseases. Dr Allen agreed with this view, but remarked

that sarcomata have been produced in strains of animals not susceptible to this particular tumor and that further experiments with high doses of estrogens and carcinogens looked promising.

Dr John Rock emphasized the distinction between endocrinology and organotherapy, and pointed out that experimental findings in animals must not be applied too freely to clinical fields.

Dr F L Hisaw stated that the interreaction of follicular and corpus luteum hormones was peculiar, since the simultaneous action of the two on the endometrium causes greater proliferation than is obtained by either alone. Prolonged action of estrin for a period of some twenty days at high dosage levels results in a cessation of mitotic activity which may necessitate a revision of conclusions drawn from endometrial biopsy material.

SUFFOLK DISTRICT MEDICAL SOCIETY AND THE BOSTON MEDICAL LIBRARY

JOINT MEETING

A joint meeting of the Suffolk District Medical Society and the Boston Medical Library was held at the Library on Wednesday evening, January 29. Dr Walter B Cannon, George Higginson Professor of Physiology at Harvard Medical School, was the speaker for the evening. Dr Cannon delivered a very delightful and interesting address on some of his experiences in his trip around the world. He went west via Hawaii to fulfill an engagement as visiting Professor of Physiology in Peiping, crossed Siberia to attend last summer's Physiological Congress in Leningrad, and then returned to America via Scandinavia and Scotland.

Dr Cannon mentioned the very active medical society of Honolulu, and said that this congenial group is always on the lookout for medical men visiting Hawaii, so that a meeting and speeches can be arranged. The speaker was seven weeks in China, visiting Shanghai, Nanking, and the remainder in Peiping. Everywhere there were enthusiasm, new projects, and new buildings. The great inventiveness of the Chinese was contrasted with a certain primitive simplicity which seemed at times almost pathetic. A graphic description of Peiping's dust laden streets, filled with vendors and hawkers, was given. The city boasts a first rate Medical School, with teachers and research men trained in the best laboratories in the world. Fifty per cent of the graduates go into public service work, the greatest need in China today. The wooden houses, and cleanliness and trimness of Japanese villages, were contrasted with the mud made villages of China, as Dr Cannon talked of his three weeks visit to Japan.

Most of the evening, however, was devoted to an account of conditions in the Soviet Union. The complete femininity of the slightly built women of Japan was contrasted with the strong, toughened, hard-working character of the women seen on arrival in Vladivostok. Eight days' journey across Siberia in hot July was next described—flies every

where dull, drab dress small infrequently placed buildings and many prison-camps and working prison-gangs. In Russia itself, women were working in foundries and factories on the same jobs as men. Propaganda was ubiquitous and omnipresent—statues of Marx and of Lenin and Stalin, red banners of exhortation, filled the streets and squares as everyone talked of "the new life" and "the new state." Great industrial activity has been coupled with tremendous inefficiency. Several amusing anecdotes concerning late trains, inaccuracy of hotel registers etc. were told. Ten days were spent in Moscow and one week in Leningrad. Communism in the strict literal sense of the word was found not to exist. There is variation in position and variation in remuneration and some things (e.g. a man's house and its contents) are "private property" though the land belongs to the state. Even on the collective farms the farmer can use his two acres his pig and his chickens as he pleases. There is construction everywhere, not always well done as this previously agricultural people turns toward industrialism and often the new machines are handled in the most inept manner. The high regard for the human factor in labor was most impressive. The work day is six hours long with every sixth day a day of rest. If the job is especially hard one a five-hour day and rest day every five days are obtained. Summer camps for children and vacation resorts for working people, are found outside the large cities and "parks of culture and rest" providing all forms of entertainment, recreation, games and rest, are established in the centers of the large cities. Gifted children are selected and given special attention in their schooling and in the universities and graduate schools the student is paid according to his work and dismissed if it is not satisfactory. The whole nation is air-minded, and parachute-jumping and gliding are major sports. Among other interesting places visited were a self-supporting self-governing Criminal Commune, churches now closed and used as schools or museums, and an Abolitionism. In connection with the great scientific and industrial progress many neuroses have been encountered in medical work. Private medical practice is possible, but only after the payment of a high license fee. The visitor oscillated between his enthusiasm for the achievements attained in this great country and his revulsion at the state despotism which handles moves, and removes people without regard for individual liberty right, and freedom. It is certainly true that fear exists widely though the socialist idea is winning inside the country and among the youth of the state.

Time did not permit Dr. Cannon to recount more of his fascinating observations and the meeting was adjourned shortly after ten o'clock.

BOSTON SOCIETY OF BIOLOGISTS

The January meeting of the Boston Society of Biologists was held on the fifteenth at the Chil-

dren's Hospital. Dr. Robert S. Harris presented the first paper on the subject of "The Role of Chlorophyll in Hemoglobin Regeneration in Experimental Anemia." Hemoglobin, cytochrome, and chlorophyll all have a similar chemical structure, the element magnesium holding the same central position in chlorophyll as iron does in hemoglobin. Experimental anemia was produced in white rats by feeding a special diet and then unpurified chlorophyll and chlorophyll derivatives were mixed with the diet and the hemoglobin regeneration effect studied. Of the several crude compounds used the best effect was secured by feeding iron phaeophytin. It was also found that all of the compounds had a greater regenerative power when fed with an iron salt, and that the total effect was greater than the sum of the effects of the iron and chlorophyll compound alone. Highly purified potassium chlorophyllin, when fed in 20-30 milligram doses daily had a marked effect. Small traces of copper (about 7 parts per million) were present in this preparation but no iron. Phytol chloride and rhodol all derived from the chlorophyll molecule and carotene usually absorbed on to chlorophyll had no effect. Doctor Harris felt that these findings indicate that at least half of the regenerative power of chlorophyll preparations reported in the literature is due to metal impurities. Although bile pigment augments the effect of iron in the human being as does also chlorophyll, in the rat this pigment had no effect.

Dr. H. Sulkowitch with Dr. Fuller Albright spoke on "Factors Influencing the Determination of Pituitary Gonotrophic Substances in the Urine." The prolactin of castrate urine and that of pregnancy urine are probably not identical. It was found in routine determinations of prolactin that the more acid preparations were often negative. A study was therefore undertaken to determine the effect of varying pH values on the amount of prolactin found. At the lower values for pH much less prolactin was found. An excess of ammonium hydroxide could be used without harm but sodium hydroxide tended to destroy the hormone. It was also discovered that prolactin is very stable and may be stored for long periods of time without loss of potency.

Dr. George B. Wislocki spoke on "The Anatomy of the Pituitary Body of Whales" work in progress jointly with Dr. E. M. K. Gerling. In whales the neural portion of the gland is entirely separate anatomically from the anterior lobe and lies in an independent pocket of dura. Although the neural portion appears to be made up solely of glial-like tissue extracts from it producedpressor and oxytocic effects. Intermediin can be isolated from the anterior lobe, but no intermediate tissue can be seen microscopically. The whale's pituitary lies in a cushion of dural tissue which is very vascular and is essentially composed of arterial and venous retia. The pia-arachnoid much more massive than in most mammals partially surrounds the neural lobe but not the anterior lobe. The absence of any

rhythmic play of muscle forces between loss and recovery of equilibrium"

Chapter V deals with the physical properties of bone and Chapter VI with the dynamics of muscle action

In Chapter VII, the "Pathomechanics" of muscle are discussed and their practical application to the types of contractures characteristic of the different types of muscle structure and insertion. It is possible with this knowledge to discover the "key" contracture about a joint which must be first overcome if the given deformity is to be corrected.

An electrophysical analysis of normal and pathological muscle action is given in Chapter VIII. The action currents and types of motion in normal muscles are compared with those in anterior poliomyelitis, progressive muscular dystrophy, cerebral palsy, epilepsy and in muscles about ankylosed joints.

In Chapter IX, the coordination of skeletal muscle action is discussed. Mass resistance and external resistance are considered in relation to uniaxial, biaxial and pluriaxial muscles. Illustrations are given of the interesting phenomenon of a given muscle functioning at one stage of its range of motion as a flexor and at another stage as an extensor.

Chapter X is entitled "Fatigue and Recovery." The treatment and prevention of fatigue and the technique of exercise are described. The influence of the endocrine glands, of atmospheric pressure in high altitudes and of intra-abdominal pressure with resultant shallow respiration and stagnation of the blood in the abdominal veins are discussed as examples of the pathomechanics of fatigue.

Part II, the Special Mechanics of Locomotion, begins with Chapter XI, which will be of special interest to orthopaedic surgeons, indeed a small treasure house of knowledge. In this chapter consideration is given to the functional anatomy of the spine, to its external landmarks and to general postural laws. The statics of the spine from the point of view of its internal architecture, its articulations and its shock absorbing discs are elucidated.

Chapter XII continues with a description of the dynamics of the spine both as to the distribution of motion and muscle action. This is an extremely valuable contribution to our knowledge of the details of both individual and combined action of the spinal muscles.

There follow Chapter XIII on the pathomechanics of the spine dealing chiefly with anatomic variations, and Chapter XIV, into which is crowded the mechanics of the pelvis, including morphology, orientation, statics and pathomechanics.

Chapter XV deals with the mechanics of respiration and with the anatomy, physiology of the thorax, and with its pathomechanics and the paralytic disturbances of the breathing mechanism.

In Chapter XVI, the abdominal cavity is considered under headings of (1) Morphology, (2) Strains and stresses in the abdominal cavity, (3) Muscle mechanics of the abdominal wall, (4) Support of the

intra-abdominal organs, and (5) Abdominal respiration.

In Chapter XVII, the mechanics of posture are discussed. Normal posture (in geometrical terms) according to Steindler "means compensation of the spinal deflection within the spine itself, mal posture means that a deflection of the spinal column in relation to the line of gravity is compensated by the body as a whole by means of abnormal positions of the pelvis and hips and knees." This quotation may serve to illustrate the meticulousness of Steindler's anatomical and physiological descriptions. He quotes Goldthwait extensively in relation to the importance of recognizing the common types of body build and emphasizes as well the part which changes in the intervertebral discs play in youth and old age in the determination of postural deformities.

Steindler is quite "at home" in Chapter XVIII, the title of which is "The Pathomechanics of Scoliosis." He propounds his rational theory of the functional value of compensatory curves and pleads for a much earlier recognition than is now generally afforded of the prescoliotic stage.

The next eight chapters, XIX to XXVII, take up in most full and helpful manner the individual mechanics of the main articulations, namely, those of the hip, knee, ankle and foot, the lower extremities as a whole, the shoulder, elbow, wrist and fingers, and the arm as a whole. Chapters XXVIII and XXIX offer respective considerations of "The Mechanics of the Human Gait," "Graphic Description of the Gait," and "Pathomechanics of Gait."

The concluding Chapter XXX is entitled, "Rationalization of Work in Locomotion." By rationalization is meant "the adaptation of motion to the individual work in such a manner as to produce the highest possible quotient of efficiency."

"The Mechanics of Normal and Pathological Locomotion in Man" should not be read hastily, indeed, cannot be read hastily with any profit. It is "heavy going" but the weightiness of the subject justifies the reader in proceeding slowly. If one does proceed thus slowly he will be likely to arrive at the same conclusions as the thoughtful and erudite Professor Steindler. The book is well written, well illustrated and well indexed. It is an excellent piece of bookmaking.

National Medical Monographs. Industrial Medicine.
W. Irving Clark and Phillip Drinker. 262 pp. New York. National Medical Book Company.

This book fills a long felt need. It describes clearly and succinctly the objectives to be attained by industrial medical service, clearly defines the functions of the industrial physician, the methods and means by which medical services in industry may achieve the optimum of practical utility. The sections on physical examinations, industrial surgical service and pneumoconiosis are excellent. The book may be read and studied with profit by all whose medical practice brings them in contact with workers.

The New England Journal of Medicine

VOLUME 214

APRIL 16, 1936

NUMBER 16

PROGRESS IN THE RECOGNITION OF CONGENITAL HEART DISEASE*

BY SYLVESTER MCGINN, M.D.† AND PAUL D. WHITE, M.D.†

OUR knowledge of cardiovascular disease has increased in all directions during the past decade. The study of congenital heart disease has shared in this progress and has become of great importance as well as of great interest. Although abnormalities of the heart present at birth have been known to exist for centuries, contributions on the subject have largely been confined to postmortem observations. It is in recent years only during which time we have been aided by the fluoroscope and electrocardiograph, that we have been able to make the diagnosis clinically with any degree of confidence. The time has now arrived when it is not sufficient to make the broad diagnosis of congenital heart disease without having definite structural defects in mind.

We have recently reviewed 7500 autopsy records at the Massachusetts General Hospital to determine the frequency with which congenital heart disease has been occurring there since 1895. In addition we have more closely analyzed the cases coming to autopsy in the last fifteen years to judge the accuracy of our relatively recent clinical diagnoses of congenital heart disease.

1. Incidence of Congenital Heart Disease in the Postmortem Examinations of the Massachusetts General Hospital

In 7500 postmortem examinations performed in the last forty years, congenital heart disease was found sixty seven times, representing an incidence of 0.9 per cent. Only definite cases of congenital defects were included thereby eliminating a large group of cases with foramina ovales functionally closed but patent to the passage of a probe. About one third (twenty one) of the sixty seven patients were infants under one year of age.

Thirty four hundred of the 7500 autopsies were made in the last fifteen years, and the clinical records of the forty-one cases having congenital lesions of the heart present among these autopsies were subjected to further study. The incidence of congenital heart disease in the latter group was 1.2 per cent whereas only

half as many, or 0.6 per cent, were observed in the preceding 4100 cases. This suggests that more congenital defects can be found with more careful examination of the heart.

Lesions permitting a flow of blood between the arterial and venous systems were found in twenty hearts (about half). The most common congenital defect of all in the 3400 autopsies of the last fifteen years was patency of the ductus arteriosus which occurred alone in four cases and in combination in five others. An interauricular septal defect occurred alone in one case, and in combination in six others. These two lesions were associated five times. One of the hearts with a patent ductus arteriosus also had coarctation of the aorta. One of the cases with imperfect closure of the auricular septum had mitral stenosis in addition a combination known as Lutembacher's disease.

Four hearts had interventricular septal defects, and two others were complicated by pulmonary stenosis dextroposition of the aorta and enlarged right ventricle comprising the tetralogy of Fallot. In one heart there were defects in both the auricular and ventricular septa. One three chambered heart was found a cor triatriatum trilobulare, and there was one two-chambered heart, a cor bilobulare. Three cases of congenital idiopathic hypertrophy were described. Abnormalities of the coronary vessels were noted in five cases.

Abnormalities in the heart valves accounted for thirteen of the forty-one cases. Bicuspid aortic valves were noted in seven hearts, a bicuspid pulmonary valve in one pulmonary valves with four cusps in two and pulmonary stenosis, single mitral leaflet, and variation in the size of the aortic cusps in one case each.

In contrast to this group of forty-one cases observed during the years 1921 to 1935 inclusive, congenital defects were discovered in twenty six patients between 1896 and 1920 during which time 4100 postmortem examinations were performed. In eight hearts unopacified defects in the interauricular septum were present. Uncomplicated patent ductus arteriosus and interventricular septal defect were found once each. Pulmonary stenosis was associated with an interauricular septal defect in two cases and with an interventricular defect once. In eight cases there were patencies in both the interauricular septum and the duct.

From the Radiograph Laboratory and Cardiac Clinics of the Massachusetts General Hospital.

McGinn, Sylvester—Assistant in Medicine, Massachusetts General Hospital and St. Elizabeth Hospital, White Paul D.—Physician, Massachusetts General Hospital, Assistant Professor of Medicine, Harvard University Medical School. For reprints and a list of authors see "This Week Issue," page 196.

tus arteriosus In one heart there was an interauricular septal defect associated with mitral stenosis A bicuspid aortic valve was found three times, and in one case it was noted that the pulmonary valve had four cusps

The apparent discrepancy in the incidence of congenital lesions in these two groups seems to rest upon the observations of the coronary vessels and of the heart valves The number of defects allowing admixture of blood were about equal in the two groups The coronary vessels have been inspected much more carefully by the pathologists in recent years Evidence of this is illustrated by the five cases of abnormal coronary arteries observed in the last fifteen years, in contrast to the failure to note any prior to that time The relative incidence of congenital defects of the valves in the earlier and later groups were four and thirteen respectively

B Accuracy of the Clinical Diagnosis of Congenital Heart Disease

The clinical records of the forty-one cases examined postmortem in the last fifteen years were analyzed to estimate the accuracy of our diagnoses A correct diagnosis was made seven times and included four adults and three infants under one year of age The cases in this group consisted of three with idiopathic congenital hypertrophy, two with interventricular septal defect (one of these had also a patent foramen ovale), one with the tetralogy of Fallot, and one with pulmonary stenosis

In five other cases, including one infant the correct diagnosis was suspected and so entered on the record This group comprised three cases with an interventricular septal defect, one with an interauricular septal defect, and one with a patent ductus arteriosus These twelve cases in which a correct diagnosis was made or very definitely suspected represent 29 per cent of the congenital lesions coming to autopsy in the last fifteen years and include four of the eleven infants, or 36 per cent of those under one year of age The correct diagnosis of congenital cardiovascular defects is, however, very difficult in infants under six months of age, as has been indicated by studies at the Children's Hospital in Boston

In three cases a diagnosis of congenital heart disease was made, but the anatomical defect was not noted One of these cases had a cor biloculare The two others showed congenital hypertrophy diagnosed as idiopathic, but one had an abnormal coronary supply and the other had a patent ductus arteriosus

One case was diagnosed wrongly as to the congenital structural defect in the heart, viz, a case of tetralogy of Fallot which was believed to have a patent ductus arteriosus

In the remaining twenty-five cases, including four infants, the diagnosis of congenital heart

disease was entirely unsuspected Thirteen of these hearts had defects in the structure of one of the valves, seven of them having bicuspid aortic valves There were four cases with abnormal variations in the coronary vessels There were two cases of patent ductus arteriosus alone and five in which it was associated with an interauricular septal defect Finally, a case of cor biloculare was thought to have rheumatic heart disease

Of the twenty-three cases of idiopathic hypertrophy or of congenital defects allowing admixture of blood, the correct diagnosis of specific structural defects was made or suggested in eleven (48 per cent)

The correct diagnosis was not made or suggested in any of the twenty-six cases of congenital heart disease found in the first 4100 postmortem examinations In two cases the presence of congenital heart disease was suspected, but the specific lesion was not suggested. One of these cases had an interauricular septal defect associated with mitral stenosis, and the other case was one of pulmonary stenosis with septal defects

A third group of cases was analyzed for comparative purposes and included all of the cases of congenital heart disease proved at autopsy that had been previously examined by members of the staff of the cardiac clinic in or outside the hospital A majority of these was included in the 7500 autopsies reviewed A correct diagnosis was made or suggested in eleven of the nineteen cases (58 per cent) it was made in two cases of the tetralogy of Fallot, two cases with interventricular septal defects, one case of patent ductus arteriosus, one case of idiopathic hypertrophy, and one case of pulmonary stenosis, and was suggested in three cases of interventricular septal defect and in one case of interauricular septal defect. The correct structural diagnosis was unsuspected in six cases (although in one of these a finding of congenital heart disease was made) three with bicuspid aortic valves, one with a pulmonary bicuspid valve, one with a single mitral leaflet, and one with an anomalous coronary vessel If these six cases, which gave no characteristic clinical signs, are eliminated, the correct diagnosis was made or suggested in 85 per cent of this small group of cases

DISCUSSION

In reviewing our series of cases with the aim of improving our diagnostic ability, we are confronted with a large group of lesions, namely, those of defective valve structure and abnormal coronary vessels, which at the present time provide no evidence to suggest their presence There is some importance in recognizing abnormalities of the valves, not that they always interfere seriously with the cardiac function but because they so frequently are the

foci for subacute bacterial endocarditis. The bicuspid aortic valve is the most common and most important of the group, and so far as we know has no clinical manifestation. Other valvular defects such as pulmonary valves with four cusps, bicuspid pulmonary valves and mitral valves with a single leaflet give no clinical evidence of which we are aware. As yet we are unable to recognize, with one possible exception to be noted below, hearts supplied by a single or anomalous coronary vessel. Further observation of this rather large number of cases with silent congenital lesions is necessary before we can improve much further our accuracy in diagnosing congenital heart disease.

Within recent years congenital cardiac lesions have provided sufficient evidence of some defects and suggestive evidence of other defects to permit us to make the diagnosis with certainty or at least to suspect that it is present. More experience will eventually allow us to be more confident. The x ray and electrocardiograph have been very helpful in obtaining further clinical evidence.

We believe that it will prove helpful to present herewith the diagnostic clues to some of the individual and combined defects of congenital heart disease with which we have recently become more familiar as well as to the very few defects that have been clinically recognized for many years. We shall begin with the latter.

1 *Patent ductus arteriosus* The ductus arteriosus which connects the pulmonary artery and aorta in the fetus normally atrophies two or three months after birth and is later represented by a fibrous ligament. The failure of this vessel to close, results in a permanent shunt between the greater and lesser circulations. Such a shunt is often associated with other anomalies and not infrequently has a compensatory function.

The most characteristic clinical sign of this condition is a typical murmur. It is heard best, and sometimes only in the second left inter-space and is a harsh humming murmur with a sound similar to a mill wheel or the machine-like purr of a large motor. It is continuous with accentuation during systole and may be accompanied by a thrill.

Cyanosis and clubbing of the fingers are usually absent. Cardiac enlargement, especially involving the right ventricle may be present and consequently may produce right axis deviation in the electrocardiogram. X ray examination is usually characteristic and sometimes pathognomonic with a variable degree of prominence in the region of the pulmonary conus. Fluoroscopic may show a pulsation of the lung hilus shadows.

2 *Interventricular septal defects* A defect in the interventricular septum (Roger's disease

1879) is one of the most common congenital lesions to be recognized clinically. The defect is usually a patency in the interventricular septum, one or two centimeters in diameter situated just below the aortic valve and allowing a free passage of blood between the two ventricles. Other malformations of the heart frequently complicate this condition.

Cyanosis is a rare finding in the uncomplicated cases. The left ventricle is stronger than the right, so that the tendency is for the oxygenated arterial blood to be shunted through the opening to the venous side of the circulation. This condition persists until the left ventricle fails.

There are several findings which may lead one to make the correct clinical diagnosis. The most important evidence is the presence of a harsh systolic murmur heard best at the third left inter-space and more or less confined to that immediate area but frequently heard in the back between the scapulae. There is usually a thrill accompanying the murmur. Any intense murmur heard in infancy justifies the assumption that it is due to a lesion present since birth, and defects of the interventricular septum are among the most common congenital lesions detected clinically. This information may have to be obtained from the obstetrician if the patient is beyond infancy. X ray examination fails to show gross enlargement despite the loud murmur. There is an unusual blunting of the apex, probably due to the changes in the right ventricle, but it is not a pathognomonic finding.

3 The term *idiopathic congenital hypertrophy of the heart* refers to enlarged and dilated hearts observed at birth or early infancy and for which no cause can be discovered.

4 *The tetralogy of Fallot* is a fairly common congenital lesion that we can now recognize. It consists of (a) stenosis or narrowing of the opening of the pulmonary artery at the valve cusps or of the infundibulum just below it (comparable to the fibrous ridge found in sub-aortic stenosis), (b) an interventricular septal defect, (c) dextroposition of the aorta which means that the aortic opening is moved farther to the right than is normal and overlies the septal opening and (d) hypertrophy of the right ventricle.

The course of the blood flow in the heart is as follows: the venae cavae empty into the right auricle from which the blood flows into the right ventricle. At this point the flow of blood obstructed by the narrow pulmonary orifice only in part enters the pulmonary artery, the balance going directly into the aortic orifice which rides over the interventricular septal defect and so receives blood from both ventricles. The right ventricle hypertrophies to accommodate itself to this increased work and the aorta is larger than normal. Cyanosis results from

the large quantity of unaerated blood being shunted into the arterial circulation. The cyanosis is usually intense but occasionally it does not become apparent, except in paroxysms until later life. The lungs receive less blood than normally and pass it on to the left auricle and left ventricle which may be somewhat small. Thence the oxygenated blood enters the aorta along with the unoxygenated blood from the right ventricle.

There are five findings, which when they occur in association permit the diagnosis of the tetralogy of Fallot with a high degree of certainty. First, there is usually cyanosis of lips, cheeks, ears, fingers, and toes, secondly there is clubbing of the fingers and toes, thirdly, a loud systolic murmur is heard best in the pulmonary valve area and in the third left inter-space (at times accompanied by a systolic thrill), fourthly, there is marked right axis deviation by electrocardiogram in as extreme a degree as we ever see, and fifthly, x-ray examination shows the heart to be sabot-shaped due to enlargement of the right ventricle without enlargement of the pulmonary artery. (The great vessels will be prominent on the right due to the dextroposition of the aorta but not to the left because of the small amount of blood passing through the hypoplastic pulmonary artery.)

The prognosis may be good, for we have seen instances of a noted musician who died in his sixtieth year, the diagnosis proved by necropsy, and of a woman now sixty-two years old who works as a librarian without complaints other than that of cyanosis. The average age at death in eighty-five cases was twelve and one-half years (Abbott).

There are five other congenital lesions found in our postmortem series that have clinical evidence sufficient to allow one to suspect the diagnosis. As time will give us further opportunity to study similar cases, we may make these diagnoses with confidence comparable to that which we feel in the more common lesions.

5 *Coarctation of the aorta*, or narrowing of the lumen of the aorta, is a congenital anomaly with which we have become familiar in recent years and which we can now diagnose clinically with ease if it is at all pronounced. The narrowing of the aorta most frequently occurs at the point where the ductus arteriosus joins it. The ductus normally disappears leaving a fibrous ligament in its place. It is believed that this fibrous or atrophic change involves the walls of the aorta and narrows its lumen. This materially interferes with the circulation beyond the point of narrowing, diminishing the volume of blood going to the lower extremities and necessitating a collateral circulation. The internal mammary and intercostal arteries become much larger than normal and by a circuitous route supply blood to the lower parts of

the body and thus comprise the chief factors in the collateral circulation.

There are five points that make the clinical diagnosis possible. (1) Hypertension occurring in children and young adults should make one suspicious of aortic coarctation and should direct the search along that line. (2) The blood pressure is higher in the arms than it is in the lower extremities and the dorsalis pedis, tibial, and popliteal pulsations may be absent. Normally the blood pressure in the legs is considerably higher than in the arms. (3) The blood vessels of the trunk, especially the intercostal and mammary arteries, can be seen and palpated as they pulsate vigorously. (4) A harsh systolic murmur can often be heard at the base of the heart and in the back. (5) X-ray examination may show evidence of left ventricular hypertrophy and especially of notches in the ribs made by the dilated intercostal arteries. The x-ray finding of rib notching is pathognomonic.

The prognosis in these cases is varied, the oldest subject on record being ninety-two years of age. Ultimately the patients may die of cardiac failure, rupture of the aorta, or subacute bacterial endocarditis to which they are especially susceptible.

6 *The persistence of a right aortic arch* is another congenital anomaly with which we have become familiar in the past few years. There are several variations of this condition, but in brief the aorta starts from the left ventricle in its usual position, ascends to the right of the sternum, but at the arch it courses to the right rather than to the left and then finally swings behind the esophagus and trachea to the left of the spine where it descends through the thorax into the abdomen. Both the esophagus and trachea are subjected to the pressure of the transverse aortic arch behind and to the remnant of the ductus arteriosus (the ligamentum arteriosum) on the left side. The ligament runs from the aorta to the pulmonary artery and completes an encircling and constricting collar around the trachea and esophagus.

The presence of symptoms depends on the degree of constriction. Although most patients have no complaints and the anomaly is picked up in a routine examination, occasionally it causes dysphagia, esophageal ulcerations, respiratory distress, and even asphyxia by compression. We have recently observed a patient thought to have carcinoma of the esophagus and another who was considered to be a neurasthenic individual with globus hystericus, both of whom had this abnormality. The diagnosis can be easily made by x-ray examination with barium in the esophagus. Three findings will be observed by x-ray examination, in the anteroposterior view the ascending aorta and the aortic knob will be found to the right of the sternum, the barium filled esophagus will be displaced to the left, and in the oblique view the esophagus

gus will be pushed forward. A surgical procedure has been suggested to section the ligamentum arteriosum but we do not know of its having been done as yet.

7 *Coronary artery anomalies* In one of our autopsy cases we encountered a large heart in an infant dying at the age of three months. The clinical diagnosis was idiopathic congenital hypertrophy which proved to be incorrect when at autopsy, a single coronary artery was found arising from the pulmonary artery. The myocardium was in this case being supplied with venous rather than oxygenated blood. This nutritional disturbance and relative anoxemia of the heart muscle was reflected clinically by attacks of distress on effort like nursing (probably angina pectoris) and in the electrocardiogram by inverted T waves of the coronary type and analogous to those found when there is anoxemia of the heart muscle as the result of coronary occlusion and myocardial infarction. In the future when confronted with the findings of congenital hypertrophy and inversion of the T wave we shall consider this diagnosis as probable.

8 *A cor batriatum trilobulare* or a three chambered heart with two auricles and a single ventricle, was found once in our autopsy series. It was wrongly diagnosed as rheumatic heart disease with pericardial effusion. In the future a heart with a "water bottle" shape similar to the x ray picture of this case associated with the conduction disturbance of intraventricular block in the electrocardiogram, will make us suspicious of a cor trilobulare.

9 Defects in the septum separating the two auricles, or *interauricular septal defects* are among the commonest of congenital cardiac lesions found at postmortem examinations. The foramen ovale so important in the fetal circulation does not become entirely closed until the eighth month after birth. It has been estimated that in 25 per cent of the hearts seen at postmortem examination the foramen ovale is open sufficiently to allow passage of a probe. However this type is unimportant and we refer to an actual aperture of a centimeter or more when we speak of an interauricular septal defect.

(a) Although interauricular septal defects are not uncommon at necropsy the diagnosis is rarely made clinically largely due to the fact that they are symptomless unless the lesion is of extreme degree. There are four findings to suggest this anomaly. First late cyanosis (cyanosis tardive), usually intense occurs with severe illness or at approaching death and may be due to an interauricular septal defect. What ever exchange of blood ordinarily takes place is from the left to the right auricle. When the right ventricle fails, a reversal of flow follows

with a consequent cyanosis due to increased right auricular pressure. Secondly, the x ray of the heart shows a large pulmonary artery, enlarged lung hilus shadows and an enlarged right ventricle. The pulmonary artery or one of its main branches may become so dilated that it is mistaken for a pulmonary aneurysm. Thirdly, the electrocardiogram shows right axis deviation. Fourthly there may be "paradoxical embolism" a condition characterized by the passage of emboli from the systemic veins or right auricle into the systemic arterial circuit through an auricular septal defect. There are no murmurs to be heard with the stethoscope.

By the time there is sufficient evidence to make a clinical diagnosis, the heart has undergone extensive changes and the prognosis is poor.

(b) *Interauricular septal defects in association with mitral stenosis* are rarely found there being only twenty four reported in the literature, two of which were noted at the Massachusetts General Hospital. It is worth while to discuss the condition because it illustrates so well alterations in blood flow. Because of stenosis of the mitral valve the pressure of blood in the left auricle rises. A considerable portion of blood passes through the interauricular septal defect rather than through the slit like mitral valve. This blood passes from the right auricle into the right ventricle and thence to the lungs for a second time. As a consequence of doing double duty, the right ventricle hypertrophies and the pulmonary artery dilates. The aorta on the other hand remains small and aplastic because it is receiving but a small amount of blood.

X ray study is the most important aid in making the diagnosis clinically and it shows the changes mentioned above namely a large heart due to an hypertrophied right ventricle, a dilated pulmonary conus, an enlarged right auricle and a small aplastic aorta. The hilus shadows are also enlarged to such an extent that they have been mistaken for the mediastinal glands of Hodgkin's disease and unsuccessfully given x ray therapy. The electrocardiogram shows right axis deviation.

It is evident that cyanosis is at first unlikely in this condition since the blood is actually being aerated in the lungs twice. Eventually however the right ventricle may fail and blood then backs up into the right auricle increasing the pressure within that chamber. A reversal of flow then takes place with venous blood pouring through the interauricular septal defect into the left heart chambers and systemic arteries to cause cyanosis. Finally the venous pressure is increased as is indicated by dilated neck veins and an engorged tender pulsating liver. An enlarged heart is easily detected on physical examination and a mitral diastolic murmur can be heard.

SUMMARY

A review has been made of 7500 postmortem examinations and their clinical records at the Massachusetts General Hospital to determine the incidence of congenital heart disease and the accuracy of diagnosis before death. Congenital defects were found in sixty-seven hearts or 0.9 per cent, of which twenty-one were infants under one year of age. The correct diagnosis was not made or suggested in any of the twenty-six cases found in the first 4100 (seen before fifteen years ago). In the last fifteen years forty-one hearts with congenital lesions were found in 3400 autopsies and the correct diagnosis was made or suggested in 29 per cent and for the group of infants under one year of age in 36 per cent. The members of the cardiac clinic staff examined nineteen cases of congenital heart disease that subsequently came to autopsy

and made or suggested the correct diagnosis in 58 per cent. Abnormalities of the heart valves and anomalous coronary arteries comprised a large portion of the cases and undoubtedly prevented a higher percentage of accuracy in clinical diagnoses because of the failure of these lesions to give clinical signs. If these lesions were omitted, the correct diagnosis was made or suggested in 48 per cent and 85 per cent respectively of the two series of cases analyzed.

We have presented clues to the diagnosis of the more important congenital cardiovascular defects: (1) patent ductus arteriosus, (2) interventricular septal defects, (3) idiopathic congenital hypertrophy of the heart, (4) the tetralogy of Fallot, (5) coarctation of the aorta, (6) the persistence of a right aortic arch, (7) coronary artery anomalies, (8) cor biatriatum triloculare, and (9) interauricular septal defects, with and without mitral stenosis.

CLASSIFICATION OF CONGENITAL HEART LESIONS NOTED AS FOUND IN 7500 AUTOPSIES
AT THE MASSACHUSETTS GENERAL HOSPITAL

	Autopsies 1 to 4100	Autopsies 4100 to 7500	Total
Defects due to incomplete closure of septa and ductus arteriosus			
Interauricular defects alone	8*	1	9
Interventricular defects alone	1	4	5
Patent ductus arteriosus alone	1	4	5
Patent ductus arteriosus and interauricular septal defect	8	5	13
Interventricular septal defect and interauricular septal defect	0	1	1
Pulmonary stenosis and interauricular septal defect	2	0	2
Pulmonary stenosis, interventricular septal defect, dextroposition of aorta, and right ventricular hypertrophy (tetralogy of Fallot)	1	2	3
Mitral stenosis and interauricular septal defect	1	1	2
Cor biatriatum triloculare	0	1	1
Cor biloculare	0	1	1
Idiopathic congenital hypertrophy	0	3	3
Abnormal coronary arteries			
Anomalous	0	2	2
Solitary	0	2	2
Accessory	0	1	1
Valvular defects			
Pulmonary stenosis (uncomplicated)	0	1	1
Pulmonary valve with four cusps	1	2	3
Bicuspid aortic valve	3	7	10
Bicuspid pulmonary valve	0	1	1
Variation in size of aortic cusps	0	1	1
Single mitral leaflet	0	1	1
	26	41	67

*This figure includes cases with defects in the foramen ovale

THE INCREASE IN CORONARY DISEASE
AND ITS CAUSE

BY FRANCIS P. DENNY, M.D.*

THERE is frequent reference in the literature to the increase in mortality from disease of the coronary arteries. It is probably the impression of most physicians who have been in practice for the past twenty years that more of their patients are now dying of coronary disease than formerly.

Statistical evidence of this increase except during the past five years is very meagre because the International Classification of Deaths, until its 1930 revision, had no subdivision for diseases of the coronary artery and this important group was included under "Other diseases of the heart" (No 90 of the 1920 Classification) which included every form of heart disease except acute endocarditis, acute myocarditis and angina pectoris. This was an impossible grouping from the etiological standpoint. It is therefore only since 1930 that it has been possible to determine how many deaths from disease of the coronary artery there have been in the registration area of the United States in the states, or in the various municipalities.

With the object of making available some figures on the number of deaths from diseases of the coronary artery previous to 1930 the writer has reclassified according to the 1930 International Classification the causes of all the deaths from heart disease occurring in Brookline, Massachusetts, since 1900. The causes of death are those given on the death certificates by the attending physicians or the medical examiners—the latter signing many of the certificates when death was sudden. The figures obtained are of course no more accurate than the physicians' diagnoses.

Brookline had a population of 19,935 in 1900 and this increased to 50,319 in 1935. Women predominate in those over forty-five; the ratio was sixty-one to thirty-nine in 1930. The population shows some ageing. The United States Census Report for 1900 does not give the population of Brookline by ages but in 1910 the Report showed 25.5 per cent of the population over forty-five, in 1920, 30.9 per cent, in 1930, 33.4 per cent. This amount of ageing is not sufficient to explain either the increase of over 100 per cent in the total death rate from all forms of heart disease during this period or the very great increase in coronary disease which this study disclosed.†

RESULTS OF THE STUDY

The deaths from heart disease have been divided into five groups as follows:

- 1 Endocarditis, acute and chronic (91 and 92)
- 2 Myocarditis, all forms (93)
- 3 Other diseases of heart (95)
- 4 Angina pectoris (94a)
- 5 Disease of Coronary Artery (94b)

The rates of each of these groups per 100,000 population in five year periods were obtained and are to be found in table 1. The figures

TABLE 1
DEATHS FROM HEART DISEASE IN BROOKLINE 1900-1935
Rates per 100,000 for the Different Forms
and for All Forms

Period of Years	Endo- car ditis	Myo- car ditis	Other Dis- eases	Angi- na Pec- toris	Coro- nary Dis- eases	All Forms
	91 92	93	95	94a	94b	
1900-1904	51.1	24.1	62.3	16.7	0	154.2
05-09	93.5	33.8	47.1	1.8	3.9	201.3
10-14	97.1	56.0	47.1	24.5	4.1	228.9
15-19	67.6	89.5	23.8	28.3	9.9	219.0
20-24	66.6	115.1	28.9	27.3	13.7	251.7
25-29	56.4	127.4	36.4	36.4	39.9	296.7
30-34	46.3	117.1	26.6	22.9	94.6	307.4
1935	33.8	93.1	31.7	21.8	156.6	327.0

for 1935 have also been added. These rates are also given in the accompanying chart frequently reference to which and familiarity with the numbers used in the International Classification will make clearer the explanation in the text that follows.

All Forms. For all forms combined the chart shows a progressive increase from a rate of 153.3 per hundred thousand in 1900-1904 to 327 in 1935 except for a slight decline in 1915-1919 which was probably caused by the influenza epidemic, many heart cases having been carried off by that disease.

Endocarditis. In the chart all forms of endocarditis, acute (91) and chronic (92) including all forms of valvular disease are grouped together. There was an increase for the first fifteen years and since then a very definite decline. This decline appears in all the recent statistical reports and is probably a real one.

Myocarditis. The diagnosis Myocarditis appears to be used by physicians for those cases where, in the absence of valvular disease the

*Denny, Francis P.—Health Officer, Board of Health, Brookline, Mass. For record and address of author see "This Week" 1, p. 1, page 196.

†The writer is indebted to Miss Ruth Coughlin and the F. R. A. for much valuable assistance in this work during 1934.

prominent symptom is the failure of the heart muscle. From the point of etiology, therefore, the cases included in this group are of a number of different types. The most important is doubtless that of hypertensive heart disease, where, according to White¹, the heart muscle shows no inflammatory or degenerative changes and hence should not be diagnosed as myocarditis but as "hypertensive heart disease" (95).

Next in frequency to hypertensive heart disease there is included under the heading "Myocarditis" a group of cases where the heart muscle weakens as a result of areas of fibrosis caused by narrowing or occlusion of the cor-

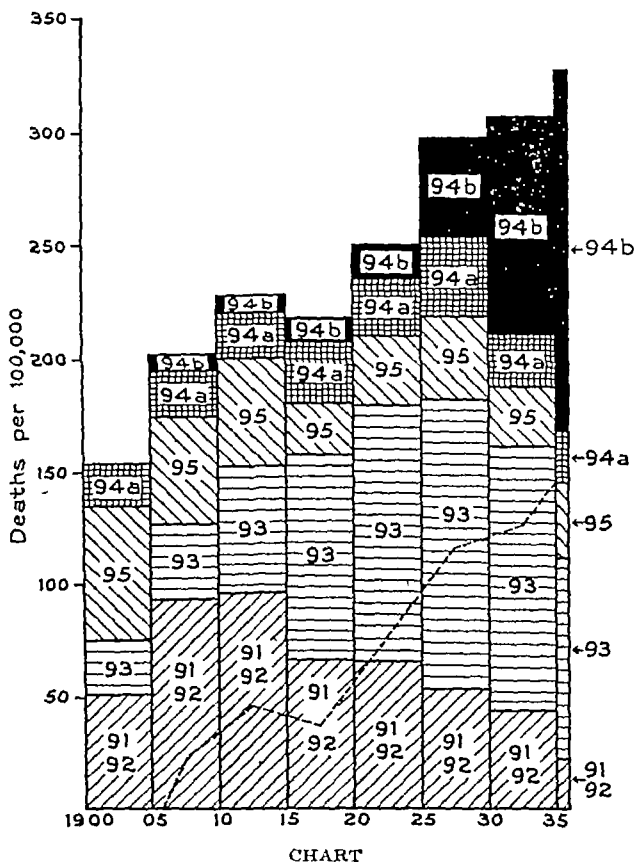


CHART
Deaths in Brookline Mass. per 100,000 Population from Different Forms of Heart Disease 1900-1935
Endocarditis (91) 92) Myocarditis (93) Other Diseases (95)
Angina Pectoris (94a) Diseases of the Coronary Artery (94b)
The dotted line indicates the rates for all other forms of heart disease combined. If the 1935 rate for coronary disease and angina had prevailed since 1900

onary branches supplying these areas. Thus there are many cases diagnosed as myocarditis where the primary cause is disease of the coronary arteries. We need to bear this in mind when we are estimating the frequency of coronary disease.

The chart shows that myocarditis (93) increased from a rate of 24.1 in 1900-1904 to 127.4 in 1925-1929, since when there has been a slight decline.

Other Diseases (95) Under this heading are included among others "Cardiorenal disease," "Arteriosclerotic heart disease," and

"Cardiovascular disease." The latter is a non-committal term often used by medical examiners in cases where persons are found dead in their beds or in other cases of sudden death. Certainly the great majority of these sudden deaths are due to coronary disease. The term "arteriosclerotic heart disease" is an unfortunate one, because it is used for two different forms of heart disease. 1. It is used where there is a generalized arteriosclerosis with renal involvement and hypertension, 2. it is used for arteriosclerosis of the coronary arteries. We must remember then that included in "other diseases" (95) are many cases of coronary disease.

Angina Pectoris (94a) The rate for deaths certified as angina pectoris has remained fairly constant during the whole period. It was evident that in the earlier years many cases that would now be diagnosed as coronary thrombosis (94b) were called angina (94a). Thus it was repeatedly found that in cases certified as angina the duration was put down as from a few hours to several days—certainly very typical of coronary thrombosis. Furthermore it was noticeable that when a given physician had once used the term "coronary thrombosis" the diagnosis of "angina" seldom or never again appeared on his certificates.

Apparently the diagnosis "angina" is now used chiefly for those cases where there is a history of previous attacks and death is almost instantaneous. According to White², disease of the coronary artery is present in 95 per cent of cases of angina. It is obvious that angina and diseases of the coronary artery should be considered together in any etiological study.

Disease of the Coronary Arteries (94b) It was realized before this study was undertaken that the rates for coronary disease would be profoundly influenced by the fact that only during recent years have physicians recognized coronary thrombosis ante mortem. Herrick's³ epoch-making paper in 1912 first brought to the attention of the physicians in this country the clinical picture of the disease which is so frequently recognized now, but this knowledge spread slowly to the general practitioners, so that only during the past ten years have any considerable number of physicians been making the diagnosis of coronary thrombosis and their number is still increasing.

In the period 1900-1904 the word coronary does not appear on a single death certificate. In the four periods from 1905 to 1924 the rate for coronary disease increased from 3.9 to 13.9 but jumped to 39.9 in 1925-1929. From 1930 to 1936 the increase has been very rapid, the rates for these six years being 58.7, 76.6, 94.1, 101.2, 140.0, and in 1935, 156.6.

The high incidence of coronary disease in the Jewish race was obvious. Thus during 1934

and 1935 of all men dying from this cause 18.8 per cent were born in Russia, almost all of whom were probably Jews. Among men dying of all other forms of heart disease except endocarditis only 1.4 per cent were born in Russia.

The study also showed the high incidence of coronary disease among business and professional men. Thus of 489 men dying of coronary disease and angina 67 per cent were of the business and professional class, while of 704 men dying of myocarditis (93) and "Other forms" (95) only 48.7 were business and professional men, despite the fact that the ages of the two latter groups were higher.

The age distribution of coronary disease among men and women is shown in table 2. From this it appears that women die at an older age than do men. Among women 48.8 per cent were below seventy while among men 66.7 per cent were below seventy.

TABLE 2
CORONARY DEATHS IN BROOKLINE 1900-1935
ACCORDING TO AGE AND SEX

	Total Deaths	% 20-44	% 45-59	% 60-69	% 70+
Men	299	7.4	26.8	32.5	33.3
Women	162	1.9	9.9		51.2

The rates for coronary disease would have been much higher were it not for the fact that in Brookline women predominate sixty-one to thirty-nine. Computing the rates for each sex separately and for the ages over forty-five we find that in 1935 the rate was 811 per 100,000 men over forty-five and for women, 333.

HAS THERE BEEN A REAL INCREASE IN CORONARY DISEASE?

Obviously a large part of the increase of coronary disease noted in the death certificates is due to the fact that physicians are now diagnosing more cases of coronary thrombosis than formerly, but does this explain all the increase? Can we find any evidence in the figures that have been collected in this study to show that there has been an actual increase?

If there has been no real increase (or decrease) then the 1935 rate per 100,000 population 178.4 for angina and coronary disease combined, must have prevailed during the whole thirty-six years under consideration and the cases not diagnosed as such must have been diagnosed as some other form of heart disease and have been included in other subdivisions. We are probably justified in assuming that very few were diagnosed as endocarditis (91 and 92). The majority must then have been included under myocarditis (93) or "Other diseases of heart" (95).

In the chart the dotted line indicates the total of all other forms of heart disease if the 1935 rate for angina and coronary disease pre-

vailed throughout the whole period. It shows that the present rate for coronary disease is greater than the rate for all forms of heart disease in 1900-1904, and only slightly less in 1905-1909. It is therefore impossible that the present rate prevailed then. In the next two periods, 1910-1919 if the present rate prevailed there could have been no deaths from Myocarditis (93) or "Other diseases" (95). During the next three periods, 1920-1934 if we assume that the 1935 rate prevailed then we must also assume that during that period there has been an enormous increase of myocarditis and "other diseases", an increase for the two combined from a rate of 6.6 in 1920-1924 to a rate of 17.1 in 1935. This would be a very difficult increase to explain.

It may be that all forms of heart disease except endocarditis have increased during this period. That there has been a very definite increase in coronary disease the figures here presented certainly show. We must also realize that the number of deaths from coronary disease are much greater now than even the 1935 figures show, for as already pointed out there are still many deaths classified as myocarditis (93) and "other diseases" (95) which are really due to coronary disease. If these could all be included it is possible the rate of 811 per 100,000 men over forty-five in 1935 might be increased to 1000.

When we find that so many of these deaths are of persons in the prime of life—in men 66.7 per cent under seventy years of age—we must recognize that we have here a very large and important problem in preventive medicine toward the solution of which no helpful measures have as yet been suggested.

The first step in the solution of this problem is to determine why arteriosclerosis a process to be expected in the arteries in old age attacks the coronary arteries in certain persons at a relatively early age.

WHY THIS INCREASE OF CORONARY DISEASE?

The importance of this question is very generally recognized, and in the literature there is much discussion of it. Without attempting to review this it may be said in summary that most authors attribute the increase in coronary disease to worry and to the stress and strain of modern life—that is to a nervous and emotional strain. Thus White³ finds the increase in coronary disease "appalling" and believes "the most effective move we can make is to call a halt on the world's mad rush of today." Dr. W. J. Mayo⁴ has picturesquely compared the belief of the Ancients that the heart was the seat of the emotions with the modern idea that stern control of the emotions affects the coronary arteries of the heart. He points to the frequency of coronary deaths among surgeons who as a class must have stern control of their emotions.

Osler⁶, in his textbook, says of Angina Pectoris "It is not a disease of the working classes. The life of stress and strain, particularly of worry, seems to predispose to it, and this is perhaps why it is so common in our profession."

Many others besides Osler have called attention to the relative freedom from coronary disease of those doing manual work, but no explanation for this striking fact seems to have been offered. The obvious and striking difference between those groups of society who suffer least and those who suffer most has been largely ignored. This difference is that those who suffer least have occupations which entail a certain amount of *daily* physical activity, while those who suffer most have sedentary occupations which require a minimum of physical activity.

Granting that in those with sedentary occupations nervous and emotional strain may be a contributing factor, *is it not the sedentary life, the insufficient muscular activity, which is the basic underlying cause?*

If physical inactivity is an important factor in the development of coronary disease, then it would be logical to seek the cause of the increase in coronary disease in changes in the habits of the American people which had resulted in lessened physical activity and more sedentary living. On very brief consideration it will become apparent that such changes have taken place.

LIFE IN A MOTORIZED AGE

First and foremost is the use of the automobile. Everyone old enough to remember the "horse and buggy" age must realize what a tremendous change has come about. Almost everyone of the business and professional group walked more then than they do now. There was the walk to and from the electric car or train on the way to business. One did errands on foot—now one takes the auto to go half a block. Even social engagements in the evening meant some walking while now one goes from door to door in the car. People took walks in the country as a pastime, while now we "go places" in the car.

The medical profession was the first to use the automobile in a business way and has thus been longest exposed to its influence. At the present time medical men seldom use their legs except to follow a golf ball. It does not seem to the writer that the practice of medicine today entails any more strain than it did twenty-five years ago, and we cannot explain the increase of coronary disease in our profession in that way. The striking change in this period is the lessened physical activity of men.

In addition to the automobile there are various other labor-saving devices which have resulted in less physical effort. Elevators are in

more general use in stores, office buildings, and apartment houses. Oil heaters make unnecessary the shoveling of coal, life in apartment houses reduces the number of chores to be done, such as shoveling snow and caring for the garden. All in all, life for those with sedentary occupations has become much more sedentary.

There is reason to believe that walking is an especially good form of exercise for the heart. In the German spas which have a world wide reputation for the treatment of heart disease, graduated walking exercises have been used extensively in rehabilitating patients with damaged hearts. Paths are laid out and marked with different colors indicating the steepness of the grades on these paths. The grades to be climbed are carefully prescribed and before discharge the patient is often able to do considerable "*hill climbing*."

In general, one is safe in assuming that those hygienic measures that are of value in the treatment of a disease will also be useful in the prevention of that disease. Thus sunlight will not only cure but also prevent rickets. The hygienic measures used in the treatment of tuberculosis are also applicable for the prevention of that disease. By a similar analogy walking should be of value for preventing those forms of heart disease which are not of infectious origin.

GOLF AND CORONARY DISEASE

Apparently counteracting the lessened physical activity resulting from the use of the automobile has been the growing popularity of the game of golf among just that class of society that suffers most from coronary disease. One often sees reference in the literature to the frequency of coronary disease among golfers. Riesman and Harris⁷ state "The majority of coronary individuals are active and athletic, often passionate golf players." At first sight this seems inconsistent with the theory that physical inactivity favors the development of coronary disease. We must remember, however, that golf is not *daily* exercise. It is usually played only once or twice a week for a period of about six months and there follows an equal portion of the year when, with little or no reduction in the diet, the average golfer takes little or no exercise.

Golf should be an ideal form of exercise for middle-aged men and doubtless would be if golfers took regularly some other form of exercise—preferably walking—when they were not playing golf. It is obvious that playing golf for six months and then taking no exercise for six months is no protection against coronary disease and may perhaps promote it.

THE PREVENTION OF CORONARY DISEASE

With nervous and emotional strain, the only generally recognized causative factor in coronary disease, preventive medicine has been pow

erless. We cannot "call a halt on the world's mad rush of today." We have seen our most useful citizens carried off by this disease in increasing numbers and have not raised a finger to prevent others meeting the same fate.

While we can do little to reduce worry and nervous strain, we can control our physical activities. Once it is recognized that coronary disease results in part at least from lack of muscular activity we have a very definite point of attack. Obviously the need is for a campaign of education to teach the public (and the profession) that daily exercise is one of the essentials of health, that strenuous exercise taken occasionally or limited to only part of the year may be dangerous. Exercise should be a part of our daily routine.

The time is ripe for such a campaign of education for people are now really alarmed by the frequency of deaths from this cause and would grasp at any practical means of lessening the danger. The tuberculosis campaign has shown us what may be accomplished by education. As a problem in preventive medicine coronary disease is now much larger and more important than is tuberculosis. It is second only to cancer.

It is certainly the duty of the medical profession and especially of the cardiologists to consider seriously the question whether the lessened physical activity of the present day is not an important cause of the increase of coronary disease. If they find it is, the course to be followed is clearly marked.

SUMMARY

Previous to 1930 there was no subdivision for coronary disease in the International Classification of Causes of Death. To make figures available for coronary disease previous to 1930 the writer reclassified according to the 1930 Classi-

fication, all the deaths from heart disease in Brookline from 1900 to 1935.

There was a very marked increase of coronary disease during this period. In 1935 the rate for men was 811 per 100,000 men over forty-five, and for women of the same ages 383. Actually the rate is even higher as there are still many deaths due to coronary disease not diagnosed as such.

A part of the increase noted is due to the fact that coronary thrombosis is more frequently diagnosed now than formerly but this study showed that there must actually have been a very considerable increase.

The early appearance of sclerosis of the coronary arteries in certain individuals is most commonly attributed to nervous and emotional strain. Little attention has been paid to the fact that the disease is rare in men with occupations requiring daily physical effort and most frequent in those with sedentary occupations which suggests that physical inactivity predisposes to coronary disease.

The life of men with sedentary occupations has become even more inactive through the use of the automobile and other modern devices and this may well explain in part the recent increase in coronary disease.

To prevent coronary disease a campaign of education is needed to teach the American people that daily exercise is one of the essentials of health.

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CLINICAL AND PATHOLOGICAL STUDY OF ONE HUNDRED AND FIFTY CASES OF TUBAL PREGNANCY*

BY BENJAMIN TENNEY, JR., M.D.†

A STUDY has been made of one hundred and fifty cases of tubal pregnancy which have been treated on the Gynecological Service of the Boston City Hospital during the past eight years. The hospital records of the patients, the laboratory work and the pathological specimens in the Department of Pathology have been studied. From the data available as complete a picture as possible has been drawn.

In regard to menstrual history, out of one hun-

dred and forty cases whose histories were satisfactory, sixty-four or 45 per cent gave the story of having missed one period entirely. Eight had missed two periods and one had missed three. Therefore seventy-three or 52 per cent had missed one or more periods. Added to this twenty-five cases that had a very scanty period with just a little spotting and we have a total of 70 per cent. Jonas' figure of 60 per cent is quite close. A history of irregular bleeding previous to admission was given by one hundred and sixteen or 82 per cent. There were one hundred and fifty cases that were bleeding on ad-

From the Gynecological and Obstetrical Service of the Boston City Hospital.

*Tenney, Benjamin, Jr.—Junior Visiting Surgeon in Obstetrics and Gynecology Boston City Hospital. For report and discussion see *This Week in Medicine*, page 796.

mission These last figures seem of especial interest as it stands out definitely that the acute type of cases and the more dangerous were those that did not show staining on admission They were the type that had been well until seized with acute abdominal pain generally within twelve hours of admission In this class fall most of the severe ruptures with internal hemorrhage The absence of bleeding indicates a living pregnancy up to the time of rupture and therefore a more potentially dangerous source of disaster Three of the five deaths from acute hemorrhage were not staining on admission.

The physical findings in the entire series gave one hundred and forty or 93 per cent whose chief complaint was lower abdominal pain usually worse on the side of the pregnancy but in many it was bilateral Abdominal tenderness was present in one hundred and twenty-six or 84 per cent Pelvic tenderness either localized or general was present in one hundred and thirty-nine or 92 per cent A pelvic mass was made out in ninety-one or 60 per cent There were forty-two cases or 28 per cent in which although a definite mass could not be outlined, there was a notation of bulging or fullness In other words there were only seventeen or 12 per cent that did not show either a pelvic mass or fullness An abdominal mass was palpated in eleven cases

Out of the entire series twenty-six cases or 17.3 per cent were primiparas In eighty cases in which the history was complete in this respect, thirty-eight had had a pregnancy within two years, nineteen within five years and twenty-three from five to twenty-five years A long period of sterility was not the rule in this series It was interesting to learn that forty-eight cases or 32 per cent had had previous abdominal operations of which all but seven were appendices or pelvic surgery This point has been emphasized by Lutzenberg² who however has the lower figure of 15 per cent Scheffey, Morgan and Stimson³ give 37.7 per cent which is close to our figures Only eighteen cases had a past history of pelvic inflammation but as that is a difficult history to obtain, I feel it fairer to rely on the pathological sections which show a much higher incidence Lutzenberg², however, finds in his pathological sections only 10 per cent definite salpingitis

Correct preoperative diagnosis was made in 79 per cent Fifteen cases were diagnosed as pelvic inflammation, seven cases as ovarian cyst, three cases as appendicitis, three as fibroid uterus, and two as pelvic abscess with threatened miscarriage In eight cases no definite preoperative diagnosis was recorded

LABORATORY

There were ninety-one cases in which a white blood count was recorded Of these, forty-seven

or a little over half were under ten thousand. There were nineteen cases between ten and fifteen thousand There were twenty-five cases in which the white count was higher than fifteen thousand Of these twenty-five, twenty one were of the acute type with symptoms of less than twenty-four hours' duration Of these twenty one all showed general abdominal tenderness and spasm and all had considerable free blood in the abdomen at the time of operation The majority of these were not bleeding on admission In other words, the high white count indicated acute rupture with internal hemorrhage of considerable amount and of recent origin. The other four cases had had symptoms from one week to a month with some staining on admission However, they showed general abdominal tenderness and spasm with fresh blood in the abdominal cavity, in other words an acute hemorrhage on top of previous minor bleeding

Of particular interest is the sedimentation rate that was done on thirty-six cases There were twenty-two cases that had a sedimentation time of one hour or greater Eleven cases were between thirty minutes and one hour There were only three cases under thirty minutes This certainly indicates that the sedimentation rate is a valuable point in differential diagnosis of pelvic infection and hemorrhage from tubal pregnancy Pelvic inflammation with symptoms sufficiently acute to be confused with ruptured tubal pregnancy usually shows marked lowering of the sedimentation rate

An Aschheim-Zondek test was done in eighteen cases In the case of acute rupture with internal hemorrhage there is not the time or need for such a test The diagnosis is usually fairly definite and if not positive, at least shows an acute abdominal condition that needs surgery In the case with pain and a pelvic mass but no acute symptoms, the Aschheim Zondek test is of immense value In spite of the small number of tests, the definiteness of the findings was of considerable value Of the eighteen cases eight tests were positive In the microscopic study of these every one showed actively growing trophoblast (fetal cells) In three cases the placental villi were necrotic or absent This coincides with the belief as shown in hydatid mole and chorio-epithelioma that the hormone is dependent on the trophoblast and not the fetus In two cases with sections of the ovary a good corpus luteum was found In the other ten cases the Aschheim-Zondek test was negative In these ten cases no living trophoblast could be found in any of the sections The sections generally showed organized blood clot containing hyalinized placental villi and occasional trophoblast cells in a degenerated and necrotic state In six cases there were sections of the ovary and in none was there any trace of the corpus luteum of pregnancy The value

of the Aschheim Zondek test appears to be this. If the test is positive, it indicates that there are living, growing and invading fetal cells present which give a definite danger of rupture of the tube, of hemorrhage or of both. On the other hand if the test is negative, the danger is less acute with a much slighter chance of internal hemorrhage. It is also important to note that a negative Aschheim Zondek test simply excludes a living tubal pregnancy and does not rule out a dead tubal pregnancy as the explanation for what symptoms may be present.

PATHOLOGY

In reviewing the reports on the gross pathology of the specimens it is quite difficult to classify the cases as rupture or abortion. However, there were seventy nine cases or 32 per cent that showed definite perforation or rupture of the tubal wall. There were thirty four cases described as intact. By this is meant cases in which there was no perforation of the tubal wall and no evidence of extrusion of tubal contents from the tubal ostium. There were thirty seven cases with no sign of perforation of the tubal wall and evidence of extrusion of tubal contents from the ostium. I agree with Litzberg² that a true and complete tubal abortion is rare. As shown by the microscope this type is practically always an incomplete tubal miscarriage. I also consider his term "internal rupture" excellent as it is rare not to find bleeding within the tube in the intact cases and the so-called abortions are simply a continuation of this process.

Out of the one hundred and fifty cases there were twenty embryos recovered including one pair of twins apparently of a single ovum each twin being about 2 cm in length. The embryos generally were found in the intact cases but some of them were recovered from the abdominal cavity following rupture. There was one interesting case of essentially an abdominal pregnancy where the placenta was attached to the appendix and cecum with the fetus growing free in the abdominal cavity. The fetus was approximately three months' size and well formed. There were two cases in which the patient claimed to have miscarried a fetus from the uterus previous to entry. In one case the fetus had been seen by the attending doctor. One certainly and both possibly were the rare condition of a double pregnancy.

The question of salpingitis as an etiological factor has been much discussed. Litzberg² gives his findings as 10 per cent positive and 10 per cent questionable. Schuffey, Morgan and Sumner³ as 30 per cent and Van Etten⁴ as 10 1/2 per cent, Sampson⁵ 36 per cent. In this series of cases a somewhat higher incidence was found. In the routine pathological reports thirty-eight cases or 25 per cent were diagnosed as salpingitis. In reviewing the slides with this point in

view I found fifty cases or 33 per cent with definite follicular salpingitis. There were two cases that showed tuberculous salpingitis.

In estimating the number of pregnancies that were living at the time of operation ninety six or 64 per cent showed living fetal trophoblast and fifty three showed no living fetal cells.

There were forty cases in which specimens of ovary were present. It was interesting to study the relation between trophoblast and the corpus luteum. In sixteen cases the pregnancy was dead with no living fetal tissue and no corpus luteum of pregnancy. The ovaries showed ripening follicles and four had a corpus luteum of menstruation. In eleven cases the pregnancy was in good condition with actively growing fetal tissue and a good corpus luteum of pregnancy. In four cases there was good trophoblast, no good fetal villi and degeneration of corpus luteum. In five cases there was an entirely degenerated corpus luteum and no living fetal tissue. In four cases there was good fetal tissue but no corpus luteum. Of course here the corpus might have been in the other ovary. It would seem from these studies that injury to the pregnancy causes first the death of the fetus. Death of the fetus is followed by degeneration of the corpus luteum. After the degeneration of the corpus luteum the trophoblast may continue to grow for a considerable time. This suggests a hormonal influence of the fetus on the corpus luteum. As we know that removal of the corpus luteum early in pregnancy causes miscarriage, it would seem that the life of the fetus is dependent on the corpus luteum and from the above that the corpus luteum depends on the fetus. Börner⁶ found that the corpus luteum begins to degenerate as soon as implantation of the ovum is disturbed.

The 'Influence of Ectopic Pregnancy on the Uterus' is well described by Sampson⁵. He found that only the cases of tubal pregnancy that did not have vaginal bleeding had intact uterine decidua. The termination of the pregnancy was based on the first attack of pain but termination was rarely complete at the time of operation. It would seem probable that the action of the tubal pregnancy on the uterine decidua was indirect, acting through the corpus luteum. The uterine bleeding is the sign of beginning degeneration of the corpus luteum caused by death of the tubal embryo. In this series there were six cases in which the uterus was removed. In two cases the tubal pregnancy was intact, the corpus luteum in good condition and the uterine decidua uninjured. In the other four cases there was no section of the ovary. However, in these cases there was considerable living trophoblast and villi in good condition. In one the endometrium was in the normal resting state and in the other premenstrual. In the third the endometrium was atrophic with uterine fibroids and in the fourth the decidua had mostly been cast off. These four cases had been

bleeding for several days. These few cases show that the original injury to the pregnancy causes beginning degeneration of the corpus luteum followed by uterine bleeding and that living trophoblast can survive for some time after.

In the entire series there were six deaths or a total mortality of 4 per cent. One case entered before operation with a temperature of 101°. She died eleven days postoperative of peritonitis and bronchopneumonia. Undoubtedly her death was primarily of infectious origin. The other five were all due to internal hemorrhage. Two of these had acute rupture with a three months' fetus found in the abdomen and died within a few hours in spite of all treatment. The third was a similar type with a four cm fetus. The fourth was so severely exsanguinated that she died on admission. The fifth was of interest in that she had been under observation for four days. Operation was decided on and she was given 500 cc of blood before operation. Immediately following the transfusion she went into shock. She was operated on immediately. The abdomen was full of fresh blood and she died on the table. This is a good example of the danger of transfusion starting a fresh hemorrhage.

SUMMARY

A study has been made of one hundred and fifty tubal pregnancies. The outstanding signs and symptoms of these cases were: seventy per cent had either missed a period or had a very scanty period. Eighty-two per cent gave a history of irregular bleeding. Seventy-one per cent were bleeding on admission. Some of the most acute cases were those that were not bleeding when seen. Three of the five deaths from hemorrhage were not staining on admission. Ninety-three per cent complained of lower abdominal pain. Pelvic tenderness was present in ninety-three per cent, pelvic mass or fullness in eighty-eight per cent.

A high white blood count indicated recent and considerable internal hemorrhage. The sedimentation rate in all but three cases was higher than thirty minutes. A positive Asch-

heim-Zondek test showed living fetal tissue that was still growing and invading. A negative test indicated that growth had ceased.

A study of pathological sections showed that injury to the pregnancy caused first the death of the fetus followed by degeneration of the corpus luteum. The trophoblast often continued to live for some time. The possibility of an hormonal influence of the fetus on the corpus luteum is suggested. Bleeding from the uterus is dependent on beginning degeneration of the corpus luteum which follows the death of the fetus.

CONCLUSIONS

1. The most consistent picture of tubal pregnancy is a history of a missed or scanty period, irregular bleeding, lower abdominal pain and pelvic mass or fullness, and pelvic tenderness.
2. Lack of staining may be a sign of danger.
3. A high white count indicates considerable internal bleeding. A normal sedimentation rate is in favor of tubal pregnancy.
4. A positive Aschheim-Zondek test indicates living fetal cells. A negative test shows death of fetal cells.
5. A study of the pathological specimens indicates that the fetus dies first, followed by degeneration of the corpus luteum. Degeneration of the corpus luteum causes casting off of uterine decidua with uterine bleeding. The trophoblast can continue to grow for some time longer.

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CONGENITAL ABSENCE OF THE VERMIFORM APPENDIX IN A PATIENT WITH MENTAL DISEASE

BY L. W. DARRAH, M.D.*

CONGENITAL absence of the vermiform appendix is exceptionally rare. According to the ultracritical reviewers of the literature on this subject there are, seemingly, but twenty-eight authentic reported cases in the past two hundred and sixteen years! Other reviewers of this same literature, and who are just as ear-

nest as the ultracritical group, would extend this number to forty-nine. Therefore, because of such evident rarity, the following case found at autopsy—with no record or evidence of any operation—merits reporting.

Female, aged fifty-five, a patient in the Gardner State Hospital during the past nine years was diagnosed, schizophrenic, paranoid type. She was quite debilitated both men-

*Darrah L. W.—Assistant Physician Gardner State Hospital. For record and address of author see This Week's Issue page 795.

tally and physically and died of gastric ulcer.

At autopsy June 20 1935, there was nothing significant in the thorax or in the abdomen except in the gastrointestinal tract. The stomach was very white and markedly distended and when opened, it contained a large amount of gas and a small quantity of grayish brown fluid. A perforating ulcer 2.5 cm. in diameter was found on the posterior wall, near the lesser curvature. The large bowel especially the sigmoid was distended and dark in color. The appendix could not be located. The anterior tenia said to be the surest guide to the process was followed as in Green and Ross's case¹ to its termination at which point the cecum was smooth. The point of junction of the three teniae was thoroughly examined. Not even a rudimentary projection could be found. The serosal surface of the cecum was everywhere smooth. The retrocecal fold and fossa were also explored. The cecum was the usual loop-sided adult form with nothing else remarkable about its appearance.

It is more than interesting that this anomaly was first reported by Morgan¹ in 1719. Two hundred and sixteen years ago it was next described by Hunter² in 1762 and Hüller³ in 1765. Still later Meckel⁴ in 1812, Ferguson⁵ in 1891, Roberts⁶ in 1896, Dixon⁷ in 1896, Swan⁸ in 1898, Fawcett and Blaxter⁹ in 1899, Picquand¹⁰ in 1900, Michaux¹¹ in 1902, Huntington¹² in 1903, Marie¹³ in 1903, Dillard¹⁴ in 1903, Schridde¹⁵ in 1904, Marshall and Edwards¹⁷ in 1906, Looten¹⁸ in 1909, Froehlich¹⁹ in 1910, Dailey²⁰ in 1910, Shiels²¹ in 1911, Velyaminoff²² in 1911, Lecomte²³ in 1911, Bloodgood²⁴ in 1911, Hansen²⁵ in 1912, Bérard and Buche²⁶ in 1913, Gladstone²⁷ in 1914, Dorland²⁸ in 1925, Maurer²⁹ in 1927, Jacob³⁰ in 1928, Bradley³¹ in 1929, Spivack³² in 1931, Green and Ross³³ in 1933, Sindoni³⁴ in 1933, Louyot, Richon, and Lacourt³⁵ in 1934 and Darrah in June, 1935.

According to the literature, examined at the Boston Medical Library and the Harvard Medical Library, on congenital absence of the vermiform appendix, the number varies between the ultra-critical estimate of twenty-eight reported authentic cases, and forty-nine. Some writers reported two or more cases, some from anatomic and pathologic laboratories, Bird³⁶ and Bird Oliver and Robinson referred to by Dorland.²⁸ So it is apparent that there is some disagreement, among the reviewers, as to the actual number of authentic reported cases.

Schridde, for instance when reviewing the subject in 1904, did not accept many of the earlier cases of agenesis of the vermiform appendix. His theory, according to Spivack is that 'the appendicular portion of the primitive cecum fails to become arrested in its development as it normally should but keeps pace in growing with the cecal portion proper and at maturity is indistinguishable as to caliber from a normal cecum. The reason why he

gave such an explanation was that in his case the cecum was of a child fifteen months old on the cecum were present six haustra instead of four (As is known the human cecum up to the age of four or five years has deep furrows which subdivide the wall of the cecum into four haustra, these haustra normally disappear at the age of four or five years due to intracecal pressure of the fecal material, and the cecal wall then becomes smooth.) The fact that in his case there were six haustra instead of four and also the absence of the appendix, made him believe that these two additional haustra were the modified appendix. He explained on the basis of his specimen that normally the appendix is formed by the arresting of the lower two haustra that at some period of the embryonic stage all six haustra are of the same size and width, later on the lower two haustra are arrested in their growth and form the appendix and the upper four continue to grow and form the cecum. Therefore Schridde advised: 'Whenever there is a congenital absence of the appendix, count the number of haustra.'

This sounds interesting. But according to Spivack, in order to corroborate it, one has only to deal with such a cecum where the haustra are present which occurs only in cases of children up to four or five years. In grown persons there are no haustra, and dealing with an absence of the appendix in a grown person one can neither corroborate nor disprove this theory unless one comes across a case of absence of the appendix in a grown person with an infantile type of cecum. It seems that Schridde had but one such case, and Spivack had one. Obviously, if the former's theory be accepted, then apparently there are but two authentic reported cases of agenesis of the vermiform appendix!

But it will be seen further on in this article that Schridde's drastic reduction of cases is set aside by Bradley's study of the embryological development of the cecum and it receives the support of reputable anatomists.

Dailey, when examining the literature in 1910 would accept only ten of the twenty six reported cases up to that time. He cautioned that 'one should not be too hasty in publishing alleged cases of absent appendix for there are many possibilities of error.' Dorland reviewing the literature at a still more recent date (1925) accepted thirty seven cases as authentic. Bradley in his informative article published in 1929 at that time accepted forty cases. He quoted Kelly and Hurdon³⁷ who state that the appendix is 'merely a portion of the general cecal pouch which has remained in an early stage of development.' Writes Bradley, 'It is formed from the terminal portion of the cecal pouch from which it is at first indistinguishable. Differentiation takes place in two stages

A primary stage occurs at about eight weeks when a distinction can first be made between a larger proximal portion (cecum) and a smaller distal portion (appendix). A secondary stage occurs at about the time of birth, coincident with the formation of the teniae, when a more marked disproportion between the size of the cecum and that of the appendix becomes evident. Development may be interfered with at any stage. The resultant anomalies have been postulated (by Bradley) as follows:

THE ARRESTED DEVELOPMENT OF THE CECAL POUCH AND THE RESULTANT ANOMALIES

<i>Stage of Growth</i>	<i>Anomaly</i>
Failure of the cecal anlage to develop	Absence of cecum and appendix
Partial development of cecal anlage	Rudimentary cecum without the appendix
Full development of the cecal portion, no development of the appendiceal portion	Normal cecum, no appendix
Normal early differentiation of the appendix, but early discontinuance of development	Normal cecum rudimentary appendix
Normal early development but failure of appendiceal portion to become differentiated, its growth keeping pace with that of the cecal portion so that a differentiation is not evident	Normal appearing cecum probably with extra haustra, as in case reported by Schridde, no appendix

In 1930, Spivack skimmed the literature and wrote, "This makes a total of forty-four cases and my cases are the forty-fifth and forty-sixth." Yet Spivack evidently had some uncertainty about his figures, as he observed that some of the reported cases were hypoplasia. Excluding these, and those where the appendix was not found but in which there were adhesions around the cecum, then the cases of actual agenesis of the appendix could be cut to nearly half.

"Probably," wrote Spivack, "it would be closer to the truth to say that only about twenty-five cases were undoubtedly true agenesis."

And in 1933, when Green and Ross studied the literature, they too agreed with Spivack's minimum—twenty-five—to which they added their own, the twenty-sixth.

In December, 1933 Baldwin³⁸, after reading Green and Ross's report, examined Bradley's, and Spivack's, review, also several older ones, then quoted Scott³⁹, who boldly asserted in 1897 that the appendix is never absent, and that failures to find it have been due to improper search. According to Baldwin, Scott was then Professor of the Principles of Surgery, in the Cleveland College of Physicians and Surgeons, etc., at the time he published an account of a seeming case with a photograph of the specimen. Scott claimed that his own case, and all other reported cases, were merely appendicitis obliterans totalis. Briefly, he located

the appendicular artery and tracing that up found ample evidence of the previous existence of the appendix.

In the literature there seems to be no other reference to Scott's paper, and Baldwin explains that the paper was published in the bound volume of the Transactions of the Ohio State Medical Society for that year (1899), and distributed only to paid-up members, and for that reason was practically buried.

Scott's refutation is interesting. It may be that some of the reported cases did have hidden, microscopic vestiges of the appendix. Yet there is proof and authority for total, complete absence of the vermiform appendix. In 1929 there were four known specimens in museums. (There may possibly be more now.) Two are in the Museum of the Royal College of Surgeons, London, and two in New York's Columbia University Museum.

Anatomists agree that it is possible. Spitzka⁴⁰ wrote, "In rare instances the appendix has been absent." Piersol⁴¹ states, "The total absence of the appendix is extremely rare, but has been observed by ourselves and others." And Hertzler⁴² goes so far as to say, "No one has ever seen a 'normal' cecum except the one depicted in the textbook of his student days."

As has already been mentioned, Bradley has shown in his interesting table on embryological development of the cecum, that not only can the appendix be absent, but the cecum also. (This was shown by Froelich's reported case¹⁹ in 1910 being in complete agreement with Bradley's study.)

It is true, of course, that cases found at autopsy can be examined far more readily than those found during a surgical operation. To verify, on the operating table, the absence of the appendix in case it is not seen at the place of union of the three teniae, Spivack advises that one should mobilize the cecum from the lateral side and examine its posterior wall. And certainly Green and Ross, in their reported surgical case, searched exhaustively. So have other investigators.

After all, why should there be any doubt as to the possibility of absence of the vermiform appendix? Complete absence of the eyes has been recorded. Also complete absence of teeth from birth till death, also absence of feet, bilateral absence of the external ears, congenital absence of the tongue, of the gallbladder, and but one kidney.

SUMMARY

The writer of this paper, in reporting his own case found at autopsy, records that the entire bowel was carefully dissected out, in an attempt to locate the appendix, or find a vestige of its existence. Five other physicians were present and assisted in the search for the appendix, and were finally convinced that here was a case of total congenital absence of the vermiform appendix.

Therefore, this case, if based on the ultracon servative opinions of Schridde, Dailey, Spivack, and Green and Ross, would be approximately the twenty ninth. But if based on the figures and studies of Dorland, and of Bradley it would appear to be the fiftieth

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NOTE The writer wishes to express his appreciation to Drs W. A. N. Dorland and J. L. Spivack of Chicago and Dr M. M. Canavan Curator of the Warren Museum Harvard Medical School for assistance in the preparation of this paper

THE OCCURRENCE OF ALLERGIC REACTIONS IN ARTHRITIC PATIENTS*

BY ALBERT G. YOUNG, M.D.†

FOR several years investigators have speculated on the possible relationship of Atrophic or Rheumatoid Arthritis to a bacterial allergic reaction. Herry¹ in 1915 and later Zinsser and Grinnell² 1925, and Swift, Derick and Hitchcock³ in 1928, introduced findings that suggested a bacterial allergic reaction in both rheumatic fever and rheumatoid arthritis. Rackemann⁴ in 1933, reviewed the literature and gave an excellent critical résumé of the work bearing on this subject. He also pointed out that in his experience hay fever and asthmatic patients did not show an unusual incidence of arthritis.

The writer in studying arthritis has worked

on the allergic hypothesis⁵, and in presenting his studies has routinely inquired (while taking the history) into hay fever, asthma, food and drug sensitization, migraine, urticaria and dermatitis. The histories also included records of focal or general infections (past or present), and whether the onset of the arthritic symptoms was associated with infection, overwork, trauma, etc. In so doing I was impressed, first, with the high incidence of clinical allergy reported by my patients and secondly, that most of them reported the presence of some infection, single or repeated antedating the onset of the arthritis. Recently I have studied the case histories of 200 private patients with rheumatoid arthritis, in whom the onset of symptoms (as shown by the present illness in the history) was sufficiently acute for the patient to be able to state quite accurately its relationship to infection.

From the Department of Pharmacology and Therapeutics of Boston University School of Medicine.
†Young, Albert G.—Assistant Professor of Therapeutics, Boston City Hospital School of Medicine. For record and address of author see "This Week" issue, page 196.

contributing factors These findings have been tabulated and compared with the records of fifty non-arthritic patients, fifty patients with allergic dermatitis and fifty patients with urticaria. In making this comparison the attempt has been made to gain information concerning (1) Whether arthritic patients show a greater incidence of allergy than the average group of clinical patients, (2) if so, what type of allergy predominates, (3) what is the most common condition associated with the onset of the disease, and (4) what is the incidence of arthritis in patients with allergic diseases

Because of the work of Rackemann⁴, and Harkavy and Hebal⁵, who reported a low incidence of arthritis in hay fever and asthmatic patients, I did not study this phase of the problem

RESULTS

Table 1 shows that of the 200 patients stud-

thritic patients are more susceptible to skin allergy than the average clinical patient

The next question was what per cent of patients suffering from allergic dermatitis and urticaria had arthritis. An examination of the records of fifty cases of allergic dermatitis (table 2) or venenata, showed that two patients (4 per cent) had arthritis. None had a question or a past history of arthritis. The records of fifty cases of urticaria showed one case (2 per cent) of arthritis and none with a question or a past history of arthritis. This makes a total of 6 per cent of arthritis among 100 patients suffering from skin allergy, as compared with 31.5 per cent of skin allergy in 200 arthritic patients.

A study of the relation of infection to the onset of the disease was undertaken. Care was taken in each instance to determine when the bacterial infection occurred in relation to the onset of the arthritis. If the upper res-

TABLE 1
INCIDENCE OF CLINICAL ALLERGY IN ARTHRITIS

200 Arthritic Patients	No	Per Cent	50 Non Arthritic Patients	No	Per Cent
Hay Fever	13	6.5	Hay Fever	4	8
Asthma	14	7	Asthma	3	6
Hay Fever and Asthma	3	1.5	Hay Fever and Asthma	0	0
Urticaria	31	15.5	Urticaria	5	10
Allergic Dermatitis	32	16	Allergic Dermatitis	1	2

ied, 6.5 per cent had hay fever, 7 per cent had asthma and 1.5 had both conditions so that actually 15 per cent had a present or past history of hay fever or asthma, or both. Urticaria was found in 15.5 per cent and allergic derma-

piratory, or dental infection, etc., incident was more than eight weeks previous to the onset of the arthritic symptoms the case was not used for this study, since it would be unusual for anyone to attain the age of twenty-five or thirty

TABLE 2
INCIDENCE OF ARTHRITIS IN CLINICAL ALLERGY

50 Urticaria Patients	No	Per Cent	50 Allergic Dermatitis Patients	No	Per Cent
Arthritis	1	2	Arthritis	2	4
? of Arthritis	0	0	? of Arthritis	0	0
P. H. of Arthritis	0	0	P. H. of Arthritis	0	0

titis in 16 per cent, making a total of 31.5 per cent showing skin allergy.

For comparison I then began a search to determine what percentage of non-arthritic patients with a chief complaint other than that of an allergic disease, had hay fever, asthma, urticaria, or allergic dermatitis. Fifty non-arthritic records (table 1) disclosed a past or present history of hay fever in four patients (8 per cent) and asthma in three patients (6 per cent), making a total of 14 per cent as compared with 15 per cent of the arthritic patients, urticaria in five patients (10 per cent) and allergic dermatitis in one patient (2 per cent), making a total of 12 per cent as compared with 31.5 per cent in the arthritic patients.

From these findings it would appear that ar-

years without having some upper respiratory or dental infection, to say the least. Care was also taken to rule out upper respiratory or dental infection which occurred after the onset of the arthritis. This does not mean that infections occurring two months prior to the onset of arthritis are not considered as pertinent to the development of the disease, but for the reason stated above it was necessary to draw an arbitrary line if the findings were to have any value in this study. The results showed, that at the time of, or immediately previous to the first symptoms, sixty-eight (34 per cent) had infected teeth, eighty-four (42 per cent) had sore throat, sixteen (8 per cent) had infected sinuses, four (2 per cent) had middle ear infection, one (5 per cent) had ruptured appen-

dix. and two (1 per cent) had a nonspecific prostatitis. This makes a total of 875 per cent in whom an active infection was associated with the onset of the disease. In the remaining 125 per cent a history of exposure to dampness and cold overfatigue trauma, etc., was recorded.

Skin tests on twenty patients to food and bacterial proteins were of little value so far as linking up the skin sensitization with the arthritis. This corresponds with the work of Deriek and Fulton⁷ who found positive skin reactions to food and bacterial proteins to be as common in adults who were not suffering from arthritis as in the arthritic patients.

One interesting observation was made in this respect. Even in cases where a known food sensitization was present the patients' joint symptoms were not influenced by eating the foods to which they were sensitized. This experiment was repeated several times on about fifteen patients who suffered with a pronounced urticaria or dermatitis following the ingestion of certain foods. At no time did they present any increased objective findings, nor did they complain of increased symptoms during the time of the skin reaction.

DISCUSSION

These results do not strengthen the contention of some investigators who attribute the etiology of arthritis to dietary disturbance. Some of the findings are very interesting in the study. First, the results show an unusually high percentage of skin allergy either past or present in the arthritic patients, whereas patients suffering primarily from a skin allergy do not show an unusual incidence of arthritis. This indicates that while arthritis appears to predispose to skin allergy, the reverse is not true. And secondly, the incidence of focal infection in relation to the onset of arthritis is too high to be disregarded. It lends strength to the hypothesis of bacterial allergy.

Just why the asthmatic and hay fever patients do not show a high incidence of arthritis may be answered by Rackemann's explanation and also it is pertinent to the findings mentioned above relative to the incidence of skin allergy in arthritis. In discussing Harkavy and Hebbald's⁸ findings of 225 per cent of arthritis among 400 children with asthma, he says: "Evidently the relation of Arthritis to this particular form of allergy is very doubtful. But the word 'allergy' is also used in connection with other reactions which are not immediate but delayed which give rise not to urticarial wheals, but to areas of inflammation."

He then points out that at least a theoretical relation exists between the two, namely the work of Zinsser and others indicates that the urticarial reaction typical of hay fever and asthma represents the early phase of the immune process, whereas the inflammatory tuberculin type

of reaction represents the late inflammatory phase. He believes the mechanism in arthritis to be closely related to that in asthma, but that in both conditions the fundamental feature is not the particular agent but the reaction of the host toward the reagent.

Rackemann's opinion is further substantiated by the findings of Young and MacMahon⁹ in which it was demonstrated that the pathological lesions in arthritis and rheumatic fever were identical, and concluded that "This complex histological picture is simply one of a non-specific chronic inflammatory reaction showing regressive, exudative and proliferative changes, but no structural lesions diagnostic of rheumatic infection."

In view of the frequent references made to tuberculin allergy in speaking of arthritis, it is interesting that while making the above study (Young and MacMahon) a section from a case of tuberculosis of the joint was obtained which showed the same microscopic changes that were described in the arthritic and rheumatic patients. I consider this an inflammatory allergic reaction which is not specific for any one organism. This is in keeping with the view expressed by Birkhaug¹⁰ who said: "It seems justifiable to postulate that the exquisite allergy to streptococcal products is resultant from oft repeated upper respiratory low grade infections. The question arises whether or not one or several strains of streptococci are responsible for the early sensitization of the individual."

I would carry this hypothesis farther to include prolonged or oft repeated low grade infections anywhere in the body. Furthermore while the streptococci appear to be the most common offenders, we cannot entirely disregard the possibility of other organisms especially the staphylococci and gonococci as sensitizing organisms. It is also important to consider the sensitization as being brought about by the broken down products of the bacteria rather than by the bacteria *per se*. This idea is consistent with the variations in the results reported on blood cultures in this disease.

SUMMARY

- 1 In 200 patients with rheumatoid arthritis 15 per cent gave a history of past or present hay fever or asthma or both and 315 per cent gave a history of allergic dermatitis or urticaria.
- 2 In fifty non arthritic patients 14 per cent gave a history of hay fever or asthma, or both, and 12 per cent gave a history of allergic dermatitis or urticaria.
- 3 In fifty patients with allergic dermatitis 4 per cent had arthritis.
- 4 In fifty patients with urticaria 2 per cent had arthritis.

- 5 In 200 patients with rheumatoid arthritis 87.5 per cent gave a history of an active infection or repeated infections just previous to or coincident with the onset of the disease. Twelve and five tenths per cent gave a history of exposure to dampness and cold, fatigue or trauma just previous to the onset of the disease.

The writer wishes to express his thanks to Dr. F. M. Thurmon for the histories of the 100 dermatological cases presented here, and to Dr. Francis M. Rackemann for his helpful suggestions in preparing this paper.

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CONGO RED FOR THE CONTROL OF BLEEDING

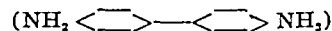
BY ROGER C. GRAVES, M.D.,* AND C. J. E. KICKHAM, M.D.*

WITHIN the past two years we have had such satisfactory experiences with Congo red for the control of bleeding, that we wish, in this brief communication, to call attention to its value as a hemostatic agent. In cases of active hemorrhage where the ordinary medical measures have failed, it is easily and quickly administered and we have observed no unfavorable reaction to its use, either local or general. The employment of the dye for this purpose seems relatively new and we find that the subject has received but scant mention in the literature.

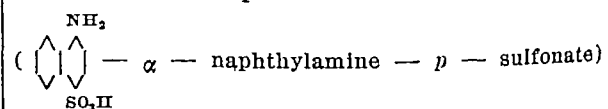
Wedekind, in 1930, while experimenting with Congo red in an effort to determine the relationship between the storing capacity of the reticulo-endothelial system and the prognosis in pulmonary tuberculosis, observed that the dye had a hemostatic effect in pulmonary hemorrhage when it was injected intravenously. On the basis of this observation, Becker and Wedekind treated fresh bleeding of varied etiology with marked success. They found that following the intravenous injection of one per cent Congo red, the hemorrhages were promptly arrested. An acceleration of the blood clotting time was manifested, due, according to Becker, to the stimulus of the dye solution stored in the endothelial cells of the blood and lymph capillaries. There results an activation of thrombogen and the increased formation of thrombokinase. He observed that both in cases where the coagulation time was retarded, and where it was within normal limits prior to injection, a transitory acceleration took place following injection. In most cases it returned to its previous level within twenty-four hours. When hemorrhages recurred after several days, they were arrested following a single intravenous

administration of the dye. It was observed that an increase in the blood platelets accompanied the acceleration of the clotting time. Deinhardt in 1931, studied systematically the influence of intravenous Congo red on gynecological bleeding in a series of thirty cases. The treatment was successful in twenty-two. The hemorrhages in these cases were controlled immediately following the first injection, or after two or three injections on subsequent days.

Congo red is an electronegative dye direct for cotton, that is, it dyes cotton without a mordant, as it also dyes silk and wool. It is turned blue by mineral acids. It is employed commercially in the form of the sodium salt, a reddish-brown powder which dissolves in water to form a red solution. The dye is prepared by diazotizing benzidine.



and coupling the diazo compound with the sodium salt of naphthionic acid



It is used in the medical profession as a test for amyloidosis, and as a means of determining the function of the reticulo-endothelial system. To determine whether Congo red is excreted as such in the urine, 10 cc. was given intravenously to one of the writers. Fifteen and forty-five-minute urine specimens were collected following the injection, and tested to determine the presence or absence of the dye, by Professor Tenney L. Davis of the Massachusetts Institute of Technology. No evidence that Congo red was present was found. This simple experiment suggests, as we would expect from the conclusions of previous writers, that the hemostatic effect is blood-borne, and that the dye does not exert

*Graves, Roger C.—Urologist, Carney Hospital. Kickham C. J. E.—Assistant Urologist, Carney Hospital. For records and addresses of authors see This Week's Issue, page 796.

any specific effect through the urine when used to arrest hemorrhage from the genito-urinary tract.

Our personal interest in Congo red as a hemostatic agent, is based upon its apparent usefulness in the control of hematuria. We have employed it for the relief of bleeding in such cases as the following: Renal injury, bilateral renal and ureteral calculi, chronic pyelonephritis, vesical calculus, benign hypertrophy of the prostate, tumor of the bladder, urethral trauma, etc. In fact, we have become so convinced of its value that the administration of Congo red is common in our clinic in all cases of active urinary hemorrhage, in conjunction of course with such other specific measures as may be indicated in the particular problem. No blood studies have been made to determine changes in coagulation time or in the platelet count and we have made no attempt to study the behavior of the dye in the production of hemostasis.

There have been no untoward effects in any instance, following the injection of Congo red in our cases. Five cc (1 ampule of a sterile isotonic solution) or 10 cc given intravenously constitutes the usual dose. This may be repeated if necessary. Rossak states that occasionally patients complain of palpitation and lower abdominal pain, but we have not observed such disturbances. Even the accidental paravenous injection of the dye has resulted in no ill effect, other than a persistent red discoloration of the skin.

In conclusion, it is our feeling that intravenous Congo red is a valuable adjunct in the treatment of hemorrhage from the urinary tract. We believe, however, that it is most useful in cases of acute bleeding in individuals who still possess at least relatively normal coagulation mechanism. We have found it, as might be expected, less effective in such chronic persistent bleeding as often occurs, for example, from pyelonephritis or malignant tumors of the urinary bladder. Whether its lack of success under such circumstances is due to local or general causes, we are unable to state. Obviously it will be of little or no value in actual blood disease (We have seen it employed without benefit in one case of purpura). We have used it, frequently, as a prophylactic agent following prostatectomy and transurethral resection, when unusual bleeding had been encountered. It is of interest also that some of our colleagues have administered it with marked success in such acute conditions as severe epistaxis and hemorrhage after tooth extraction.

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METHOD OF APPLYING A TEMPORARY ADHESIVE SUPPORT TO THE BACK

BY THOMAS H. PETERSON, M.D.*

In the past a great deal of unnecessary pain has been produced through attempts to strap or immobilize individuals who are suffering from back pain due to injury or to some other cause. Below is described a method of doing this which was suggested by the late Dr. Robert Soutter and which allows the doctor to apply support to an individual suffering from a very acute back pain without requiring the patient either to turn over in bed or, as some have been required, to stand. The minimum discomfort to the patient is produced by Dr. Soutter's method and a support is applied which will hold far more firmly than an ordinary binder.

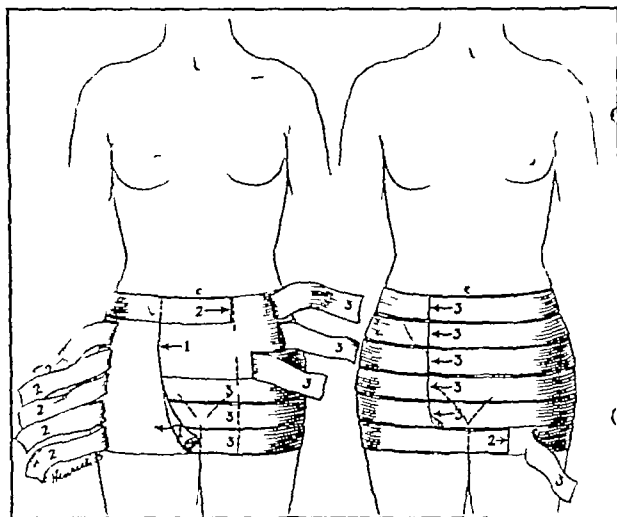
We have had the opportunity of using this type of apparatus frequently in acute back and sacro-iliac strains with good results. It has been used a number of times in separation of the symphysis pubis during pregnancy and in postpartum women. We have also used this type

of support several times in fractures of the pelvis, both as a temporary support and also occasionally as permanent supportive apparatus during the healing of the fracture. In its application in separation of the symphysis pubis, whether of traumatic or spontaneous origin, pressure should be applied below the anterior superior spine of the ilium.

A further advantage of this particular method over the usual type of strapping is that it may readily be taken off either during the care of the patient or for the application of physiotherapy, which is often desirable. It is, of course, impossible to apply physiotherapy measures to a back covered with adhesive with much hope of any therapeutic benefits, not only because of the danger of burning but also there is little chance of effecting results. Since the adhesive strapping on this type of binder is not in contact with the body, no excoriation or abrasion can result from its application and the skin is left in condition for whatever physiotherapy measures are deemed necessary.

Peterston, Thomas H.—Junior Visiting Surgeon, Boston City Hospital. For record and address of author see "This Week's Issue," page 736.

For this method, an old binder or swathe, twelve inches wide, and long enough to encircle the patient with an overlap of about six inches, is procured. To this are applied strips of adhesive tape one and a half inches or two inches wide and of the same length as the binder, put on in parallel lines one eighth of an inch to one fourth of an inch apart, with the adhering side next to the binder. As a general rule six strips are sufficient for the ordinary strapping. We



- 1 Left end of binder overlaps right end
- 2 Right adhesive strips drawn across left end of binder
- 3 Left adhesive strips drawn across right adhesive strips

now have a swathe or binder with five or six adherent strips applied to the outer side.

In applying this support the patient is made to lie on his back and is then gently rolled onto one side. The binder is tucked under the patient's back with the cloth side next to him. He is then rolled onto the opposite side and the binder pulled through and smoothed down flat. The patient is now rolled back so that he is lying flat on his back. The binder with the cloth next to the skin is beneath him, the long axis of the binder at right angles to the long

axis of the body and at a level of the greatest discomfort.

Now the adhesive strips are pulled back from either end of the binder for about twelve inches and are laid out flat to be easily picked up again. The two ends of the swathe and binder are pulled across to overlap each other like the overlapping of a double-breasted overcoat (the left end overlapping the right) and are adjusted as snugly as is desirable or as the patient can comfortably stand. The adhesive straps are then brought across from the right end so that they now overlap the left end of the swathe in front. Each strap is brought across separately and applied to the swathe separately. In this way the necessary adjustments of the swathe may be made so that it will fit smoothly and all loose folds taken up. As a final step the loose end of the strapping, namely the left end, is brought across the now adherent right ends overlapping and adhering securely.

We now have produced a firm binder which fits very comfortably, conforming well to the contour of the body, because of the individual adhesive strips, and applied much more firmly than an ordinary swathe. It has the added advantage of not having injured the skin as the taping never comes in direct contact with the skin.

SUMMARY

This type of strapping is devised for very acute backs and back injuries. It is easily applied to a patient lying on his back with the minimum discomfort. It may be applied more firmly than an ordinary binder. It is easily and comfortably removed for physiotherapy treatment and reapplied with equal simplicity. It does not necessitate the direct application of adhesive plaster to the skin which, in itself, would frequently contraindicate the use of physiotherapy measures.

THE SOCIAL SECURITY ACT

Under the terms of the Social Security Act, the Federal Government matches the expenditures of States with approved plans for assistance to the needy aged and the blind up to a combined total of \$30 a month per person and contributes five per cent additional for administrative purposes. For aid to dependent children, the Federal grant to States with approved plans is one dollar for every two dollars the State spends up to a combined total of \$18 per month for the first dependent child in any one family and \$12 per month for each additional child in the family. Each State decides for itself which of its aged blind or its dependent children are entitled to aid and how much aid shall be given.

To be approved by the Social Security Board, a State public assistance plan must provide for cash payments to needy aged persons, to dependent children living with relatives, or to needy blind in all

parts of the State. A single State agency must administer the plan or supervise its administration if it is directly administered by the counties. This State agency must grant to any individual denied assistance the opportunity for appeal from the decision of the county denying him such assistance.

Thirty States and the District of Columbia now have public assistance plans conforming with the requirements of the Social Security Act. More than half a million individuals in these thirty-one jurisdictions receive assistance in the form of monthly cash payments under the cooperative Federal State system of aid provided for in the Act.

DO YOU KNOW?

Children cry more when the temperature is low. Dr. Catherine W. Brackett, of the Child Development Institute, New York, reports—*Bulletin Public Relations Bureau, New York State Medical Society*

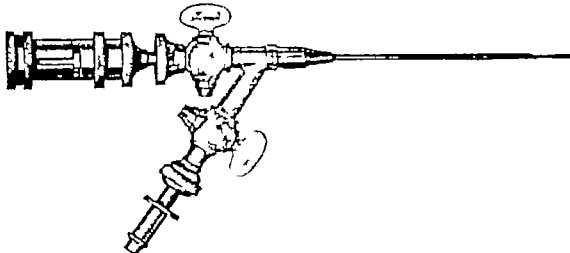
A NEW INSTRUMENT—AN ANTI ADHESION
PNEUMOTHORAX NEEDLE

BY CLEVELAND FLOYD, M.D.*

THE production of artificial pneumothorax is not uncommonly attended with great difficulty on account of the presence of pleural adhesions. These are encountered in many cases because of the fact that pulmonary tuberculosis develops from an initial lesion at the periph-

The calibre is that of the pneumothorax needles now in use.

Its advantages are, that the blunt stylet can be carried about three eighths of an inch beyond the end of the needle after it has entered the chest cavity and thus allows for separation of the visceral and parietal surfaces of the pleura.



ery of the lung. Where the pleura is directly involved and an effusion follows many pleural strands appear and often an adhesive pleuritis occurs with partial obliteration of the pleural space. Many cases of phthisis, that could be benefited by artificial pneumothorax are abandoned after futile efforts to find a free space. The anti adhesion pneumothorax needle is designed to meet this need.

Floyd, Cleveland—Physician-in-Chief, Division of Tuberculosis, Boston Health Department. For record and address of author see "This Week's Issue," page 796.

The double lock for the stylet at its base permits its being held securely in this position. With the stylet in place the calibre of the needle barrel allows the passage of air through the needle and into the chest cavity.

The separation of the pleural surfaces not only brings about a high percentage of successful cases, but the opportunity of forcing air into the lung and producing an air embolus is greatly diminished and thus the safety of the procedure is measurably increased.

THE ELLA SACHS PLOTZ FOUNDATION
FOR THE ADVANCEMENT OF SCIENCE

During the twelfth year of the above designated Foundation seventy applicants for grants were received. Thirty-four of this number came from the United States. Of the twenty-five grants made during this year thirteen were to scientific men in the United States. In the twelve years of the existence of this foundation it has distributed two hundred and fifty-two grants.

Of the number who have been aided in research work this year Dr. William Dameshek of Boston received recognition for his work on blood pigment metabolism in lead poisoning. Dr. Charles Lund of Boston for studies on the hormone intermedin and Dr. Yellapragada Subbarow of the Harvard University Medical School for his work on the isolation of materials.

The Thorndike Memorial Laboratory, Boston City Hospital, of which Professor George R. Minot is the Director, has had a continuing grant since 1921. Recognition of Dr. Francis W. Peabody's service to the Foundation.

Applications for grants for the year 1936-1937 must be in the hands of the Executive Committee before May 1, 1936. They should be sent to Dr. Joseph C. Aub, Huntington Memorial Hospital, 695 Huntington Avenue, Boston.

PHYSICAL EXAMINATIONS FOR CITY
EMPLOYEES

The Municipal Civil Service Commission of New York City is considering the advisability of providing annual physical examinations for the 80,000 city employees.

The purpose of the plan is to raise the efficiency of the large number of people employed many of whom are neglectful of health or disinclined to spend the required amount incident to a doctor's fees. Together with the yearly examination the advisability of including free treatment is under consideration.

The arguments in favor of this plan are based on the experience of industrial organization where it has been shown that care of the health of the workers has so improved the efficiency of the service that money has been saved. Other large cities may be interested in observing this experiment.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22161

PRESENTATION OF CASE

A fifty-five year old white single woman was admitted complaining of jaundice.

The patient had been perfectly well until three years before entry. At this time she had two attacks of very severe sharp right upper quadrant pain which radiated through to the back and was associated with nausea, vomiting, and very slight jaundice. The duration of each attack was about ten days and both attacks subsided following the local application of ice. She continued well until one year prior to admission when she noted gradual loss of weight. Six months later she had three or four attacks of slight jaundice associated with chills, fever, vertigo, and mild pain in the epigastrium and right upper quadrant. Six weeks ago jaundice appeared and within a week it had become quite intense. A week later unbearable itching developed. She consulted her local physician who prescribed medication and a dietary régime under which her weight dropped quite rapidly. With this attack of jaundice there was no nausea or vomiting but the patient had considerable gaseous eructation and slight epigastric discomfort. The stools became clay-colored, and she developed constipation. The urine became darker in color. Increasing readiness of fatigue was attributed by the patient to dietary restriction. Her total loss in weight during the preceding year was 30 pounds. Generally she did not feel too badly.

The patient had had typhoid fever thirty-eight years before entry. The menopause occurred three years ago.

Physical examination showed a middle-aged woman who was quite deeply jaundiced, rather poorly nourished, in no great discomfort. The sclerae and conjunctivae were markedly icteric and the head and neck were otherwise negative. The heart sounds were of good quality. There was a soft systolic murmur at the apex. The blood pressure was 128/70. The lungs were clear. The abdomen exhibited normal respiratory excursions. There was no tenderness or rigidity. There were no masses palpable. The liver, spleen, and kidneys were not palpable.

Rectal and pelvic examinations were negative. The extremities were negative.

The temperature, pulse and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 3,830,000, with a hemoglobin of 75 per cent. The white blood cell count was 7,200. The nonprotein nitrogen of the blood was 25 milligrams per cent. A Kahn test was negative. The icteric index was 100. The serum bilirubin was 4.9 milligrams per cent. The stools were definitely clay-colored and tests for occult blood were negative.

A flat plate of the gallbladder region revealed no stones. A gastrointestinal series showed a smooth notch on the greater curvature of the antrum which was probably due to adhesions. There was a large pressure defect on the lesser curvature which was thought to be probably due to gallbladder pressure. The remainder of the duodenum was normal.

In view of the persistent jaundice, operation was decided upon. The patient withstood the operation fairly well, but postoperatively her appetite and strength did not return so quickly as would be expected and she seemed to be slowly getting weaker in spite of the fact that her jaundice was clearing somewhat. After the second week she lost ground noticeably and died about the third week after operation.

DIFFERENTIAL DIAGNOSIS

DR. TRACY B. MALLORY: My role in the presentation of this case is somewhat of a novelty and requires a word of explanation. It was selected from the records of the City Hospital so that I could not possibly know the postmortem findings and I have contracted to attempt the clinical side instead of the pathologic. I am not doing this with any idea of setting an example of how it should be done but just to show that I am not afraid to "take the rap."

We have here a woman of fifty-five with an apparently obvious history of biliary colic on two occasions followed by a period of good health and then the onset of a final illness which lasted about a year. It suggested in the story, and if it is correct I think it is very important, that she began to lose weight nearly six months before the jaundice appeared in this final illness. The jaundice this time is evidently different from that of the two previous occasions. This time she had no pain and instead of being a mild transient jaundice it is a rapidly developing progressive affair. The stools were clay-colored and the urine was dark, apparently. The stools I should assume were uniformly clay-colored, that is, she was getting no bile through at all. So that we have a strong presumption that the jaundice is obstructive.

The physical examination hardly helps us at all. It confirms the jaundice, and the surprising thing is that nothing could be felt in the abdomen, not even the liver, spleen or kidneys.

The laboratory examinations tell us that she had an anemia, apparently of the secondary type, that she did not have any leukopenia, and they confirm the jaundice and the lack of bile pigment in the stools. It seems to me that essentially we have the differential diagnosis of painless jaundice.

Can this be cirrhosis? The fact that all bile pigment is absent from the stools seems to me rather strongly against that diagnosis. We have nothing in the way of positive evidence to point to cirrhosis. They did not feel the liver as they would have if it had been hypertrophic biliary cirrhosis. They could not feel the spleen as they reasonably might have if it had been atrophic cirrhosis with portal obstruction. She did not have leukopenia, which again I would expect with atrophic cirrhosis. The anemia moreover, was not noticed to show a high color index or to be macrocytic. It seems to me we have nothing in favor of cirrhosis as the primary disease.

Now can we explain the picture with a stone? We have every reason to suppose she had a gallbladder that contained stones. One might have slipped down into the common duct. So far as the jaundice and the absence of bile in the stools are concerned there is no inconsistency. It is perfectly possible that she might not have pain with it, although unlikely. If she had a stone completely obstructing the common duct I would rather expect a big liver that the bile would have been dammed up behind the stone and would have led to so-called hydrohepatosis, dilatation of the bile ducts and secondary swelling of the liver. That does not have to occur however. I have the impression that when obstruction in the biliary tract develops rapidly enough you sometimes do not get distention of the liver just as with ligation of the ureters you do not get hydronephrosis but the absence of liver enlargement nevertheless seems to me a point slightly against stone. I do not see how you can rule out stone with any certainty in this case and for that reason I think the surgeon would be not only justified in operating on the patient but obligated to do so. On the other hand I think he would stand a very slim chance of finding a stone in the common duct.

One other common lesion to consider would be malignancy and it seems to me that is strongly suggested by the history of thirty pounds loss in weight which I think we can trust the history, started before the jaundice appeared. If it is malignancy we have to try to decide where it is located. I do not believe it is primary cancer in the liver because hepatoma occurs in this country only in patients with cirrhosis and,

since I have already pointed out that we have no evidence of cirrhosis, I certainly cannot make that diagnosis. It might be a primary cancer of the intrahepatic bile ducts. It would have to be pretty strategically placed right at the hilum, to catch both the hepatic ducts and cause complete obstruction without being big enough to enlarge the liver. When we consider the last paragraph we find that the surgeon did something which was followed by a temporary relief in the jaundice and with cancer that far up it would have been practically impossible to do anything that could have relieved it. It might be lower down in the bile ducts, in the common duct, or actually at the papilla. I do not think there is any way of ruling out that possibility. It could of course, be in the head of the pancreas and the laws of probability would be all in our favor if we made such a diagnosis. I rather judge though that considering that she is at the present time described as poorly nourished they might have felt an epigastric tumor if it was cancer of the head of the pancreas. But if it is in the right place it does not have to be very large, so we cannot rule that out.

So far everything has run apparently smoothly enough until we come to the x ray examination of the stomach and there my troubles begin. They describe what seem to be two different lesions. One is in the greater curvature and is described as a notch. A notch might mean that it was something like a crater but they did not quite dare say it was a crater. It may mean only a localized irregularity. Would that be your interpretation, Dr. Holmes?

DR. GEORGE W. HOLMES: Yes.

DR. TRACY B. MALLOY: On the other side of the stomach, the lesser curvature there is a large deformity which they interpret as pressure from a mass outside the stomach. An interpretation of that sort could perfectly well be at fault, and it seems to me that one must consider the possibility that we are dealing here with a primary cancer of the stomach but there seems to be very little to go with it. The gastrointestinal symptoms are very slight, the stools show no occult blood, and there was no vomiting in the last illness which one would expect with a cancer as low down in the stomach as the antrum. I am more inclined to accept the x ray man's interpretation and say that was pressure from outside.

First, we have presumably, a rather large tumor mass pressing on the lesser curvature of the stomach and then we have something else deforming the greater curvature. I find it pretty hard to conceive of any single mass that could do both these things. It sounds to me more like two masses, and I would be tempted to believe that there is a mass in or on the under surface of the liver which is causing this deformity of the lesser curvature and that there

is something else perhaps in the region of the pancreas which is involving the greater curvature. These two masses might well be a cancer and its metastases. So again we come to the question of where the cancer is primary. It seems to me it is pure guesswork but I would like to place a first bet on its being primary in the gallbladder with metastases to the nodes at the head of the pancreas, the favorite place to which these cancers metastasize. Cancers of the gallbladder very often invade the liver directly without causing very much enlargement, which would also fit our story. We have to go back at this point, however, and consider the fact that the surgeon operated and did something which temporarily relieved the jaundice. If the gallbladder had been filled with cancer it hardly seems possible that by draining the gallbladder either externally or into the stomach that he could have relieved the jaundice. It is conceivable however that the viscus which was drained was not the gallbladder but was a dilated common duct which could have been anastomosed to the stomach or to the duodenum. In this case we must assume that it was not the primary cancer but its metastases which produced the obstruction.

I have tried to rule out cirrhosis as the primary disease and feel pretty confident about that. Whether there is any secondary liver pathology ought, I think, to be considered at least. There are a certain number of cases of obstructive jaundice associated with stones or malignancy in which one sees the development of an atrophy, a severe toxic necrosis of the liver. It is not inconceivable that she may have had a stone and that operation failed to cure her because she developed a secondary liver insufficiency. That, however, seems unlikely to me because cases of that sort in our experience here have almost always died very promptly after operation. Whether the necrosis in such cases is present before operation is hard to determine, but these cases die within two or three days as a rule rather than slowly petering out two or three weeks later. Another and more likely possibility is a mild biliary cirrhosis of the obstructive type, almost universal in cases of obstructive jaundice. I am prepared to pin all my faith on cancer somewhere in the biliary tract and my first bet in location is the gallbladder.

I would be very glad to hear some opinions from the clinicians.

DR CHESTER M JONES I agree with you that they are not going to find gallstones and cirrhosis. I think there is one other condition which is pretty rare, an obstructive type of inflammatory process involving the duct, and tissues around the duct too, which may result in jaundice. I do not know how it could be diagnosed except by exploration. We have had one or two cases here. It would be very hard to

see how any surgical treatment except possibly dilatation of the duct could give any relief. Dr Vincent, have you any suggestions?

DR BETH VINCENT None, except that obliterative cholangitis, which Dr Jones says occurs, would not account for the defect in the stomach.

DR JONES It reads very curiously here at the end of the x-ray report. It says "the remainder of the duodenum was normal." I wonder if the terminology was mixed up. Were they talking about the lower end of the duodenum? Having described nothing, they say the remainder is normal.

DR TRACY B MALLORY I could not tell from the report just what that meant and was forced to disregard it.

A PHYSICIAN Just assuming the surgeons did help, it is the only thing to bet on. I should say the obstruction is low in the common duct.

DR WILLIAM D SMITH As far as it goes, my first guess is that it is primary in the gallbladder.

DR TRACY B MALLORY Someone to fall with me. I guess we are ready for the axe to fall.

CLINICAL DIAGNOSIS

Carcinoma of the head of the pancreas?

DR TRACY B MALLORY'S DIAGNOSES

Carcinoma of the biliary tract, probably primary in the gallbladder.
Cholelithiasis

ANATOMIC DIAGNOSES

Papilloma of the papilla of Vater.
Biliary sinus (post-operative) communicating with the common bile duct.
Chronic cholecystitis with cholelithiasis and impacted stones in the cystic duct.
Obstructive cirrhosis.
Icterus.
Pulmonary emphysema.

PATHOLOGIC DISCUSSION

DR KENNETH MALLORY* There seem to be only two difficulties with your pathologist's clinical diagnoses. The first was the location of the tumor in this case. On inspecting the duodenum we found that the papilla of Vater was enlarged to about one centimeter in diameter. On opening it up we found a papillary mass arising in the ampulla, covering half the surface, and obstructing the ampulla pretty completely, although we could get a probe through it. We thought grossly it would turn out to be carcinoma, instead of which it proved to be a rapidly growing papilloma with no infiltration at the base at all. In addition there was dilatation of the bile ducts above the obstruction measuring one centimeter in diameter.

*Assistant Pathologist Boston City Hospital

There was a hydrops of the gallbladder. It was filled with mucoid material, stones and stones impacted in the cystic duct. Secondary to this there was a microscopic grade of biliary obstructive cirrhosis. We found proliferation of the bile ducts and slight increase in the surrounding fibrous tissue. Also there were obstruction and dilatation of the pancreatic ducts and some proliferation of the finer branches of the pancreatic duct. That is about all.

I think the x ray findings are rather misleading, because they lead one away from the diagnosis rather than help. I would have brought down the films but I was unable to find them.

A PHYSICIAN: What did the surgeon do? Cholecholestomy?

DR. KENNETH MALLORY: That would be my interpretation of the postmortem findings. At autopsy we found a sinus tract which barely admitted a probe that led down into the common bile duct just above the ampulla.

I think this papilloma of the ampulla of Vater is rather rare. We have had carcinomas of course. Dr. Castleman showed me on case from your records here at the Massachusetts General which is also papilloma rather than cancer of the ampulla.

CASE 22162

PRESENTATION OF CASE

A twenty seven year old American laborer was admitted complaining of shortness of breath.

Five months before entry the patient who had been perfectly well previously, suddenly coughed up a clot of blood about the size of a half dollar. A physician examined him and found nothing of significance. A specimen of sputum was examined and found to be negative. A week later following strenuous exertion he coughed up small quantities of bright red blood for about one hour. Another examination showed nothing, but an x ray done at this time was said to be negative for tuberculosis although some other process in the chest was noted. Subsequently the patient developed a persistent cough, usually brought on by exertion, which was productive of a small amount of blood tinged sputum. At scattered intervals he complained of dull pain in the left chest. Gradually dyspnea with exertion developed and occasionally he had wheezing respirations. Three months before entry he suffered a chill and a sharp pain in the left chest which was aggravated by respiratory movements. A physician made a diagnosis of pneumonia and he remained in a hospital for two weeks. During his acute illness he coughed up quantities of yellowish sputum, which was occasionally streaked with blood. He developed frequent night sweats which persisted up to his

admission. Following his recovery from the "pneumonia", dyspnea with moderate exertion became quite marked and he began to prop himself with pillows at night in order to sleep more comfortably. The cough continued and became dry and brassy in character.

Physical examination showed a well developed and nourished young man sitting propped up in bed with slight respiratory difficulty. The lips and fingernails were cyanotic. There was no generalized adenopathy but the epitrochlear nodes were palpable. The heart appeared to be displaced to the right and the apex impulse was in the fourth interspace, 6.5 centimeters from the midsternal line. The right border of cardiac dullness was 4.5 centimeters from the midsternal line. The heart sounds were normal. The examiner thought that the trachea was slightly deviated to the left. Chest expansion was limited on the left side. The left chest was dull to percussion anteriorly and posteriorly, and flat posteriorly beneath the angle of the scapula. Grocco's triangle was elicited although the side was not noted. Breath sounds and tactile fremitus were diminished to absent from above downward in the left chest. A few musical râles were audible bilaterally, more on the left side.

The temperature was 99°, the pulse 80. The respirations were 20.

Examination of the urine was negative. The blood showed a red cell count of 5,300,000, with a hemoglobin of 80 per cent. The white cell count was 17,100. 78 per cent polymorphonuclears. Several sputum examinations were negative for tubercle bacilli. A Hinton test was negative.

X ray examination showed the right side of the diaphragm and the right lung to be negative. The posterior two-thirds of the left leaf of the diaphragm was obscured. It was said to be definitely elevated at fluoroscopy. There was a triangular area of density with the shape of the lower lobe but about one third as large occupying the posterior and inferior portions of the left chest. Just above this triangle at the level of the lung root and slightly posterior to it was a rounded mass, 3 centimeters in diameter. This shadow contained no air. The heart and mediastinum were displaced toward the left. Several films taken at intervals previously during the patient's illness showed very little change in the size of the mass since the initial film but there was a progressive collapse of the left lower lobe and at one time the entire left lung was collapsed. Later films taken at expiration and inspiration showed ball valve occlusion of the upper lobe bronchus.

On the sixth day the patient had a chill and his temperature rose to 102°. The throat was found to be inflamed. This subsided promptly and two days later a bronchoscopy was done. This showed a firm whitish, roughly pyramidal

tumor mass about one inch below the carina in the left main bronchus. On the following day the patient had a temperature of 101.6° and coughed a great deal. Increased dullness was elicited in the left upper chest and bronchial breathing was audible in the upper chest posteriorly. No râles were present. The temperature rose to 103.2° on the following day but subsequently returned to normal and the patient remained comparatively comfortable. Following three administrations of pneumothorax, on the twenty-third hospital day a left thoracotomy was performed.

DIFFERENTIAL DIAGNOSIS

DR FREDERICK T LORD The history of hemoptysis out of a clear sky is especially suggestive of pulmonary tuberculosis or of tumor. With the continuing decline in the number of cases of tuberculosis, tumor becomes relatively more common as a cause. Other possible causes of hemoptysis out of a clear sky are syphilitic ulceration of the trachea and bronchi, bronchiectasis and the rupture of tuberculous glands into the air passages. Echinococcus disease and *Distoma ringens* would have to be considered as exotic causes. The wheezing suggests bronchial obstruction and it would be desirable to know its relation to posture and to cough and expectoration.

Assuming the presence of bronchial obstruction, the acute illness three months ago with chill, pain, cough and blood-streaked sputum may be ascribed to pneumonia arising in consequence of the trapping of infection behind an obstruction.

The brassy cough is difficult of explanation. It suggests the possibility of tracheal obstruction.

A biopsy on an enlarged gland may establish the diagnosis, but epitrochlear glands do not seem a likely site of metastasis.

The apparent displacement of the heart to the right is confusing and it would be desirable to know the site of maximum intensity of the heart sounds. It is unusual to have the heart displaced to the right and the trachea to the left.

Grocco's triangle of paravertebral dullness on the unaffected side is seldom of diagnostic value and least helpful in the presence of small pleural effusions where we most need assistance.

The signs in the left chest, dullness to flatness and diminished to absent breath sounds and tactile fremitus, though consistent with a small pleural effusion, are suggestive under all circumstances of a closed bronchus and consequent atelectasis.

DR TRACY B MALLORY We have no x-ray man here but I will ask Dr Churchill to show the films.

DR EDWARD D CHURCHILL The first x-ray

was taken September 3, 1935. Knowing what this abnormal area at the left hilum is, it is not fair to give the interpretation. This is a film of ours taken in February at the time of his admission. This is an expiration film taken the same day. There is quite a difference between the two films on full inspiration and full expiration.

DR LORD On comparison of the film at the end of full inspiration with that at the end of full expiration, it is evident that air enters the right side more readily than the left. On the left side in the region of the left border of the heart is a shadow with an unusually straight and sharply limited margin. This extends upward to the region of the left lung root. In the film during inspiration with the heart displaced to the right, the sharply limited shadow persists and suggests the presence of a collapsed left lower lobe.

DR CHURCHILL The swing in the mediastinum is rather interesting and may account somewhat for the confusing physical signs.

This is an x-ray taken after artificial pneumothorax.

DR LORD There is a small pneumothorax in the lower and a larger amount of air in the upper part of the left side, with an intervening area of lung extending to the chest wall. The appearance suggests an above and below a portion of the lung adherent to the chest wall.

DR CHURCHILL The x-ray interpretation suggested that in addition to the collapse of the lower lobe there was a trapping of air in the upper lobe. The upper lobe did not deflate with expiration as much as it should have.

DR LORD There is some asymmetry in the films. The trachea is about in the middle line and it is difficult to say whether it is displaced.

DR CHURCHILL Dr Hampton's interpretation was an obstructing lesion presumably represented by this opaque area at the left hilum which has not changed in size since September, and which he thought now had caused complete obstruction of the lower lobe bronchus with collapse of the lower lobe and probable partial ball valve obstruction of the upper lobe without collapse.

DR LORD Ball valve action seems more common with foreign body than with tumor, but at some time in the course of gradual encroachment on the bronchial lumen by an expanding tumor, inspiratory widening and expiratory narrowing of the passage may be expected to lead to the more ready entrance than exit of air and consequent pulmonary inflation.

It would be desirable, if possible, to know from the x-ray examination of any broadening of the carina. I cannot make out the bifurcation of the trachea on these films and it would be difficult to tell without the use of lipiodol. It would be desirable to have x-rays

of such other regions as the skull, spine and long bones. Was that done?

Dr. CHURCHILL No

Dr. LORD The presence of metastases would materially change the problem. Also, by bronchoscopy it would be desirable to determine the mobility of the trachea and bronchi.

In explanation of the bronchial breathing in the upper left chest behind, it may be due to a pneumonic process or to the persistence of atelectasis after the release of bronchial obstruction.

The statement that a tumor in the left primary bronchus has been established by bronchoscopy narrows the discussion. In addition there is atelectasis of the left lower lobe. There is likely also to be some bronchopneumonia of the left lower lobe, and there may also be bronchiectasis and abscess formation in the same region. By x ray he had obstructive emphysema of the left upper lobe.

It is of importance to remember with respect to the site of the tumor that, although it presents itself by bronchoscopy one inch below the bifurcation of the trachea, the origin of the tumor may arise from more remote bronchi and project upward into the lumen of the primary bronchus without attachment to the bronchial wall. There may thus be more space between the carina and the site of origin of the tumor than appears from the bronchoscopic description.

With respect to the nature of the tumor inflammatory narrowing is the most common cause of bronchial obstruction. Granulation tissue may, however, be dismissed as unlikely here. The chances are in favor of carcinoma. It may, however, be benign adenoma, a fibroma or polyp but I make the diagnosis of a malignant tumor of bronchial origin and that implies carcinoma. The next question is naturally with respect to metastases and x rays of other parts of the body would help. Metastases into the brain occur in about a quarter of such cases and into the adrenal in about a third, and may be scattered elsewhere. Months or even years may elapse without metastases and there is evidence from the investigation of Tuttle and Womack (*J Thoracic Surg*, Dec 1934) that malignant tumors of the major bronchi extend more slowly and are thus more amenable to surgery than those arising in the minor bronchi.

It is perhaps premature to discuss treatment, but I am tempted to do so in view of the statement that a thoracotomy was performed. As it is spoken of as thoracotomy without qualification, it was very likely an exploratory operation and by this means metastases may have been seen or felt in the pleural space and their presence or absence probably determined the question of further surgical procedure.

There is nothing but surgery which offers any considerable promise of success. X ray

treatment is not successful with deep-seated cancer, but may give temporary relief with lymphoblastoma. There are rare instances as in the case reported by Jackson and one by Arbuckle, in which bronchoscopic removal has been successful. Implantation of radium may be used in cases not amenable to surgery, but there is little to recommend the method and there is danger of a reaction from the radium beyond the region to which it is applied. Thus with malignancy surgery is the only promising expedient. Naturally in so difficult a problem as bronchial malignancy the operative mortality is high but otherwise there is only the prospect of a fatality.

Dr. CHURCHILL The surgeon's hand was strengthened in this case by bronchoscopy, which gave a positive diagnosis of very rapidly growing carcinoma, thus, despite the fact that it is of five months' duration in a healthy appearing young man of twenty seven. The one disturbing feature about the case surgically was the observation by bronchoscopy that the growth extended one inch from the carina in the main stem bronchus. Dr. Lord has spoken of a tendency for cancers of the lung to grow from a tumor into a bronchus without invading the mucosa of the bronchial wall. It seemed quite possible that we were facing that situation. If there had been definite evidence of invasion of the bronchial wall within an inch from the carina, operation would not have been advised. A lantern slide will demonstrate an autopsy specimen from a patient that gave us this concept. This patient came to autopsy several months after pneumonectomy, having died of a local recurrence at the site of amputation of the bronchus and you see the thumb of tissue extending up the left main bronchus, passing the carina and extending into the trachea but showing no attachment to the bronchial mucosa until we come down to the main body of the tumor. So in approaching the operation on the patient we are now discussing, our problem was to anticipate just such a situation. Consequently, instead of putting a clamp or ligature around the left primary bronchus it was carefully divided with the knife and the "thumb" of tumor extracted from the bronchus.

This slide shows the lung when resected with the plug of tumor projecting from the left main bronchus. This is a closer view. This sloughing ulcerating tumor had been described by the bronchoscopist as pyramidal in shape. This is the dissection of the lung and you can see the pus pouring out of the lower lobe as the plug of tumor was lifted upward relieving the obstruction.

The man died of infection. Due to manipulation of the infected lung and the ulcerating, necrotic tumor in the bronchus his pleural cavity became infected. On the third day it was drained as an empyema. In the presence of in

fection the bronchial suture gave way so that an open communication between the free pleural cavity and the bronchus developed. A friction rub appeared over the precordium and he died on about the seventh or eighth day of fulminating sepsis, empyema, and mediastinitis. Physiologically he withstood the removal of the left lung. Infection, however, decided the issue.

CLINICAL DIAGNOSES

Carcinoma of the lung
Empyema

DR. FREDERICK T. LORD'S DIAGNOSES

Bronchiogenic carcinoma
Obstruction atelectasis
Obstruction emphysema
Bronchopneumonia?
Bronchiectasis?
Abscesses?

ANATOMIC DIAGNOSES

Carcinoma of the lung
Operative wound left pneumonectomy
Empyema, left
Pericarditis, acute serofibrinous
Bronchopneumonia, confluent, right lower and middle lobes
Pulmonary edema, right
Pleuritis, chronic fibrous, right apical, acute fibrous, left

PATHOLOGIC DISCUSSION

DR. MALLORY: I will pass around the specimen of resected lung. It shows very prettily a tumor mass, which is of considerable size, out in the parenchyma of the lung and the plug of tumor growing up the bronchus. The tumor apparently actually arose in a small bronchus near the apex of the lower lobe. It grew up the bronchus of the lower lobe and then up the primary bronchus passing across and partially obstructing in a ball valve fashion, as the clinical evidence shows, the bronchus to the upper lobe. So that it fulfills very completely the predictions of the x-ray department on that score. We have made sections of all of the hilar glands and they were completely free from tumor. We also made a number of sections of the wall of the primary bronchus and were unable to find invasion up to the point of section. There was one point where there appeared to be a slight

attachment of the tumor "thumb" to one of the smaller carinas and it had begun to pick up a new nourishment from that point but in the major bronchus it was entirely free.

A PHYSICIAN: What cell-type is it?

DR. MALLORY: That is not easy to say. It is an unusually undifferentiated tumor composed of very small, very uniform, rather round cells. They seem to be without question epithelial. I do not believe we are dealing with a lymphoma for a moment but it is not a typical epidermoid and it is not like the so-called oat cell tumor. The bronchus at one spot did show squamous cell metaplasia—a lesion which is possibly precancerous. In any case it is very surprising that with such a rapidly growing tumor the regional lymph nodes were free and we found no metastases elsewhere in the body.

The autopsy added comparatively little information. There was of course empyema and rather diffuse bronchopneumonia in the lung on the opposite side. There was some infection of the mediastinum and a septic pericarditis. Those are all the usual complications that would be feared in a case of this sort. We found no evidence of metastases although we had no permission to do the head. It is possible there may have been cerebral metastases.

DR. CHURCHILL: About the bronchoscopic biopsies, I have removed either one or more lobes or the entire lung in sixteen cases of tumor. In only nine of that number were there positive bronchoscopic biopsies. The impression given in a number of articles now is that bronchoscopy is the certain way to diagnose carcinoma of the lung. It is a certain way, but if you wait for positive bronchoscopic biopsies, you are going to miss a great many cancers of the lung at a time when it may be possible to do something for them surgically.

Of the sixteen cases five are living and apparently well, two patients received real palliative relief although they died subsequently of their disease, and seven died in the hospital subsequent to the operation. One patient died of widespread metastases, having experienced no real palliative relief and one patient with a benign tumor has been greatly relieved but will require additional surgery. In nine of this series of patients a total pneumonectomy has been performed. Four of these survived the operation and were discharged from the hospital, five died in the hospital.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS: \$4.00 per year in advance postage paid
for the United States, Canada \$7.00 per year \$8.50 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office & Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine & Fenway Boston Mass.

THE CAUSE OF CORONARY DISEASE

THE long arm of coincidence is responsible for much medical folly—scientific as well as empiric. An alleged increase in the frequency of appendicitis has been ascribed to various causes, from the steel milling of wheat flour to the swallowing of raspberry pips. Many are the vagaries with which the unknown may be illuminated by an imaginative soul yet where in the evolution of intellect is a single concept or achievement devoid of imagination? Imagination is the fire of thought, it warms an otherwise wise barren outlook, it illuminates otherwise invisible possibilities. But imagination, like fire cannot be safely allowed out of control, when it destroys facts it must be stamped out, when it threatens reason it must be all but extinguished. Coincidence is the first check to apply to any imaginative conception it is the primitive correlation.

No subject is of more present speculative interest among medical doctors than that of coronary disease. All but the youngest of us have had our friends and contemporaries struck down

by it. All but the oldest of us are willing to follow any rational program of prevention—or to advise a rational program for others if it seems too arduous for personal practice. There is no lack of coincidences to lead us on, but life is too sweet to follow them all, and they are apt to contradict one another too.

It is perhaps only a coincidence that three Boston doctors have suggested within the past year that we might profitably steer in one general direction. Their observations have not been correlated studies but it would seem that they have unintentionally converged on the same general point from three different angles.

Dr Timothy Leary has rather conclusively established coronary sclerosis as part of a more generalized metabolic disease akin to diabetes, and associated with cholesterol deposits in the subendothelial layers of the arteries.¹ He has, moreover, produced this type of "atherosclerosis" in rabbits by cholesterol feeding. He suggests that our coronary vessels may be exposed to these changes by two circumstances: 1. The inheritance of a weak cholesterol metabolism. 2. The overdosage with cholesterol containing food in the dietary.

Dr Cadis Phipps has more recently published an analysis of contributory causes of coronary thrombosis.² He also mentions the possible influence of overeating not from the point of view of cholesterol dosage but as a general precipitating cause. In addition Phipps doubts that physical stress is a great factor, indeed he suggests a better future for the manual laborer with heart disease than for the white collar worker.

In this issue of the *Journal* (page 769) Dr Francis P. Denny presents a statistical review of the death certificates for heart disease in Brookline, Massachusetts, since 1900. One sees therein an evolution of medical thought from the days when every murmur meant endocarditis, through the increasing recognition of "arteriosclerotic" and "hypertensive" heart disease to the present popularity of "coronary disease." Back of it all however, is the unequivocal increase in death from coronary disease. Denny's foremost speculation is that in sufficient or irregular muscular activity is the cause of this increase.

One might almost suspect that these three men had frequently lunched together in order to correlate their views before expressing them. Their views—based upon separate primitive coincidences—themselves coincide to give us a fairly direct hygiene for the prevention of coronary disease. The initial step in instituting this, as in all preventive hygiene is the choice of good heredity. Within the limits thus imposed we may further advise and practice dietary discretion, both qualitatively and quantitatively, as well as regularity of physical exercise. This latter should adjust itself to the

oxidation of the foodstuff eaten—particularly the fatty foodstuff eaten. Such hygiene might grow in wisdom with the years, and if it worked—ah, if it worked—what a relief it would be to hear less often that heart disease is the leading cause of death!

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THE PROBLEM OF SILICOSIS

NEWSPAPER reports of the development of silicosis in large numbers of rock drillers in a West Virginia tunnel have recently called attention to the extent of this hazard in certain occupations which involve exposure to silica dust. In New York City it is estimated that at least 4,000 people, notably men engaged in the excavation of foundations and subway tunnels, are exposed to silica and other dust hazards, and the city Health Department is now studying means to reduce this exposure. Last winter the New York Legislature passed a workmen's compensation act, including silicosis among compensable occupational diseases.

Lanza and Vane have estimated that in the United States alone not less than 500,000 workers are, through their occupations, subject to a harmful exposure to silica dust. Metal mining, quarrying, stone-cutting and the foundry industry are the greatest sources of exposure, but potteries, glass works and such special processes as sand blasting, grinding, polishing and hard-rock drilling in coal mines contribute very materially to the production of silicosis. The losses from silicosis in terms of sickness and death are even more difficult to estimate, but it can be said with little fear of contradiction that silicosis now constitutes the greatest single occupational hazard in this country.

The causal relationship of constant exposure to rock dust to such conditions as "miner's phthisis" and "stonecutter's consumption" has been recognized for centuries but only recently has the distinction between silicosis and tuberculosis been generally accepted or the coincidence of the two diseases understood. Chiefly as a result of the investigations of members of the South African Institute for Medical Research and of Gardner at Saranac Lake the theory of mechanical injury from the inhalation of stone dust has been replaced by evidence of chemical action. Briefly, the minute silica particles retained in the air passages are ingested by wandering cells which in turn carry them to adjacent lymph nodes. In the body fluids, however, the silica is slightly soluble and toxic to the phagocytic cells. Many of the dust-laden cells are killed in this way and their load is

picked up by other cells. The silica also stimulates the fibroblasts with which it comes in contact, resulting in a scarring, first of the lymph nodes and perivascular structures, and finally in overgrowth and replacement of the respiratory epithelium.

Under working conditions the development of silicosis is dependent upon a number of variables, which can be measured only by highly technical procedures. Among the most important of these factors are percentage of free silica in the dust inhaled, number of particles per unit of air, size of particles inhaled, duration of exposure to silica dust, and susceptibility of the individual exposed. Experience has shown that massive exposure to dust high in silica, as in the manufacture of abrasive cleaning compounds, may produce disabling silicosis in a year or even less, while thirty-five years in a granite shed leaves a few cutters without even x-ray signs of pulmonary disease. Yet in most industries it is possible to estimate the hazard of silicosis with a degree of accuracy unusual in medical problems.

Uncomplicated silicosis is the most insidious of diseases. A slight dyspnea after perhaps fifteen or twenty years of exposure to dust is likely to be the first warning to the worker. Even then the condition tends to be slowly progressive and may not be disabling during the span of working life. The fibrosis, however, is an irreversible reaction and a process once established may progress to a fatal termination as long as fifteen or twenty years after exposure to silica has ceased. The real hazard from silicosis is the tuberculous infection which so frequently accompanies it and which is a menace to both the worker and his associates. Various studies indicate that from 25 to 50 per cent of silicotics also have tuberculosis and it is estimated that 75 per cent of all patients with silicosis die of tuberculosis.

That silicosis is not an abstract problem in Massachusetts was forcibly brought home to us two years ago by the report of the Special Industrial Disease Commission appointed by the General Court. X-ray and physical examination of representative groups of granite and foundry workers disclosed silicosis in 15 per cent and silicosis complicated by tuberculosis in 76 per cent of the former, compared with 88 per cent and 26 per cent respectively in the latter, and this represents the incidence among men actually at work. A study of mortality among granite cutters in two cities for a twelve year period showed a tuberculosis death rate ten times that among all males of twenty years and over in the same cities.

Although Massachusetts was one of the first states to declare silicosis a compensable disease, a worker discharged on account of a diagnosis of silicosis still has to prove physical disability

ity to entitle him to compensation, and his success is likely to depend on the medical and legal counsel he is able to employ. Compensation insurance rates for granite workers have risen to a level that has caused most Massachusetts employers to withdraw from their employees the protection of the Workmen's Compensation Act, which is not compulsory in this state. The unfortunate situation thus created applies to granite workers either disabled as a result of previous dust exposure or injured through industrial accident. The carefully worked out plan of the Industrial Disease Commission which aimed to reduce dustiness to safe levels, provide compulsory insurance coverage for hazardous occupations, with compensation for disabled and tuberculous workers and to detect pulmonary disease by periodic physical examinations at the hands of impartial examiners, was agreed upon in principle by employers, employees and insurance companies, yet no group was willing to make the concession necessary to put it into effect. Until labor and industry can make common cause against a mutual loss, medical science can do little toward the prevention of this greatest occupational disease.

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CLEANLINESS NEXT TO GODLINESS

CLEANLINESS among school children, and the need for health instruction in cleanliness, is the thesis of Rowell and Tobey, publishing their views on the subject in the *American Journal of Public Health* (25 1237, [November] 1935). Godliness is not mentioned, even by inference. Various inadequacies in facilities for cleanliness now exist to greater or less degree, in the majority of American schools. Thus according to these authors in 1928 it was found from an investigation of 404 schools located in 22 states and the Dominion of Canada that in only 53.2 per cent of the buildings was hot water supplied in 80 per cent was some form of soap furnished and in 84.1 per cent were towels available.

Only 32 per cent of these schools, however could comply with the American Child Health Association's standards of one lavatory to every 80 pupils, equipped with all three of the necessities—hot water, soap of sorts and towels, only 19.3 per cent complied with the requirements of the Massachusetts Institute of Technology specifying one lavatory to every 40 pupils, and only 5.7 per cent conformed to the Wood Rowell

standards of at least one lavatory, equipped with hot water, soap and towels, and conveniently located, to every 20 pupils.

Obviously, the lesson of cleanliness once learned cannot be practiced by the pupil and will not be carried home to a benighted family unless a reasonable opportunity is afforded of pursuing the laboratory course in the subject. The authors, however, go beyond an insistence on the mere motions of ablution. The quality of the soap should be within certain standards of excellence and should be adapted to the chemical nature of the water available in which regard the judgment of the average school janitor, excellent as it might be in other respects, should not be considered as necessarily of expert calibre. Soaps should be selected, then, with a view to their germicidal properties, their action on the skin, and their reaction with the water the general belief being that the purest soaps made from high quality fat and possessed of a relatively low content of free alkali, are the most germicidal.

The incidence of infectious disease has been reduced by many public health measures, still greater reduction, it is hoped, can be attained by the widespread practice of personal cleanliness.

SUCCESS

WHAT is success and who may attain it? Is the surgeon successful? Yes, though his case may have a fatal outcome, for he thoroughly trained in the intricacies of his technique, has given of his best.

And what of the pathologist who labors in dustriously painstaking and unceasingly to discover that elusive germ, the deadly enemy of mankind, that causes some dread disease which one day will be but a bitter memory? Surely he is successful, though many hours of patient effort may seem a total loss. How often when he is most discouraged does he find that the solution has been almost within his grasp! He cannot and will not allow discouragement to turn him from his task, but will rather resolve to persevere that his goal may be attained.

Then too, there is the medical missionary, that remarkable contributor to medical service in Labrador Dr Grenfell for example, who, with few resources and many handicaps, performs by saving the child whose life has been despaired of what seems to the anxious parents little less than a miracle. How often he is also rewarded by the lifelong gratitude of the man whose suffering has been almost intolerable or the woman who has gone through "the valley of the shadow of death."

And, of course, there is the general practitioner. His efforts are never-ceasing and though called upon to do much that demands unlimited

self-sacrifice he seldom receives an adequate recompense. But that does not deter him. He continues through many years of patient effort, and becomes the friend of all who know him.

May we not, then, say with truth that all whose efforts are honest, painstaking and productive of the best they have to offer, are successful? Not only physicians but nurses, technicians, and innumerable others may with propriety be included among those who justly claim success. Is it not the duty of all of us to co-operate in our daily tasks, performing them to the best of our ability and remembering that, though our success may seem very meager indeed, the result of our labors must of necessity help toward the advancement of that great science Medicine, which will continue in its development throughout all time.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

MCGINN, SYLVESTER A.B., M.D. Harvard University Medical School 1929. Assistant in Medicine, Massachusetts General Hospital, and St. Elizabeth's Hospital. Consultant, Sturdy Memorial Hospital. Address 270 Commonwealth Avenue, Boston, Mass. Associated with him is

WHITE, PAUL D. A.B., M.D. Harvard University Medical School 1911. Physician, Massachusetts General Hospital. Assistant Professor of Medicine, Harvard University Medical School. Address Massachusetts General Hospital Boston, Mass. Their subject is Progress in the Recognition of Congenital Heart Disease. Page 763.

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GRAVES, ROGER C. A.B., M.D. Syracuse University College of Medicine 1918. F.A.C.S. Urologist, Carney Hospital. Genito-Urinary Surgeon, Pondville Hospital. Member of the Associate Staff, New England Deaconess and Palmer Memorial Hospitals. Consulting Urologist, Quincy City Hospital, Lakeville State Sanatorium and Winchester Hospital. Genito-Urinary Consultant, Tumor Clinic, Boston Dispensary. Associate Consulting Urologist, Brockton Hospital. Address 12 Bay State Road Boston, Mass. Associated with him is

KICKHAM, C. J. E. A.B., M.D. Harvard University Medical School 1927. Assistant Urologist, Carney Hospital, Assistant Visiting Urologist, Pondville Cancer Hospital at Norfolk. Associate Consulting Urologist, Quincy Hospital. Address 12 Bay State Road, Boston, Mass. Their subject is Congo Red for the Control of Bleeding. Page 782.

PETERSON, THOMAS H. A.B., M.D. Northwestern University Medical School 1926. F.A.C.S. Instructor in Orthopedic Surgery, Harvard University Medical School. Junior Visiting Surgeon, Boston City Hospital. Assistant Visiting Orthopedic Surgeon, Long Island Hospital. Associate Orthopedic Surgeon, New England Baptist Hospital. His subject is Method of Applying A Temporary Adhesive Support to the Back. Page 783. Address 23 Bay State Road, Boston, Mass.

FLOYD, CLEVELAND. M.D. Harvard University Medical School 1903. Physician-in-Chief, Division of Tuberculosis, Boston Health Department. His subject is A New Instrument An Anti-Adhesion Pneumothorax Needle. Page 785. Address 246 Marlboro Street, Boston, Mass.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

C. J. KICKHAM, M.D., R. S. TITUS, M.D.,
Chairman Secretary
524 Commonwealth Ave., 472 Commonwealth Ave.
Boston Mass Boston Mass

POSTPARTUM HEMORRHAGE.

PART 2

If the uterus is carefully and continuously held after the birth of the baby, one knows definitely whether it is changing in size. If it is not changing in size and if there is no descent of the cord and no bleeding one knows definitely that the placenta is still attached. If this condition continues for one half to three quarters of an hour one begins to suspect the presence of an adherent placenta. If there has been descent of the cord and subsequent bleeding one suspects that the placenta is separated and possibly retained. Now of course all adherent placentas are retained but not all retained placentas are adherent. The completely adherent placenta shows no evidence of bleeding. The retained placenta will show some evidence of bleeding and occasionally unusual bleeding, but if the fundus has been continuously held and is not overlarge, one knows that there is no concealed hemorrhage. I think there should be no worry as long as there is no real hemorrhage concerning a placenta that has not been delivered within an hour of the birth of the baby, and of course if there is no hemorrhage the length of time that the placenta remains in utero is not important, up to a certain point. However if there have been evidences of separation or if there is some bleeding and the placenta has not been delivered within one hour or one hour and a half, it is very wise to investigate the uterus. This of course, must be done under most careful asepsis, as entering the uterus after delivery is attended by a real risk of infection.

It is wise to have the patient anesthetized. One hand is put into the uterus, the other hand gives intelligent suprapudal pressure. If the placenta is a retained one and lying free in the uterine cavity behind a contracted os, the cervix is dilated and the entire placenta readily removed. It is rare that a case of this sort will bleed subsequently. It is consequently rare that in a case of this sort the uterus needs to be packed.

The adherent placenta offers a very different

problem. If it is completely adherent there will have been no hemorrhage, no bleeding. If it is partially adherent and partially separated there may have been a tremendous amount of bleeding. In either case the hand is thrust into the uterus and if one finds a partially separated placenta one readily recognizes the line of cleavage. If possible, the entire placenta should be removed in one maneuver. Those cases in which the placenta is partially separated may have bled and may bleed after the delivery of the placenta—so much so that packing the uterus is oftentimes a wise procedure. If the uterus has been packed the tamponade should be left in not over twenty four hours and the fundus should be held so that one is certain that there is no bleeding behind the pack. If the adherent placenta is entirely adherent, one attempts to find the line of cleavage. This is usually possible but it is often impossible to remove all the placenta in one maneuver and these cases more often require packing than any other class.

Now there is one other type of retained placenta and that is the placenta accreta. The placenta accreta, if it is a complete placenta accreta, will give no bleeding at all. Upon investigation some line of cleavage is found but one soon appreciates that this line of cleavage stops. One realizes that the placenta is embedded in the uterine wall—a part of the uterus. As soon as this diagnosis has been made the proper procedure is abdominal section and hysterectomy. There is one type of accreta very infrequently seen in which the placenta practically covers the entire uterine wall. The thickness of the placenta may be practically no more than one-quarter inch. This, too when the diagnosis is made demands hysterectomy.

Now it matters not whether a patient bleeds from a lacerated cervix or from the rupture of varicose veins or from a partially separated, adherent placenta or from an accreta. It does not matter what the cause of postpartum hemorrhage is. Loss of blood itself demands treatment. Postpartum hemorrhage very frequently requires transfusion and it is a very wise practice in any case of this sort to have an acceptable donor at hand before any operative procedures are instituted. Subsequent transfusions may be necessary, also intravenous glucose, elysis, the repeated use of intramuscular ergot and pituitrin and—par excellence—the use of morphine but once the source of the bleeding is diagnosed and controlled the treatment is the treatment of hemorrhage. It matters not whether this comes from a perforated gastric ulcer, a bleeding tonsil artery or a lacerated cervix. The treatment of postpartum hemorrhage, when the cause is diagnosed and the bleeding stopped, is the treatment of hemorrhage and that often means actual blood transfusion.

A series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

AIDS TO THE COMMITTEE OF
ARRANGEMENTS

NORFOLK DISTRICT

Dr J S H Leard
Dr Herbert L Johnson
Dr H M Landesman

A PRIZE FOR AN APPROVED ESSAY

The attention of interns in Massachusetts hospitals is called to the fact that a prize of \$50.00 has been offered by the Massachusetts Medical Society for the best written and most comprehensive case report submitted by one of their number holding a rotating internship in any Massachusetts hospital which is approved by the American Medical Association for intern training during 1935-1936.

This report is to be typewritten, and when completed is to be sealed, unsigned, in a plain envelope, which in turn is to be placed together with a separate slip bearing the name and address of the contestant, in a larger envelope, and sent to

The Massachusetts Medical Society,
Committee on Medical Education and Medical
Diplomas

8 Fenway, Boston, Mass

The contest this year closes May 1, 1936. Reports may be submitted at any time prior to that date.

THIRD ANNUAL POSTGRADUATE MEDICAL
EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning April 19

Berkshire

Thursday, April 23, at 4 30 P M, at the House of Mercy Hospital, Pittsfield Subject Kidney and Bladder Diseases A (Medical)—Acute Nephritis — Etiology, Diagnosis and Treatment. Nephrosis and Its Treatment. Instructor W R Ohler Melvin H Walker, Jr, Chairman

Bristol North

Wednesday, April 22, at 7 30 P M, at the Morton Hospital, Taunton Subject Lung Diseases (Surgical)—(a) Empyema. (b) The Value of Surgery in Chronic Lung Diseases, Tuberculosis, Lung Abscess, etc Instructor R. H. Swett. Arthur R. Crandell, Chairman

Bristol South (New Bedford Section)

Friday, April 24, at 4 P M, at the St Luke's Hospital, New Bedford Subject Dermatology—Ten Common Skin Diseases—Diagnosis and Treatment (1) Impetigo Contagiosa, (2) Scabies, (3) Acne Vulgaris, (4) Psoriasis and Seborrheic Dermatitis, (5) Epidermophytosis, (6) Herpes Simplex and Zoster, (7) Eczema, (8) Erythema Multiforme, (9) Verruca Vulgaris and (10) Dermatitis Medicamentosa and Dermatitis Venenata Instructor John Adams, Jr Harold E Perry, Chairman

Franklin

Wednesday, April 22, at 8 00 P M, at the Franklin County Public Hospital, Greenfield Subject Cancer of the Stomach and Bowel Instructor L S McKittrick Halbert G Stetson, Chairman

Middlesex East

Wednesday, April 22, at 4 00 P M, at the Melrose Hospital, Melrose Subject Kidney and Bladder Diseases A (Medical)—Acute Nephritis — Etiology, Diagnosis and Treatment. Nephrosis and Its Treatment Instructor L H Hoyt Joseph H Fay, Chairman

Middlesex North

Friday, April 24, at 7 00 P M, at the Lowell General Hospital, Lowell Subject Arthritis Instructor F R Ober Leonard C Dursthoff, Chairman

Norfolk

Friday, April 24, at 8 30 P M, at the Norwood Hospital, Norwood Subject Lung Diseases—(a) Differential Diagnosis and Treatment of Lobar Pneumonia (b) The Surgical Problems of Empyema Instructors J H Pratt and J W Strieder H B C Riemer, Chairman

Worcester (Milford Section)

Wednesday, April 22, at 8 30 P M, at the Milford Hospital, Milford Subject Lung Diseases—(a) Differential Diagnosis and Treatment of Lobar Pneumonia (b) The Surgical Problems of Empyema. Instructors H F Newton and D S King Joseph I Ashkins, Sub-Chairman.

MISCELLANY

CONNECTICUT ITEMS

TRI CITY MEDICAL SOCIETY OF NORWICH, NEW LONDON, AND WILLIMANTIC, CONNECTICUT

The regular monthly meeting of the Tri City Medical Society of Norwich, New London, and Willimantic, Connecticut, was held Thursday, March 12, 1936, at Uncas-On-Thames, Norwich. Dr Richard Cattell of the Lahey Clinic, Boston, delivered an address on The Management of Surgical Diseases of the Colon and Rectum.

The principal manifestations of *ulcerative colitis* are diarrhea, fever, toxemia and an elevated white blood count. In the usual case, proctoscopic examination means establishing the diagnosis. These cases are poor surgical risks. Dr Cattell believes that any patient with an acute fulminating colitis who does not show early improvement should be operated upon. The disease is a medical condition first but if no relief is obtained medically, surgery should be resorted to. However, the operative mortality is high. Medical treatment is often very inadequate because of the anatomical changes caused by scarring due to loss of mucosa. The etiology of the disease has not been proved, but it probably is

a nonspecific infection which usually begins in the rectum. Ulceration may perforate and cause peritonitis. At the Lahey Clinic these cases are usually operated upon in several stages. A transverse ileostomy is done, followed in the second and third stages by removal of the colon. In a number of cases complete colectomies have been done with a cure of the condition. In 100 cases receiving early attention partial colectomy has eradicated the disease. However in most cases complete colectomy is necessary.

In considering *differential diagnosis* of colon lesions it is necessary to use digital examination, proctoscopic examination and x-ray of the colon. At the clinic, a double contrast air and barium enema has been found helpful.

The treatment of *diverticulitis* is essentially medical. In a few instances surgery becomes necessary. When this is the case it must be done in two stages (the first stage consisting in a colostomy or cecostomy, above the lesion).

Polyps. Dr. Cattell says are the main etiological factor in carcinoma or malignancy of the large bowel and so any polyp discovered should be adequately treated. Usually these polyps can be cured by fulguration through the sigmoidoscope.

At the Lahey Clinic, where 500 cases of cancer of the rectum and colon have been carefully analyzed, it is felt that there is a good chance of a cure if properly treated. Early diagnosis is essential for good results. The best working rule is to do the most radical operation for the lesion that the patient will stand.

THE NEW LONDON COUNTY MEDICAL ASSOCIATION

At a meeting of this organization April 2 the following officers were elected for the ensuing year: Dr. William T. Driscoll of Norwich, Conn., President; Dr. Thomas Soltz of New London, Conn., Vice-President; Dr. George H. Gilderalee of Norwich, Secretary-Treasurer; Dr. Charles G. Barnum of Groton, Conn., Councillor; Censors: Drs. Daniel Sullivan of New London, James J. Donohue of Norwich, and David Sussler of Norwich. State Delegates elected were: Drs. George H. Gilderalee and Albert C. Freeman of Norwich, and Drs. Richard Starr and Eldore Hendel of New London.

After the business meeting Dr. Charles F. Wilkin of Boston gave a most excellent informal talk on "The Economic Aspects of Medicine." A general discussion followed.

The meeting ended with a supper served by the Sanatorium.

DEATH

CHILDS.—HELEN SIMONDS CHILDS, M.D., aged eighty-four, died at Simsbury, Connecticut, April 8, 1936, at the home of her daughter, Mrs. John Schroeder, after a brief illness. A son also survives her.

Dr. Childs formerly practiced in Jamaica Plain, Massachusetts.

CHANGES IN THE FACULTY OF BOSTON UNIVERSITY SCHOOL OF MEDICINE

Dr. John Arthur Foley has been promoted from the position of Associate Professor of Medicine to Clinical Professor of Medicine and Dr. William Reid Morrison from the position of Assistant Professor of Surgery to Clinical Professor of Surgery.

FELLOWSHIPS AT THE HARVARD MEDICAL SCHOOL

Ten of the major fellowships at the Harvard Medical School totaling \$10,150 have been awarded for the next academic year as follows:

William O. Moseley, Jr., Traveling Fellowship for the study of medicine in Europe to Champ Lyons, assistant in bacteriology, Harvard Medical School, Harvard M.D. 1931.

William O. Moseley, Jr., Traveling Fellowship for the study of medicine in Europe to Louis H. Nason, M.D. 31 of Boston, Mass.

Edward Hickling Bradford Fellowship for medical research, to Alwin M. Pappenheimer, Jr., Ph.D. 32, has been at National Institute for Medical Research, Hampstead, London, England.

William Hunter Workman Fellowship for postgraduate study in this country or abroad to Theodore H. Ingalls, M.D. 33, New Hartford, Conn.

Jeffrey Richardson Fellowship for postgraduate study in this country or abroad to Benjamin V. White, Jr., M.D. 34, Summit, N.J.

James Jackson Cabot Fellowship for medical research to John H. Dingle, M.D., Kalamazoo, Mich.

John Ware Memorial Fellowship for medical research, to Richard L. Riley, M.D., Plainfield, N.J.

Charles Elliot Ware Memorial Fellowship for medical research to Emanuel B. Schoenbach, M.D., New York City.

George Cheyne Shattuck Memorial Fellowship for medical research, to Israel Kapnick, M.D., Providence, R.I.

DeLamar Student Research Fellowship to Charles B. Burbank, M.D., Miami, Fla.

AN ASSIGNMENT TO ATTEND THE MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY

Senior Surgeon Louis Schwartz, directed to proceed from New York, N.Y., on or about June 8, 1936, to Springfield, Mass., and return to attend the meeting of the Massachusetts Medical Society on June 8, 1936, and to present a paper on the subject of Industrial Dermatoses.

THE HOLYOKE BOARD OF HEALTH

A new board of health of the city of Holyoke has been appointed by the Mayor, consisting of Dr. Edwin M. Mahoney, Dr. Joseph A. Wonsik, and Mr. Arthur Hebert.

The board organized with Mr. Hebert, chairman, and Dr. Mahoney, secretary.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1935
AND SEVEN YEAR AVERAGE

MONTH ENDING MARCH 28, 1936

Diseases	1936				Average cases reported for week corresponding to Mar 28 for past seven years	1935			
	Week ending Mar 7	Week ending Mar 14	Week ending Mar 21	Week ending Mar 28		Week ending Mar 9	Week ending Mar 16	Week ending Mar 23	Week ending Mar 30
Chickenpox	116	113	106	80	82	123	177	130	98
Conjunctivitis Infectious	3	6	7	5	2	—	—	3	1
Diphtheria	2	2	3	4	13	7	—	8	7
Encephalitis Epidemic	—	1	2	—	—	—	—	3	—
German Measles	248	329	257	649	35	191	145	180	131
Influenza	26	25	48	9	22	2	9	4	28
Measles	89	88	85	79	297	997	878	1213	1448
Meningococcus Meningitis	1	2	1	3	1	3	—	—	—
Mumps	65	67	78	46	107	60	70	151	81
Paratyphoid Fever	—	—	—	—	—	—	1	—	1
Pneumonia (Broncho)	49	51	61	31	38	27	56	45	51
Pneumonia (Lobar)	100	76	88	61	54	62	41	49	59
Poliomyelitis	—	1	—	—	—	—	—	—	1
Scarlet Fever	126	150	113	102	120	70	95	121	116
Streptococcus Sore Throat	6	3	7	3	3	3	1	1	6
Tetanus	—	—	—	—	—	1	—	—	—
Trachoma	—	—	—	1	—	—	—	—	—
Trichinosis	—	—	3	—	—	1	—	—	1
Tuberculosis (Pul)	19	22	17	33	32	35	30	15	19
Tuberculosis (O F)	—	4	3	2	4	—	2	1	1
Typhoid Fever	—	1	1	1	—	—	—	—	3
Undulant Fever	2	3	—	2	—	2	—	—	—
Whooping Cough	99	110	86	117	75	97	64	45	100
Gonorrhea	22	20	12	22	27	39	19	17	38
Syphilis	54	57	45	47	42	49	33	34	42

Remarks No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years

A FRENCH TRIBUTE TO RESEARCH

The President of the French Republic has been pleased to confer upon Sir Henry Wellcome, LL D, F.R.S., la Croix d'Officier de la Légion d'Honneur
This decoration is a further tribute to medical and chemical research to which Sir Henry has made many notable contributions

MARTYRS TO SCIENCE

Forty American radiologists were named in Hamburg, Germany, April 4, among the 165 recorded as heroes of science who sacrificed their lives in medical service
In the list the name of Walter J Dodd of Boston appears The names are chiseled on a simple sand stone memorial in front of the Roentgen Institute of St George's Hospital
The names of forty six French and seventeen German scientists are included

LORD HORDER WILL FILL THE POSITION OF
PHYSICIAN IN CHIEF, PRO TEMPORE, AT THE
PETER BENT BRIGHAM HOSPITAL

On the first of May of this year, Lord Horder, Physician in Ordinary to the King and Senior Physician at St Bartholomew's Hospital, London, will be at the Peter Bent Brigham Hospital as Physician in Chief pro tempore

TUBERCULOSIS IN NEW YORK CITY

Dr John L Rice Health Commissioner of New York City, is quoted in the daily paper as reporting a marked increase in tuberculosis in the city
The number reported for the first quarter of 1935 for New York City is 2,955 as contrasted with 2,563 last year and 2,785 in 1934 The mortality due to tuberculosis has also risen slightly The increased incidence of tuberculosis is ascribed to the effect of the depression

DR. PARRAN HAS BEEN SWORN IN

Dr Thomas Parran, Jr., was sworn in April 6 as Surgeon General of the United States to fill the position made vacant by the resignation of Dr Hugh S. Cumming

CORRESPONDENCE

THE INSPECTION AND REPORT OF FLOODED AREAS IN MASSACHUSETTS

The Commonwealth of Massachusetts
Department of Public Health
State House Boston

April 7 1936

Managing Editor *The New England Journal of Medicine*

A request was made to the United States Public Health Service by His Excellency the Governor asking that a sanitary engineer be sent to make an inspection of the flooded areas and report on the conditions found with reference to health and sanitation. Dr C. C. Applewhite and Sanitary Engineer Arthur P. Miller were assigned to this work. After an inspection of the Merrimack and Connecticut Valleys their report, a copy of which is enclosed was sent to the Surgeon General.

HENRY D CHADWICK M.D.,
Commissioner of Public Health

COPY OF THE REPORT

March 26 1936

The Surgeon General
U S Public Health Service
Washington D C
Sir

In compliance with telephonic orders received on March 23 we proceeded immediately to the State of Massachusetts for duty in the flooded areas. Upon arrival in Boston we reported to Dr Chadwick State Health Commissioner and at his request we made a survey of the Merrimack River Valley with him on March 24. On that date the Merrimack had receded for the most part from the business and residential sections and the work of rehabilitation was progressing satisfactorily in practically all of the areas.

In this survey we confined our attention to those factors which would have a definite bearing on the spread of disease. The most serious situation encountered by us in the Merrimack Valley was found in Lawrence. Here the water filtration plant which is located on the banks of the river and the water pumping station which is adjacent to the filters had been entirely flooded. Fortunately this city's reserve supply of purified water was adequate to maintain a continuity in distribution until arrangements could be made to increase the quantity in storage by borrowing water from three neighboring communities. However as work proceeded in rehabilitating the water purification plant it was soon found necessary to make some curtailment in the use of water in the municipality. These were brought

about, however without seriously inconveniencing the public. With these temporary measures in force exploratory work at the filtration plant continued as rapidly as possible and by March 25 two groups of slow sand filters had been unwatered and it was possible to put decreased quantities through them into the storage reservoir. Every precaution was taken during this period by the State Department of Health through its Division of Engineering to insure that water distributed to the public was satisfactory as to bacteriological quality. The situation at Lawrence can be summed up by saying that water of safe quality is now available to the city although in slightly curtailed quantities.

At Lowell Massachusetts the water purification plant and the pumping station were both put out of commission by flood waters. Fortunately the physical layout of this system was such that the raw water sources which are driven wells near the bank of the river were not seriously affected and an adequate supply was constantly available. Precautions were taken however to disinfect this water at two points on the system, one in the conduit carrying the water to the city and the other at the pumping station located in the city proper. Through these means a continuous supply of pure water was furnished to Lowell at all times and no evidence was available to indicate that any outbreak of water borne diseases would be possible.

In both Lawrence and Lowell the prompt and adequate measures which were put into force by the State Department of Public Health entailing men on duty 24 hours a day assured continuous supplies of water suitable for public use.

After a fairly complete survey of the Merrimack Valley towns affected by the flood it was felt that all measures essential to the protection of the public health were being put into execution in a satisfactory manner.

At the request of Dr Chadwick we proceeded to the flooded area in the Connecticut Valley on March 5. The following towns were visited in company with a member of the staff of the State Department of Public Health, Springfield Holyoke Northampton, Hatfield Deerfield, Chicopee.

Upon our arrival in Springfield it was learned that all of the public water supplies in the Connecticut Valley which might have been adversely affected had already been adequately safeguarded as a result of the alertness and vigilance of the District Engineer in that territory. In this area a survey was made of the facilities for caring for those evacuated from the flood area and the measures which were being put into execution for the purpose of reclaiming the flooded area.

Most of the towns had adequate physical facilities for taking care of those who were removed from the flooded area in school houses and other public buildings. A detailed inspection of a school thus utilized at Springfield was made. At this school about 800 people were being housed and fed. The sanitary conditions at the time of inspection were beyond criticism and the precautions taken for protecting

the people against the dangers incident to overcrowding were considered adequate, and in all the towns visited there was no report of an increase in the number of communicable diseases

The sections of all municipalities, which had been flooded, were protected by the National Guard and police to prevent looting. Just as rapidly as the water receded, inspections of the homes were being made by the police and Health Departments to determine the safety of the dwellings for occupancy. The task of ridding the dwellings, stores, streets, and sidewalks of mud, slime, and debris deposited by the flood is large and time-consuming. However, this material which will have to be removed in order to make the places fit for human habitation is of no consequence so far as disease causation is concerned. In most of the towns, considerable progress has already been made in this cleanup campaign.

Having in mind the emergency conditions, which obtained in each of these stricken valleys, both of us were of the opinion that satisfactory provisions had been made to guard against the spread of communicable diseases and that those engaged in efforts toward this end should be commended for promptly initiating and executing the measures essential to safeguarding the public health.

C C APPLEWHITE, *Surgeon,*

ARTHUR P MILLER, *Sanitary Engineer*

RECENT DEATHS

McEVoy—THOMAS EDWARD McEVoy, M.D. of 769 Main Street, Worcester, Massachusetts, died in that city, March 28, 1936.

Dr McEvoy was born in 1859 and educated in the public schools of Hopkinton, Massachusetts, Exeter Academy and Yale. He graduated from the Yale Medical School in 1892, served his internship in the Bridgeport City Hospital, later being associated with the teaching staff of the Lying In Hospital of New York City.

Soon after settling in Worcester in 1896, he was appointed a member of the staff of St Vincent's Hospital and served in that capacity until about five years ago when he became consultant.

His widow, Mrs Mary W (Spencer) O'Day-McEvoy, a son, Thomas S McEvoy, and a step-daughter, Miss Marion T O'Day, survive him.

CURTIS—FRANCIS GEORGE CURTIS, M.D., of Ashfield, Massachusetts, died at his summer home there, April 7, 1936.

Dr Curtis was born in Staten Island, New York, in 1857, graduated from Harvard College in 1879 and from the College of Physicians and Surgeons of New York in 1883. He had practiced in Newton, Mass., until twenty years ago and had been the Chairman of the Newton Board of Health for forty two years, resigning this position last July because of ill health.

Dr Curtis joined the Massachusetts Medical Society in 1887 and was also a Fellow of the American Medical Association, a member of the Newton Medical Club, the Staff of the Newton Hospital and one of the founders of the Massachusetts Association of Boards of Health and had served as president of this last named organization.

He is survived by his widow, Mrs Ruth Curtis, and three sons, Mr George Curtis, Mr Shaw Curtis, and Mr Edward Curtis.

DAVENPORT—FRANCIS HENRY DAVENPORT, M.D., a retired physician of Boston, died April 9, 1936, at the Hotel Puritan. Dr Davenport was born in Roxbury in 1851, graduated from Williams College and later received his M.D. degree from the Harvard Medical School in 1874. After postgraduate courses in Vienna and other medical centers, he returned to Boston and was an instructor in gynecology at Harvard with an affiliation at the Massachusetts General Hospital. Dr Davenport joined the Massachusetts Medical Society in 1877 and retired in 1935. He was a member of the Harvard and the Williams Clubs and the Gynecological Society of America.

A son, Henry Davenport, survives him. His wife died in 1905.

NORTON—EBEN CARVER NORTON, M.D., of North Chatham, Massachusetts, died at his home, April 11, 1936, after an extended illness. Dr Norton was born in 1856 at Vinal Haven, Maine, the son of Jesse and Hannah Carver Norton. He was a graduate of Harvard College and of the University of Vermont Medical School.

Dr Norton was credited as the founder of the Norwood Hospital for mentally ill patients. His previous experience in psychiatry was at the State Hospital at Tewksbury and in association with Dr Walter Channing.

He moved to North Chatham in 1928. He was a Fellow of the Massachusetts Medical Society and the American Medical Association.

A son, E Lawrence Norton, of Salt Lake City, Utah, and three daughters, Miss Helen Norton of Chatham, Mrs Howard E Whipple of Richmond, Virginia, and Mrs Gregg Smith of Long Beach, California, survive him.

KNIGHT—CHARLES STORER KNIGHT, M.D., died in Portland, Maine, April 12, 1936, following a recent operation in Boston.

Dr Knight was born in Portland, Maine, and after his preliminary education in Portland schools and Westbrook Seminary, entered the Harvard Medical School and graduated in 1896.

He was a former house physician at the Boston City and the Boston Lying In Hospitals and at one time was assistant superintendent of the Boston City Hospital. He was a Fellow of the Massachusetts Medical Society from 1896 to 1905.

NOTICES

THE HENRY JACKSON LECTURES OFFERED BY THE NEW ENGLAND HEART ASSOCIATION

These lectures will be given by Tinsley R. Harrison, M.D., Associate Professor of Medicine Vanderbilt University School of Medicine, at 4 45 P.M. on Thursday April 30 and Friday May 1, at the Boston Medical Library (John Ware Hall)

Subjects

1. The Pathogenesis of Circulatory Failure
2. The Principles of Therapy in Patients with Congestive Heart Failure

Physicians and students of medicine are cordially invited to attend.

The annual business meeting of the New England Heart Association will precede the lecture on April 30

ANNUAL TUFTS ALUMNI ADDRESS

Dr William B. Keeler, Class of 1903, Health Commissioner for the City of Boston, will deliver the annual alumni address to the students of Tufts College Medical School, Wednesday April 29 at four o'clock in the amphitheater at the school 416 Hunt Avenue. The subject of his address will be "Preventive Medicine and Public Health." The alumni faculty and friends of the school are cordially invited to attend.

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M. on Thursday April 23 in the Amphitheatre of the Peter Bent Brigham Hospital Dr Henry A. Christian, Physician-in-Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School will give a medical clinic. To it are cordially invited practitioners and medical students

On Saturdays in the wards of the Peter Bent Brigham Hospital from 10 to 12 staff rounds will be conducted by Dr Christian.

THE GEORGE WASHINGTON GAY LECTURE

Dr W. Dacre Walker, a graduate of Tufts College Medical School in 1905 will give the George Washington Gay Lecture on Wednesday April 22 at four o'clock in the amphitheatre at Tufts College Medical School. Dr Walker has chosen as his subject "What the Small Town Doctor Does."

The George Washington Gay Lectureship Fund was originally established in 1926 with a gift from Dr George W. Gay of Chestnut Hill, Massachusetts for lectures at the Tufts College Medical School upon Medical Ethics and the Art and Practice of Medicine

FIRST INTERNATIONAL CONGRESS OF SANATORIA AND PRIVATE NURSING HOMES

The First International Congress of Sanatoria and Private Nursing Homes will be held in Budapest at the end of September next. Special invitations will be sent in due course to all parties concerned. Lectures, discussions, proposals, etc., should be sent to the following address as early as possible in order that they may be included in the official program. Committee of the First International Congress of Sanatoria and Private Nursing Homes, Budapest Margitsziget, Sanatorium

PHYSICIANS ART EXHIBITION

The Physicians Art Society will hold its annual exhibition April 29-May 9 at Doll & Richards Galleries at 138 Newbury Street, Boston.

All members of the Massachusetts Medical Society who do painting and sculpture are cordially invited to join the Society and show examples of their work at the coming exhibition

Application should be made to James F. Ballard at 8 Fenway Boston.

CLOVER HILL HOSPITAL Lawrence, Mass.

The next speaker in the Clover Hill Hospital series of monthly medical lectures will be Donald Munro, M.D., Visiting Surgeon for Neurosurgery to Boston City Hospital. His subject is The General Practitioner's Relation to the Problem of Brain and Skull Injuries.

Date Thursday April 23 1936 at 8 30 P.M. His talk will be illustrated.

All physicians of Greater Lawrence are invited to attend.

NICANDRO F. DeCESARE, M.D., Chairman.

REPORTS AND NOTICES OF MEETINGS

NATIONAL HEALTH COUNCIL ANNUAL MEETING

The annual meeting of the National Health Council, held in New York City on February 6 was of unusual interest this year because of the election of new officers and the discussion of a series of problems of significance in national health conservation

The Nominating Committee reported that it found it necessary to relieve Colonel Roosevelt from the Presidency because of business professional and national public services which precluded continuance of his administrative duties in connection with the Council. Expressing regret that such action had become necessary the Committee recorded its recognition and deep appreciation of the services Colonel Roosevelt had rendered the Council and its satisfaction in reporting that he would continue as a member at large of the Board of Directors

The Nominating Committee then recommended the election of Dr Donald B Armstrong, as President, for the year 1936, pointing out that he had been an active officer and executive in promoting the Council's development, and had made the final study of all the voluntary agencies which led to its organization in 1920. In addition to Dr Armstrong's intimate knowledge of all the member agencies and their respective fields of activity, it was recognized that his training and experience in scientific, medical and public health work constituted exceptional qualifications. The Council unanimously approved his selection for the presidency.

For Vice-President, Mr T N Pfeiffer, an attorney, the present incumbent, and widely known for his promotion of social work activities, was nominated.

For Treasurer, Mr Frederick Osborn, likewise the present incumbent, and a leader in population studies, and other fields of science and welfare, was nominated.

For Secretary, Professor Maurice A Bigelow, a noted educator and biologist and Professor in Columbia University, was nominated.

These general officers were unanimously elected.

For membership in the Board of Directors ten members at large were nominated, representing public health administration, education and research, as well as eleven direct representatives of the member agencies of the Council. The following is a list of these directors, as unanimously elected.

Dr R M Atwater, American Public Health Association

Colonel H E Bullis, National Committee for Mental Hygiene

Mr L H Carris, National Society for the Prevention of Blindness

Miss Dorothy Deming, National Organization for Public Health Nursing

Mr Howard Green, National Committee of Health Council Executives

Dr Kendall Emerson, National Tuberculosis Association

Dr C C Little, American Society for the Control of Cancer

Dr H M Marvin, American Heart Association

Dr S H Osborn, Conference of State and Provincial Health Authorities of North America.

Dr William F Snow, American Social Hygiene Association

Dr F N Sperry, American Society for the Hard of Hearing

AT LARGE

Dr George Baehr, New York Academy of Medicine

Dr S J Crumbine, Formerly American Child Health Association

Dr H S Cumming, U S Public Health Service

Dr William De Kleine, American Red Cross

Dr Louis I Dublin, American Public Health Association

Livingston Farrand, President, Cornell University

Mr Homer Folks, New York State Charities Aid Association

Dr A S Knight, National Committee for Mental Hygiene

Colonel Theodore Roosevelt

Ray Lyman Wilbur, President, Stanford University

HARVARD MEDICAL SOCIETY

The Harvard Medical Society met at the Peter Bent Brigham Hospital Feb 11, 1936, Dr Elliott P Joslin presiding.

The medical case was presented by Dr G L Sullivan, Jr. A fifty-three year old, Russian housewife entered the hospital Jan 17, 1936, complaining of a dry mouth and throat of a few days' duration. Eight years ago she suffered easy fatigue and loss of weight, and was found to have diabetes mellitus, for which she was given insulin and dietary régime. For the past two years she had not used insulin. For the past three weeks she had noticed increasing thirst, and for four days before entry had experienced increasing loss of strength and appetite, with some nausea. On the day of entry there was vomiting.

Physical examination showed a dehydrated, middle-aged woman with an odor of acetone on her breath. There was auricular fibrillation. Examination of the urine showed a trace of albumin, and positive tests for sugar and acetone. Her blood sugar on entry was 433 mg per cent. The blood urea nitrogen was 21 mg per cent and the CO₂ combining power 22 vol per cent. She was placed on the usual diabetic régime, and recovered from her acidosis in satisfactory manner. She had had a continually elevated temperature since admission, which was believed to be due to urinary tract infection, since there were numerous white blood cells found in her urine. X-ray studies of the chest were negative. She required 45 units of insulin before breakfast and 10 units at noon and evening to keep her urine free of sugar. It was decided to try the effect of the new insulin protamine, and she was given 20 units that evening.

Dr Fitz remarked that she had auricular fibrillation on entry, and that as soon as her acidotic state had been corrected her heart had become regular. He asked if such observations were usual. Dr Howard F Root of the Joslin Clinic replied that one similar case had been seen at the Deaconess Hospital.

Dr Elliott P Joslin remarked that, of a series of 176 diabetics on whom postmortem studies had been performed, 18 per cent had been found to have active inflammatory disease of the urinary tract. He also stated that insulin protamine required two or three days to exert its full effect.

The second case was presented by Dr Robert Bates of the surgical service. A twenty-seven year old white housewife entered the hospital with the history of pleurisy on the right side four years ago, since which time she had noted easy fatigue,

general weakness and diarrhea of severity sufficient to necessitate eight or nine movements each day. Eight months previously her sister died with tuberculosis, and x-ray studies performed on the patient revealed bilateral apical tuberculous lesions. She was hospitalized at Middlesex Sanatorium at that time where she remained until she was transferred to the Brigham Hospital. One month previous to admission she developed an increasing severity of diarrhea, and x-ray studies revealed marked contraction of the colon. She was transferred to the Brigham Hospital for operation. Physical and laboratory studies were not remarkable. Under spinal anesthesia the terminal ileum cecum and ascending colon were resected for tuberculous colitis. Her postoperative course was uneventful.

Dr John Homans stated that this was an ideal case for resection of the colon. He believes that more cases of tuberculous colitis should be operated upon if localization of the disease process can be established.

Dr Merrill C. Sosman demonstrated the pre-operative x-rays of the case, and pointed out that the bowel was not only markedly constricted in diameter but that it had also greatly decreased in length due to shrinkage, a feature characteristic of tuberculous colitis. The bowel distal to the lesion was shown to be dilated by the barium enema, a feature which Dr Sosman stated was observed whenever pressure had to be used to force barium through an obstructing lesion, and which was not due to any intrinsic disease in the distended bowel.

The paper of the evening was presented by Dr C. N. H. Long of the University of Pennsylvania, who spoke on "The Effect of Hypophysectomy and Adrenalectomy upon Experimental Diabetes in the Cat." The removal of all insulin by pancreatectomy gives rise to a series of events

- (1) Hyperglycemia and glycosuria appear and persist even during fasting.
- (2) There is an increase in nitrogen excretion and there is a definite ratio between the amounts of glucose and nitrogen excreted ("D/N ratio").
- (3) Large quantities of acetone bodies appear in the urine.
- (4) Finally acidosis develops, coma intervenes and death occurs.

These facts are established, but the mechanism of the observed events has proved the subject of much controversy. One group holds that the loss of insulin from the body results in an inability of the tissues to utilize carbohydrates and as a result fats and lipids are drawn upon to furnish body energy. The incomplete oxidation of these substances in the absence of carbohydrate utilization liberates ketone bodies which give rise to the symptoms of acidosis. They believe that there is a definite ratio between the utilization of fat and glucose, the so-called ketogenic/antiketogenic ratio.

The second school of thought is known as the

overproduction theory of diabetes. Their original theory postulated that the removal of the pancreas precipitated a glandular imbalance between the thyroid and adrenal medulla, the secretions of the two glands acting in such manner as to cause an overproduction of glucose from fat and protein. This overproduction was so great as to cause hyperglycemia and glycosuria and was supposed to take place in the liver. It was believed that the tissues maintained their normal ability to utilize carbohydrate in spite of the absence of insulin. This original theory has not been supported by experimental data, and it has been shown that the body loses its ability to use glucose in the absence of insulin.

Both theories, however, maintain that sugar can be formed from protein by the liver (gluconeogenesis).

A large percentage of individuals dying from diabetes have no demonstrable pathology of the pancreas. Certain patients with abnormalities of other glands are frequently known to show glycosuria, or frank diabetes. Thus glycosuria is observed in some 75 per cent of acromegalics. Cases with increased activity of the adrenal cortex (tumor or hyperplasia) often exhibit glycosuria. These latter cases also exhibit a hyperplasia and hyalinization of the basophilic elements of the anterior pituitary.

The close psychological relationship between the pituitary and adrenal cortex is interesting. Removal of the pituitary causes a shrinkage of the adrenal cortex, with a condensation of the reticular zone and a decrease in the amount of lipid material in the zona glomerulata. If anterior pituitary extract is supplied, these changes disappear and the gland returns to normal appearance.

Houssay somewhat elucidated the disturbances in carbohydrate metabolism observed in diseases of the anterior pituitary. Removal of the hypophysis was found to prolong the life of depancreatized animals and to lower the D/N ratio. Acidosis and ketosis did not appear in these animals, and if fasted they often became sugar free. (Thus the D/N ratio disappeared.) Injections of crude extracts of the anterior pituitary accentuated the glycosuria, acetoneuria, and ketosis.

These depancreatized hypophysectomized animals alternate between hypo- and hyperglycemia. When they are extremely emaciated and their fasting blood sugar is low administration of intravenous glucose solution is followed by a variation in blood sugar level which is almost identical with a normal blood sugar tolerance curve. If however the animals have a high blood sugar level or are on the usual protein fat low carbohydrate diet, administration of glucose results in a typical diabetic blood sugar curve. The R. Q. of these animals increases only very slightly showing that there is no great increase in the utilization of carbohydrates. Similar results are obtained in depancreatized adrenalectomized animals. It is concluded that neither

hypophysectomy nor adrenalectomy has any pronounced effect in increasing carbohydrate utilization except in emaciated animals with low blood sugar

There is a marked effect of hypophysectomy on the duration of life and on the fat metabolism of depancreatized animals. The usual life of a depancreatized cat is about five days, and death occurs following extreme hyperglycemia and acetoneuria. Depancreatized, hypophysectomized animals have an average life of forty-nine days, their blood sugar is maintained at a lower level and there is a marked decrease in the excretion of glucose, nitrogen and acetone bodies. Thus the chief effect of hypophysectomy seems to be to decrease the production of glucose from protein and the prevention of acidosis. (The marked fall of basal metabolic rate following ablation of the pituitary must not be forgotten, however.)

Removal of the thymus gland had little effect on depancreatized animals. Thyroidectomy, although not increasing the duration of life, or lowering the blood or urine sugar, did decrease acetoneuria.

The effect of adrenalectomy on depancreatized animals was studied by Dr Long and his associates. Removal or denervation of the medulla had no effect in protecting against glycosuria. Removal of both adrenals and the pancreas increased the duration of life, and lowered the excretion of glucose, nitrogen, and acetone bodies. These animals were maintained on large doses of cortical extract. It thus appears that adrenalectomy has an effect similar to that observed after hypophysectomy, although the former animals must be maintained on doses of cortical extract. Hypophysectomized animals do exhibit an atrophy of certain elements of the adrenal cortex, however.

A comparison of the livers of depancreatized animals with or without adrenalectomy shows that there is a greater store of glycogen in the former. The liver fatty acids are usually increased from six to twenty-five per cent following pancreatectomy, an increase which is prevented by removal of the adrenals or hypophyses.

It is important to note that the adrenalectomized animals were maintained on large doses of cortical extract, and that their sodium metabolism was not disturbed. Evidently some cortical principle other than those contained in the extracts used was removed by adrenalectomy. It is possible that the adrenal acts through the pituitary in some way, and that removal of the cortical material produces an effect because of changes in the pituitary secretion.

Injections of potent anterior pituitary extracts were made into depancreatized animals in which the first group had been subjected to hypophysectomy and the second group to adrenalectomy. The injections into the hypophysectomized animals caused the reappearance of glycosuria, ketonuria and acidosis but had no effect on the adrenalectomized animals. The specific adrenotropic prin-

ciple of the pituitary likewise had no effect on the second group of animals, but increased the glucose, but not the acetone body excretion of the first group.

Dr Long concluded by stating that although the evidence is suggestive, it is by no means conclusive that there is a diabetogenic hormone in the adrenal cortex. Hypophysectomy and adrenalectomy are valuable procedures for the experimental study of diabetes, but they should not be considered as therapeutic measures to be employed in the treatment of the disease.

THE NEW ENGLAND HOSPITAL ASSOCIATION

The New England Hospital Association held its fourteenth meeting February 27, 28 and 29 at the Hotel Statler, Boston. A most interesting program had been arranged.

Mrs B B Marble, Secretary of the American Dietetic Association and Research Dietitian of the Collis P Huntington Hospital, Boston, presented a very well edited history of the growth of the national dietetic association. She carefully traced the gradual increase in the importance of the dietitian's functions as the physician's ally in the treatment of diseases and the continuance of investigative work.

Quindara Oliver Dodge, Associate Professor of Institutional Management, Simmons College, Boston, gave a concise discourse on the need and functions of a capable and well trained manager for the various necessary maintenance services of a hospital.

Thursday afternoon was devoted to the questions which arise in hospitals relative to their training schools. Sister Francis James, St Mary's Hospital, Waterbury, Conn, presented the educational features available in a well conducted Out Patient Department. Miss Elizabeth E Sullivan, R N, Supervisor of Schools of Nursing of the Massachusetts State Board of Registration of Nurses, Boston, presented the difficulties which are besetting the various hospitals conducting Training Schools for Nurses, and the present educational facilities which exist. Ann Wolf, R.N., Director of School of Nursing and Nursing Service, New York Hospital, New York City, gave a concise report of the activities of the Education Committee of the National League of Nursing Education in their efforts to increase and unify the standards which should be accepted as approved training for the profession of nursing. Miss Wolf traced the development of the Committee's work since 1917, calling special attention to the increased demands for a more general and thorough education of nurses.

Friday morning Miss Eleanor Jones, President of the Massachusetts State Association of Record Librarians, Newton Hospital, Newton, gave a short paper on the wishes which all record librarians in hospitals have respecting their work. It seems that the lack of cooperation of the medical staffs of the various hospitals and the failure of a standard classification of diagnoses cause most of their troubles.

Miss Ruth Tartakoff Supervisor of the Admitting Office, New Haven Hospital New Haven Conn., and Miss Mary H Roberts Director of Social Service Holyoke Hospital Holyoke Mass., discussed the need of trained Social Service workers in hospitals as aids to physicians in the care of patients.

Friday afternoon was devoted to a thorough discussion of Group Hospitalization and the prepayment plans for hospital services. Mr Graham Davis of the Duke Foundation Charlotte, North Carolina presented the state-wide development of prepayment plans in North Carolina in comparison with those in Great Britain. Mr Frank Van Dyk Executive Director of the Associated Hospital Service of New York, gave a clear discussion of the plan which has been in operation in New York for the past nine months. Of 57,000 subscribers in New York nearly 2,000 have had hospital service in nine months. These people have expressed their satisfaction with the plan. In the discussion which followed the presentation of these papers definite statements were made that physicians in these communities are having better collections of accounts than before the hospitalization plans went into effect.

A most interesting development at the annual meeting was the establishment of a section for Trustees of Hospitals. Eighty-three trustees were in attendance and discussed their various problems in providing adequate hospital care for the patients.

During the meeting the Massachusetts members of the Association organized a State Association the object of which is to promote the effectiveness of hospitals in Massachusetts.

Papers by Dr Willinsky and Dr Faxon were read and are appended.

THE MASSACHUSETTS STATE HEALTH SURVEY

BY CHARLES F. WILLINSKY, M.D.,

*Deputy Health Commissioner City of Boston
Executive Director Beth Israel Hospital*

Late in November of 1934 shortly following the election of His Excellency, Governor Curley a special committee was appointed by the Massachusetts Central Health Council to consider a study of the Public Health practices and a revision of the Public Health laws of Massachusetts. This committee had in mind a similar study conducted in the State of New York by a special Health Commission appointed in 1930 by President Roosevelt who was at that time Governor of the Empire State. The conclusions and recommendations of the New York Commission proved of great value in raising the Public Health standards and practices in that state.

The hope was expressed at the meeting of the special committee of the Central Health Council that His Excellency the Governor might favor the legislative action necessary for the appointment of a Commission by the Governor for the study and

revision of our Public Health laws. In view of the fact that the New York study was financed in the main by the Milbank Fund, it was suggested that an effort ought to be made to obtain necessary funds for the proposed Massachusetts study from a private foundation. Dr Willinsky agreed that, should there be a favorable reaction on the part of the Governor he would approach the Commonwealth Fund of New York for the required funds.

His Excellency the Governor was most interested in this proposed study and embodied in his inaugural address this statement:

The Commonwealth of Massachusetts has always maintained an enlightened interest in matters pertaining to the health of its citizens. It has been expeditious from time to time to establish and maintain essential service, and to enact or amend laws for enlarging the scope of those departments created for the prevention of disease since they affect the very lives of our people and should be administered with the highest possible degree of efficiency. I have received assurances that in the event of the appointment of a commission for the study and revision of the public health laws of the Commonwealth, a national foundation interested in public health will defray the expenses of the commission and subject to favorable action by your Honorable Body I shall appoint such a commission."

Dr Willinsky and Professor Wilson Smillie called on the Commonwealth Fund and secured from its representatives the assurance of their willingness to finance this project subject to the approval of the Board of Directors of the Fund. In April of 1935 the Board approved the grant of \$10,000 for the financing of the proposed study.

The following resolve was introduced into the Legislature and passed:

"Resolved That an unpaid special commission consisting of the commissioner of public health and the commissioner of mental diseases ex officio, and ten other members to be appointed by the governor is hereby established for the purpose of studying and investigating the public health laws and policies of the commonwealth. After completing said study and investigation but not later than the first Wednesday in December in the current year said commission shall report to the general court by filing with the clerk of the House of Representatives the results of its study and investigation with its recommendations if any as to what changes it deems necessary in such laws and policies together with drafts of such legislation as may be necessary to carry such recommendations into effect.

This resolve was passed in May 1935 resulting in the appointment by His Excellency the Governor of the following Commission:

Professor Curtis M. Hilliard—President, Massachusetts Health Council
Professor Biology and Public Health Simmons College

Professor Wilson G Smillie—Professor, Public Health Administration, Harvard School of Public Health

Dr Alexander Begg—Dean, Boston University School of Medicine, Acting Secretary,* Massachusetts Medical Society

Professor Samuel C Prescott—Dean of Science and Professor of Industrial Biology, Massachusetts Institute of Technology

Dr Dwight O'Hara—Chairman, Public Health Committee, Massachusetts Medical Society, Professor of Preventive Medicine, Tufts College Medical School

Dr David Scannell—Chief of Surgical Service and President of Senior Staff, Boston City Hospital

Dr Francis X Mahoney†—Health Commissioner, City of Boston

Dr Charles F Wilinsky—Deputy Health Commissioner, City of Boston, Executive Director, Beth Israel Hospital

Dr Gerardo Balboni — Physician, Home for Italian Children, Member of staff of Massachusetts General Hospital.

Dr Charles E Mongan—President, Massachusetts Medical Society

After its appointment, the Commission met and elected these officers

Dr Henry D Chadwick, Chairman

Dr Wilson G Smillie, Vice-Chairman

Dr Charles F Wilinsky, Secretary-Treasurer

The Commission set up fourteen committees to investigate major Public Health problems and procedures. Over one hundred men and women, leaders in their fields are engaged in the study of the following topics

- 1 Transference of vital statistics to the official health agency
- 2 Formulation by the State Department of Public Health of statewide quarantine requirements
- 3 Transference of municipal and county tuberculosis hospitals to the State
- 4 Suitable standards for public health personnel
- 5 The development of measures which may serve to take public health more nearly out of the field of politics
- 6 Development of a more effective program for the control of gonorrhea and syphilis
- 7 The development of adequate resources for rural communities, commensurate with their ability to pay
- 8 Development of adult hygiene
- 9 Better coordination of the school health services
- 10 Formulation of reasonable laws for the suppression of rabies
- 11 Formulation of a program for the reduction of maternal mortality

12 Development of more effective health standards for industry

13 The licensing of hospitals

Of particular interest to hospitals are these subjects

- 1 Licensing of hospitals
- 2 Who is responsible for the payment of bills incurred in the care of the indigent in time of sickness in hospitals and in the home, also bills for the care of the injured in accidents, i.e., auto accidents
- 3 Abuse of hospital charity, question of legislation making it a misdemeanor to obtain such under false pretense
- 4 Responsibility of public health agencies for preventive medicine
- 5 Statistics
- 6 Miscellaneous—are there other subjects for consideration?

A number of the appointed committees have already submitted their reports to the Commission. Others are still working in subcommittees on various aspects of their particular studies.

There can be no question that the ultimate recommendations of the Commission will do much to strengthen Public Health work in Massachusetts and consequently to improve the health and well being of the inhabitants of the state.

HOSPITAL COUNCILS*

BY NATHANIEL W FAXON, M.D.,

*Director, Massachusetts General Hospital and
Massachusetts Eye and Ear Infirmary*

Hospital Councils have developed from Superintendents' Councils or Clubs or other unofficial groups. The first Hospital Council, as such, that I know of was the Cleveland Hospital Council, established in 1915. The success of this Council and the very evident need of such organizations led to the formation of other Councils throughout the country. Some of these Councils were formally incorporated, included practically all the hospitals of the city as members, were intimately associated with health and welfare organizations and took an active part in community life. Others were small, in formal gatherings of hospital superintendents who met to exchange information on matters of internal administration.

The American Hospital Association, believing that Hospital Councils were destined to play a part in the growth and development of hospitals from a community standpoint and in their relationship to Health and Welfare Departments, recommended, in 1932, that it be a subject for consideration by the Council on Community Relations and Administrative Practice (as it was then called). Since then the Council has made several reports upon the number, formation and accomplishments of Hospital

In June 1935 elected as Secretary
†Died January 14 1936

*Presented at the meeting of the New England Hospital Association, February 28 1936 Hotel Statler Boston.

Councils and has offered suggestions regarding the formation of Councils.

Although many and varied types of Hospital Councils have been found to exist, it can definitely be stated that their functions fall into two groups

- A. Cooperation among hospitals in dealing with common problems of internal administration
- B. Coordination of hospitals in action on community relations

Under the first group A, the following activities appear

- (a) Promotion of uniform statistics and accounting
- (b) Collection and dissemination of information cost of supplies wages
- (c) Collection and dissemination of information concerning rates
- (d) Cooperative purchasing
- (e) Cooperative action in collecting
- (f) Development of common standards of admission to wards and Out Patient Departments

Under the second group B there develops common action

- (a) In relation to legislation
- (b) In relation to publicity
- (c) In relation with other agencies e.g. with the medical profession, local tax appropriating bodies, other governmental departments Industrial or Insurance agencies.
- (d) Common action in establishing Group Hospitalization.
- (e) Relations with fundraising organizations
- (f) Coordination with hospitals in other communities in the same region.
- (g) Participation in community hospital and health surveys
- (h) Participation with other community groups in dealing with questions of the amount and distribution of hospitals and out patient facilities size and location of new hospitals and proposed additions

These items of course do not cover all the fields of activity but are set down merely to indicate what Hospital Councils have already taken up advantageously

I want to call your attention particularly to this last function because in the opinion of some who have given thought to these matters this will ultimately prove to be the most important activity of Hospital Councils. We are supposed to be living in a civilized community and civilization in one sense consists in giving up voluntarily some of your rights in order that you may live peacefully with your neighbor he of course doing likewise. Now what is applicable to individuals should also apply to institutions for instance to hospitals. None of us as individuals or as we represent institutions are willing to sacrifice all our autonomy nor is it

needful but we must recognize that there is a community welfare as clearly as there is a personal or institutional welfare. In every city there can be pointed out the mistakes in hospital building that have been made because the viewpoint and welfare of the community have been sacrificed to the ideas and plans of the individual organization or institution. From this formation of Hospital Councils the American Hospital Association has hoped to promote the consideration of hospital problems upon the broad basis of the welfare of the community.

The American Hospital Association Council also recommended that the term Hospital Council should be applied to an organization only when it included representatives of hospital departments other than the administration, as for instance Trustees, Staff and others, and also representatives of community interests. For organizations consisting only of Hospital Superintendents the term Superintendents Conference was recommended. Where a number of small communities covering a considerable area had formed a joint organization having the same purposes as a Hospital Council that it be called a "District Association". The latest report of the Committee 1935 shows

- 24 Local Hospital Councils
- 13 Superintendents Conferences
- 7 Regional or District Associations

These are all active organizations. Undoubtedly there are many more informal groups

The Hospital Council of Boston was formed January 30 1935 by action of twenty three Boston hospitals. For many years there had been an informal Hospital Superintendents Club but it was evident that a more formal organization was necessary—one which should include other community elements and which could represent the hospitals in relationship to the Health League Council of Social Agencies and the Community Federation.

The object of the Hospital Council of Boston is to promote intelligent planning and coordination in the field of community hospital service to serve as a forum for the discussion of common problems and as a clearing house for the exchange of information looking to the advancement of service to interpret to the public functions of hospitals and their place in the community to cooperate with other agencies concerned with health and social problems and such other business as may properly come before the Hospital Council."

Each member hospital was to have three representatives, a Trustee the Superintendent, and—this was an unusual feature—a representative of the medical staff. Besides this representation from member hospitals there were also representatives from the Massachusetts Medical Society the Dental Society the Nurses Association and five persons representing the public at large

A close tie-up with the Boston Health League and the Council of Social Agencies was effected. The Executive Secretary of the Health League was made Executive Secretary of the Hospital Council,

giving half time to each position. These three agencies occupy adjoining offices with many services and activities in common. This is economical and keeps the different organizations accurately informed of what the others are doing and so avoids wasteful duplication and loss of time.

It is hard to evaluate the Council as yet, it is too young. Perhaps if we look back over some of the items set down as proper functions for a Hospital Council and see how many we can check off, we may get some idea of the activities of the Boston Hospital Council during its first year.

Under those functions listed as coöperation among hospitals in dealing with common problems of internal administration we find the following:

- (a) Uniform accounting and reporting undertaken to assist relations with the Community Fund and Federation.
- (b) A start upon the subject of common rates and charges, through the appointment of a committee to cooperate with the Massachusetts Medical Society in adjusting Workmen's Compensation rates with the Insurance Companies and the Industrial Commission.
- (c) Consideration by the Executive Committee of common standards for out patient admissions, though it is only fair to state that nothing much has been accomplished yet.

Under those functions listed as coördination of hospitals in action on community relations, the following:

- (a) Legislation. Just at present this item has occupied our attention almost to the exclusion of all others. Opposition to Bills requiring open staffs, Bills stipulating procedures in surgical operations, Bills taxing hospital property and others have kept the Executive Committee busy. They have also sponsored the introduction of two Bills—one an amendment to the labor law requiring weekly payment of wages, which would exempt hospitals and also a Bill sanctioning the incorporation of nonprofit hospital service corporations for the providing of hospital insurance to groups. In appearing before legislative committees it is a real help to be able to say that you are representing twenty-three hospitals which form the Boston Hospital Council. That represents votes and compels attention.
- (d) Group hospital insurance. A committee is working on this. They have submitted a Bill, House 573. Ask your Representatives and Senators to support it. This applies to all hospitals in Massachusetts.
- (e) Relations with the Community Federation are close and friendly. It is a help to both groups to have a central organization where many problems may be thrashed out in general terms before being taken to the individual unit for final consideration.

- (g) Participation in surveys. These are with us always and the Council acts as a central clearing house in evaluating and collecting data. The one-day census taken under the direction of the Council was well done and the report, which will soon be published, will provide valuable factual data.

So you see we have made some progress. The adoption of uniform accounting and reporting of statistics to the Community Federation, the fostering of friendly relations with the Medical Society, the making of common endeavor with them on WCA problems, the beginning on Group Hospitalization Insurance, the opposing of dangerous legislation and the support of desirable bills have kept the Officers and Executive Committee very busy.

All in all, I think we can say that the Boston Hospital Council has helped, it has offered an organization through which Boston Hospitals may discuss, reach conclusions, and present their views in an effective manner. It forms a rallying and representative point. This is valuable and helpful. What the future will bring only time can tell.

BOSTON SOCIETY OF BIOLOGISTS

The February meeting of the Boston Society of Biologists was held at the Harvard Biological Laboratories in Cambridge, February 26, 1936. Dr. M. G. Banus spoke on The Final Tension in Isometric Muscular Contraction in Relation to Initial Tension and Length. By means of a special apparatus and careful measurements he was able successfully to separate the factors of tension and length in the isolated striated muscle. The final tension plotted against the initial stretch is a straight line function, but if the initial tension instead of the final tension is plotted, a curved line results. This was found to be true in several different striated muscles. Dr. Banus concluded that the final tension is a straight line function of the length of the fibre.

Dr. T. L. McMeekin spoke on Certain Solubility Relations of the Amino Acids and Their Derivatives. By neutralizing the different groups in the amino acids and studying the solubilities of the resulting compounds in water and alcohol, the effect of the neutralized groups was studied. The CH_3 group has a much smaller effect on solubility when it is between two polar groups than when it is a terminal group. The solubility in alcohol becomes greater when the chain of CH_2 groups attached to the carboxyl group becomes longer. When the NH_2 group is removed, the compound becomes less soluble in water and more soluble in alcohol. The effect is the same in all the mono-amino acids. These solubility tables are of great assistance in separating the amino acids and their derivatives.

Dr. H. L. Fevold spoke on the Augmentation of the Gonad Stimulating Action of Pituitary Extracts by Copper Salts. The follicle stimulating hormone of the pituitary stimulates the ovarian follicles to grow. The luteinizing hormone does not increase

the weight of the immature ovary when given alone, but when combined with the follicle stimulating hormone causes greater ovarian development than does the follicle stimulating hormone alone and both follicles and corpora lutea develop. Thus there is a synergistic action of the two hormones.

Yeast extract and yeast ash increase the gonadotropic action of the follicle-stimulating hormone and also of follicle-stimulating hormone plus luteinizing hormone. Copper salts and zinc salts also produce increased responses but copper salts are more effective than those of zinc. Neither the yeast preparations nor the salts alter the qualitative ovarian response to the gonadotropic preparations.

Zinc salts probably bring about their effect by decreasing the rate of absorption of the active material but the effect produced by the copper salts cannot be explained on this basis. In normal immature rats, copper salts increase the action of both follicle-stimulating hormone and follicle-stimulating plus luteinizing hormone, but in hypophysectomized rats they increase the action of follicle-stimulating hormone alone. Zinc salts produce the augmentation of both types of gonadotropic preparations in normal and in hypophysectomized rats. Copper salts also produce ovulation in rabbits while zinc salts do not. For these reasons it is assumed that the copper acts as a catalyst between the follicle-stimulating hormone and the luteinizing hormone. Thus if there is no hypophysis, there is presumably no luteinizing hormone in the blood with which the follicle-stimulating hormone can react. However when the follicle-stimulating hormone and luteinizing hormone are injected together with copper into hypophysectomized rats, augmentation takes place as in the normal animals.

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held Monday April 27 at 8 15 P.M., at the Boston Dispensary 25 Bennet Street. Program 1. The Significance of a Prominent S-Wave in Lead II of the Human Electrocardiogram Dr George Ravit. 2. Observations on Shock and Collapse Dr S J Thannhauser. 3. Unexplained High Basal Metabolism Rates in Heart Disease Without Failure, Dr Heinz Magendanz. 4. Clinical Observations on the Treatment of Angina Pectoris Dr Joseph H. Pratt. 5. Some Effects of Diet Restriction on the Circulation in Patients with Heart Disease. Dr Samuel H. Proger.

All members of the New England Heart Association and interested physicians are invited to attend.

JAMES M. FAULKNER, M.D., Secretary

NEW ENGLAND SOCIETY OF PSYCHIATRY

The Annual Meeting of the New England Society of Psychiatry will be held at the Gardner State Hospital, East Gardner Massachusetts Wednesday April 22, 1936

The speaker will be Dr A. Myerson, Professor

of Neurology Tufts College Medical School Clinical Professor of Psychiatry Harvard University Medical School whose subject will be "The Neuroses"

HARLEY L. PAINE, M.D., Secretary-Treasurer

THE AMERICAN ASSOCIATION FOR THE STUDY AND CONTROL OF RHEUMATIC DISEASES

The American Association for the Study and Control of Rheumatic Diseases will hold its fifth conference on rheumatic diseases at the Phillips Hotel third floor on May 11, at 9 o'clock in Kansas City

The tentative program appears below

An Educational Program of the Differential Diagnosis of Diseases of Joints

- 1 Clinical Grouping and Diagnostic Approach to the Patient with Joint Conditions Dr Russell Haden.
- 2 Differential Diagnosis of Joint Diseases from the Standpoint of Pathology Dr Edwin P. Jordan
- 3 The Essential Features in Differential Diagnosis of Atrophic and Hypertrophic Arthritis Dr Ralph Boots
- 4 Differential Diagnosis between Strumpell Marie Disease and Osteoarthritis of the Spine Dr Joseph L. Miller
- 5 Differential Diagnostic Points of Gonorrheal Arthritis Dr Stafford Warren
- 6 Differential Diagnostic Points of Tubercular Arthritis Especially Tubercular Polyarthritis Dr Frank D. Dickson.
- 7 Differential Diagnostic Points of Rheumatic Fever Dr Ralph A. Kinsella.
- 8 Differential Diagnostic Facts about Gout, Distinguishing It from Other Joint Diseases Dr Philip S. Hench.
- 9 Differential Diagnosis of Traumatic Arthritis Dr Willis Campbell.
- 10 Differential Diagnosis of Fibrositis. Dr C. H. Slocumb
- 11 Differential Diagnostic Points of Constitutional Conditions Mistaken for Arthritis Which Produce Skeletal Aches and Pains Dr William J. Kerr

THE AMERICAN NEISSERIAN MEDICAL SOCIETY

The American Neisserian Medical Society will hold its second annual meeting on May 18 1936 in the Hotel Statler Boston, Massachusetts. All who are interested are cordially invited.

PROGRAM

- 10 00 A.M. The Flow of the Seed in Antiquity
M. L. Brodny M.D., Boston
- The Technique of Isolating the Gonococcus and of Determining the Thermal Death Time
C. M. Carpenter M.D., Rochester
- The Application of the Thermal Death Time

consists of a long, laced leather cuff applied to the arm from the upper deltoid region to just above the elbow and connected by a hinge with a similar cuff on the forearm. If there is a wrist drop from radial nerve injury, a light aluminum cockup splint to the hand is provided, attached to the forearm cuff. The patient is then instructed to use the arm in as nearly normal a manner as possible. The actual degree of function obtained by the use of this apparatus is quite striking as compared with the former marked limitation of arm activity. The previously wasted muscles regain power, circulation is greatly improved and by x-ray there is a progressive decrease of the bone atrophy. The length of time that the splint is worn is determined by the original condition, by the rapidity of improvement in the functional appearance and by the x-ray evidence of diminishing bone atrophy. The average duration in these cases was five months.

We wish to emphasize, however, that in the above patients nonunion had been present from one and one-half to three years and that these individuals had all previously submitted to surgery on the humerus. One patient had three operations, another two, and two patients had one unsuccessful operation to secure union of the fracture. In each instance our roentgenograms revealed pronounced bone atrophy of the fragments. There was evident circulatory disturbance in the extremity as well as advanced muscle wasting. Slight to moderate loss of radial nerve cutaneous sensation was noted in three patients, associated with weakness in the extensor muscles of the forearm.

This particular group of patients would obviously require a relatively long interval of preoperative care. In cases seen earlier, however, without previous operation, and in whom bone atrophy, muscle weakness and local circulatory insufficiency were not so marked, it was evident that the preoperative treatment would be of shorter duration than is here reported.

BLOOD CHEMISTRY

In all patients exhaustive blood chemistry studies were done with repeated estimations (in operated cases) of the blood calcium, phosphorus, and phosphatase. With one exception the findings were normal. The "product" of calcium phosphorus determinations was not significant. In one patient, Case 5, the blood phosphorus averaged 1 to 12 milligrams on four examinations. This value is lower than the average blood phosphorus estimation (25 to 40 mgm per 100 cc blood). Therefore phosphorus, in the form of dibasic calcium phosphate, was administered by mouth for five months, when the blood phosphorus averaged 3 to 44 milligrams per 100 cc of blood.

DIET

All patients were given a high vitamin, high protein diet with adequate calcium and phosphorus bearing food. The obese patients were reduced, and cases of malnutrition advised a high caloric intake. The bowel function was supervised and in fact every effort made to improve the patient's physical and mental status. In each instance the individual's general condition at the time of operation was decidedly better than when first seen.

THE ONLAY GRAFT WITH METAL SCREW FIXATION

Sever sums up the requirements for treatment of nonunion in fractures of the humerus when he states that the operative repair must provide primary internal, as well as secondary external fixation for a long period. This author also remarks that external fixation is never complete in any apparatus.

We feel that primary *internal fixation* by autogenous bone graft is especially important. In our hands, such fixation is best secured by the use of the massive onlay graft held by metal screws. While two of the cases in this series were successfully treated by the inlay graft technique, the degree of primary internal fixation obtained by us through this method, does not compare with the firm fixation secured through use of the onlay graft. Furthermore, in patients with nonunion of the humerus a "carpenter's fit" for the inlay graft is difficult to obtain in the slender, atrophied fragments and yet not injure the adjacent thin margins of humeral bone.

The reader is referred to the articles by Mitchell, Henderson and by Campbell for a detailed description of the general technique of application of the massive onlay graft. The significant modification in our hands is the use of metal screws to fix the graft.

The technique of looped chromic catgut sutures (Mitchell) to hold the graft in place has not, in our opinion, provided sufficiently firm internal fixation for nonunion of the humerus. In the sclerotic and atrophic humerus we have found that beef bone (Henderson) or autogenous screws or nails (Campbell) do not hold so firmly as a self-tapping metal machine screw (Sherman). Furthermore, bone screws are rather friable and may break off when partly inserted. Finally, we believe that the use of taps and dies to make autogenous bone screws while ideal is not satisfactory because of the time consumed and because of the fragility of normal human bone.

The advantages, therefore, of metal screw fixation of the massive onlay graft may be briefly summarized as (1) the simplicity and ease of application of the graft as compared with the use of beef bone screws or autogenous bone nails.

or screws, (2) the very firm internal fixation secured resulting in close contact between graft and fragments, and (3) with the use of metal screws a corps of assistants is not necessary.

The presumable disadvantage of metal screws is that as a foreign body they might prevent bone union, or later becoming loose have to be removed. But in the two cases so treated there was no evidence of delay in bone union as the x rays revealed advanced callus formation within three months' time (figure 9c). Over an interval of two years and sixteen months respectively, the roentgenograms do not exhibit any signs of bone reaction or absorption about the metal screws (figures 4 and 10).

Metal screws and nails have been, and are of course now, repeatedly utilized by surgeons for fixation of loose bone fragments. In the absence of bone reaction there is a difference of opinion as to whether the metal should be removed. Ashurst, for example, reports patients in whom metal screws or nails remained twenty years without ill-effect. In the cases here reported removal of the metal screws is a simple procedure. All patients are warned that this may be necessary but only in the event of local symptoms or of x ray signs of bone reaction about the screws. We conclude, therefore, that the available evidence does not contraindicate the use of metal screws to hold an onlay graft applied for nonunion of the humerus.

ACCESSORY CHIP AND SPLINTER GRAFTS

In addition to the massive onlay graft it is also most important to surround the fracture site with splinter and chip grafts of cortical and particularly of cancellous bone (figures 8b and 11) likewise removed from the tibia preferably from near the epiphyseal line. The square surface of raw bone is thereby greatly increased and in addition a large local supply of calcium is available so that the probability of bony union is still further assured.

NONUNION WITH INFECTION

In patients with nonunion of the humerus following fracture and associated with infection the bone graft operation as herein described is not undertaken until one year after the closure of all wounds, particularly in the presence of considerable scar formation. When the time for operation is determined the procedure is divided into two stages. The scar is first excised and if this operation is not too extensive the bone fragments are also prepared for the graft and the wound then closed. If the immediate postoperative course is uneventful the wound is then reopened in fourteen to twenty-one days and the onlay graft applied.

In this type of case, that is, where there has been infection, Phemister reports that if the in-

fection can be sufficiently well localized, and hence probably avoided at operation, much time and disability may be saved by the use of the onlay splint graft. The latter is not fastened to the humerus but simply placed on the two fragments, with the fracture area as the mid point. To succeed in such an operative attack, in the absence of any internal fixation, it is additionally required that the bone fragments be held in relatively good alignment and position by preëxistent callus or scar.

OTHER METHODS

The following brief statements summarize our views on other commonly employed methods of bone grafting.

The intramedullary peg graft is decidedly not satisfactory for treatment of nonunion of the humerus.

The osteoperiosteal graft alone is not adequate chiefly because of lack of internal fixation. Thus we believe to be true even if step cutting and suturing of fragments are performed. Such a graft may often be advantageously employed as an accessory aid to bone union, or, in those instances where immediate fixation by the graft is not necessary, that is, when the alignment and approximation of fragments is acceptable and fixation is secured by a combination of preëxisting callus plus the externally applied apparatus.

The sliding bone graft appears preferable to the above two methods, but because of the atrophic and often sclerotic bone necessarily utilized, we do not believe that this procedure is as effective as a massive onlay graft from the tibia.

We have had no experience with ivory plates or pegs.

Steel plating in these cases is unwise, while silver wire is to be condemned.

COMMENTS ON THE OPERATIVE TECHNIQUE OF ONLAY GRAFT WITH METAL SCREW FIXATION

It is decidedly advantageous to apply a snug body cast with shoulder straps two days before operation. Following application of the bone graft a close fitting arm plaster, extending from the proximal hand to shoulder, is then attached to the body cast. This cast is worn until roentgenograms exhibit bone union—an average of three to five months. If the cast is applied in the manner described it is possible to obtain the maximum degree of firm, postoperative external fixation. Such immobilization is essential to secure healing of the fracture.

The skin incision should be ample so that there is no trauma to the soft parts from retraction. The exposure of the humeral shaft (figure 12) as described by Henry affords easy access to the bone with minimal bleeding and complete protection of the radial nerve.

The periosteum of the humerus is incised and

gently separated over an area sufficient only to admit placing the graft directly on the humerus. In this connection we have not found clinical evidence that the periosteum alone is of osteogenetic significance. However, the periosteum is vitally important in maintaining bone circulation as emphasized by Gallie and Robertson.

As Henderson suggests, the eburnated ends of the bone fragments are easily prepared by a transverse saw cut, thus removing the greater part of the sclerotic bone. Drilling (with a 1/4 inch bit) of the medullary canal may also be done.

The bone bed in the fragments upon which the graft is to lie is most simply fashioned by using a broad osteotome and removing a thin layer of cortex down to bleeding bone (figure 13).

The average size of the onlay graft in these cases is one-half inch wide, six inches long and in thickness the depth of the tibial cortex down to the medullary canal. The necessity of a large graft cannot be too strongly emphasized. The graft is easily removed from the tibia by motor saw and chisel.

The bone fragments then are aligned and the graft held in place by an assistant. Holes are drilled through the graft and the superior cortex of the humerus with a special bit measuring one thirty-second of an inch less in diameter than the diameter of the metal screws (9/64 of an inch). The latter are the self-tapping vanadium machine screws devised by Sherman. When finally in place, the screws pass through the graft and *both* cortices of the humerus (figure 13). The resulting fixation is so firm that the extremity feels like the normal arm.

After placing multiple bone chips and splinter grafts about the fracture, the wound is closed in layers and the plaster spica completed.

CONCLUSIONS

1 Nonunion in shaft fracture of the humerus most frequently occurs in the mid-third and junction of the mid and distal third of the humeral shaft.

2 Of the various factors which may cause nonunion we are impressed by (1) early operation, that is, performed at the time of or shortly after the fracture and (2) faulty fracture immobilization.

3 To obtain bone union the importance of adequate preoperative care is emphasized. Such a régime is directed toward improving arm circulation, to overcoming muscle weakness and to diminishing the atrophy of the bone fragments. This is accomplished by instructing the patient to wear an arm splint designed to immobilize the unstable fragments of the humerus and so permit relatively normal arm function. As ex-

plained in the text the length of time the splint is worn is an individual problem. With nonunion of long duration and the consequent marked atrophy of bone and soft parts, as in the patients here reported, the preoperative care averaged five months. In addition every effort is made to improve the patient's general physical and mental status through proper diet, rest and good hygiene.

4 In our opinion the most satisfactory operative procedure in these cases is that of the massive onlay graft with metal screw fixation. The use of metal screws greatly simplifies this operation. The case histories of two patients treated by this method are reported in detail. In both instances a good result was obtained.

CASE 1. Mrs. N. B., housewife, aged twenty-nine years, was admitted to the Clinic on August 30, 1932 for treatment of nonunion of a fracture of the left humerus.

In April, 1931 the patient was in an automobile accident and sustained a simple comminuted and spiral type of fracture of the shaft of the humerus at the junction of the middle and lower third. Immediate wrist drop and loss of sensation over the dorsum of the hand and forearm were reported. This condition gradually improved by slow progressive stages so that on admission to the Clinic there remained superficial anesthesia of the dorsal forefinger, together with moderate weakness of the extensor muscles, thumb and distal forearm. Within three hours after the injury open reduction was performed elsewhere. Apparently the fragments were sutured with catgut. The arm was then held in a metal splint for four weeks. One year after the injury, also elsewhere, an intramedullary bone peg graft was inserted between the humeral fragments. The patient was immobilized six weeks. Nonunion persisted.

On admission to the Clinic there was obvious complete instability of the humerus (figure 1).



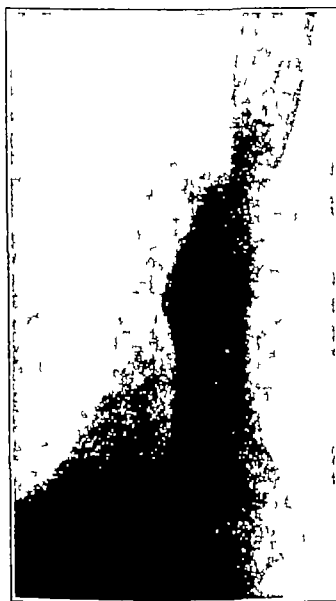
FIGURE 1 Case 1—Admission photograph. Note scar of previous operations and that to raise arm it must be supported.

Range of wrist motion was normal, but there was definite weakness in the grasp of the hand.

The x-rays (figure 2) revealed marked generalized atrophy of the bone of the humerus and sclerosis of the ends of the fragments. No attempt at bone repair appeared. The only laboratory note of significance was a blood phosphorus of 13 milligrams. All other findings were normal. The general health of the patient was excellent, although she was somewhat overweight.



a



b

Preoperative Treatment Carried out as described above. Dibasic calcium phosphate by mouth raised the blood phosphorus at the end of four months to an average level of 3 to 3.4 milligrams. A leather arm splint permitted active function of the extremity so that at the end of five months there was marked improvement in the circulation and muscle development in the arm while bone atrophy was appreciably less.

Operation On January 23 1933 an inlay graft of bone removed from the tibia was done splinter and chip grafts placed about the fracture line and the arm then immobilized in a plaster spica. May 8 1933 Five months postoperative roentgenograms showed maintenance of alignment of the fragments and apparent early healing of the fracture. On July 30 1933 further x rays revealed fracture of the bone graft. The position of the humeral fragments was unchanged. Plaster cast support was therefore continued. But on October 25 1933 ten months following the operation, while the graft had united to the proximal fragment of humerus there was definite absorption of the graft at the site of fracture and complete failure of bone union of the humerus.

February 10 1934 a second operation consisting of application of a massive onlay graft with metal screw fixation was done. Multiple chip and splinter grafts were also placed about the site of the fracture (figure 3). The arm was immobilized in a plaster spica for five months. Union was obviously underway in the fourth month and five months following the operation the fracture had completely healed. The patient regained normal function of the extremity within one month from this time and since then has continued to use the arm in a normal manner.



FIGURE 3: Case 1—c. d—Admission x rays. Generalized



b



c

FIGURE 3 Case 1—*a*—X-rays taken just before the second operation consisting of the application of a massive onlay graft. Note slight lateral bowing of proximal fragment of humerus due to angle of union of part of inlay graft.

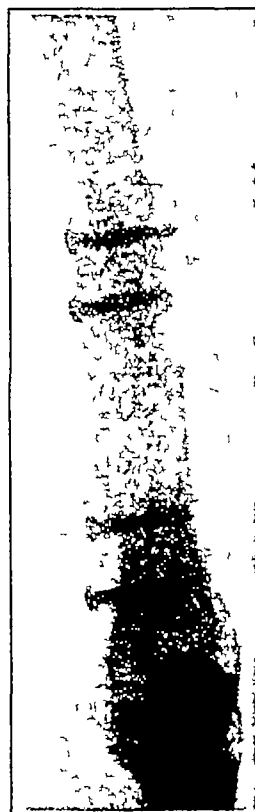
To prevent excessive shortening of the humerus it was decided preoperatively to accept this deformity. It was thought that with bone union obtained continued bone growth would tend to correct this angulation progressively (compare figure 5).

b—Immediate postoperative A-P x ray showing massive onlay graft in place and fracture line surrounded by multiple chip and splinter grafts.

c—Lateral roentgenogram three months postoperative. (The immediate postoperative lateral film was not sufficiently clear to reproduce.) Note extensive callus and beginning union.



a



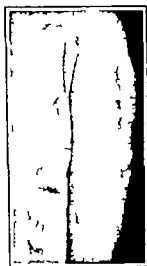
b

FIGURE 4 *a b* Case 1—Two year follow up. Firm bone union. There is no roentgenographic evidence of reaction about the metal screws.

February 13 1936—Check up roentgenograms, taken two years following the operation (figure 4) do not show any reaction about the screws and reveal firm union of the fracture. The patient reports no symptoms. Function of the arm is normal (figure 5)



a



b

FIGURE 5: a, b Case 1—Two year follow up. No symptoms. Normal function of the arm. Note comparison of arms reveal no deformity

Summary of Case 1 Ununited fracture of three years duration in a twenty nine year old housewife and located at the junction of the middle and lower thirds of the shaft of the left humerus. Two previous operations before admission to the Clinic. An additional attempt by us to obtain union with an inlay graft was unsuccessful. This graft fractured during the sixth postoperative month and was in greater part absorbed by the tenth month after the operation. The patient was re-operated on February 10 1934 with application of massive onlay graft held by metal screw fixation together with multiple chip and splinter grafts placed about fracture line. Union was obtained.

Follow-Up Two years after the operation there is normal function of the arm, while the roentgenograms reveal no evidence of reaction about the metal screws. The patient carries on her usual activities.

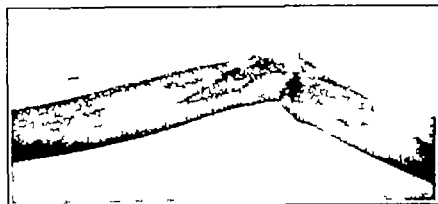
CASE 2. Mr. A. H., student, aged twenty years, was admitted to the Clinic March 24 1934 for treatment of nonunion of fracture of the middle third of the shaft of the right humerus.

The patient fell from a ladder and fractured the humerus one and one-half years before admission. A closed reduction was twice attempted elsewhere but the fracture did not heal. Six months later also elsewhere, a bone graft from the tibia was applied (the exact type of procedure not known) but nonunion persisted.

Examination revealed an ununited fracture at the middle third of the shaft of the right humerus with complete flail motion. The x rays (figure 6) exhibit



a



b

FIGURE 6: a, b Case 2—Admission roentgenograms; characteristic pseudarthrosis with generalized bone atrophy of the humerus.



FIGURE 7 Case 2—Admission photograph Observe the pronounced muscle atrophy

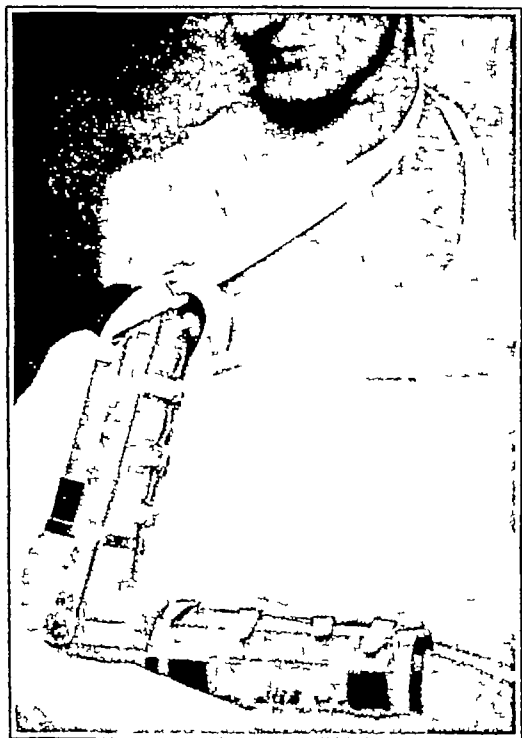
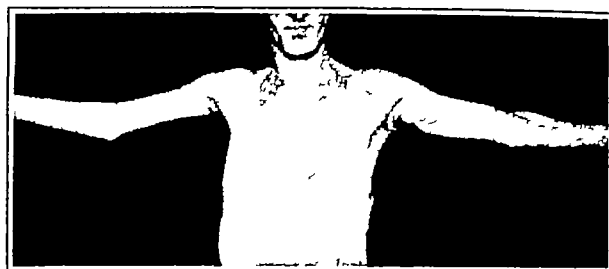


FIGURE 8 Case 2—Illustrating the type of brace worn to encourage active function of the extremity in order to improve the arm circulation develop musculature and overcome bone atrophy of the humerus

pronounced generalized atrophy of the fragments of the humerus and the usual sclerosis at the end of the fragments. The third fragment was considered to be probably part of a bone graft from the previous operation. As seen in figure 7 there was



a



b

FIGURE 9 a, b—Case 2—Sixteen months follow up Normal arm function, no symptoms Compare with figure 7

marked muscle atrophy of the extremity, the circulation was inadequate and disability complete. General physical examination and a detailed blood study was in no sense remarkable except that the patient was rather slender and apparently somewhat under weight.

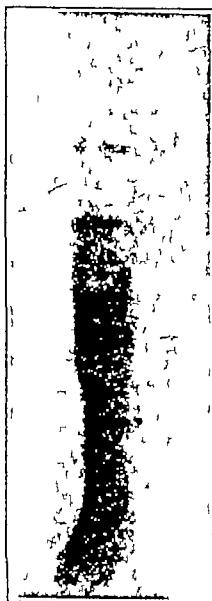
Preoperative Treatment The patient was placed on the régime as described. He wore the supporting arm brace for six months (figure 8) at the end of which time his general condition was considerably improved. The musculature of the arm was then decidedly stronger while the circulation was comparable to that of the uninjured arm. In addition the roentgenograms revealed a generalized increase in density throughout the shaft of the humerus.

On October 19, 1934 an onlay graft with metal

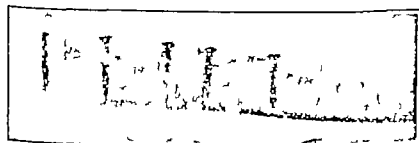
screw fixation was applied together with multiple chip and splinter grafts about the site of the fracture. The extremity was then immobilized in a plaster spica.

Postoperative Course In the third month the roentgenograms showed evidence of beginning callus formation which was sufficiently advanced in the fourth month, so that the arm was removed from the plaster spica. On clinical and x-ray examination there was firm union of the fracture. The patient rapidly regained normal function of the extremity (figure 9).

Follow-Up February 19 1936 sixteen months after operation x-rays (figure 10) show a healed frac-



a



b

FIGURE 10: a b—Case —Sixteen month follow up. Roentgenograms show solid union and no evidence of reaction about the metal screws.

ture and no evidence of any reaction about the metal screws. The patient has normal function of the extremity and has resumed his usual activities.

Summary of Case 2 Ununited fracture mid-third shaft of right humerus of one and one-half years' duration in a twenty-year old student. One pre-

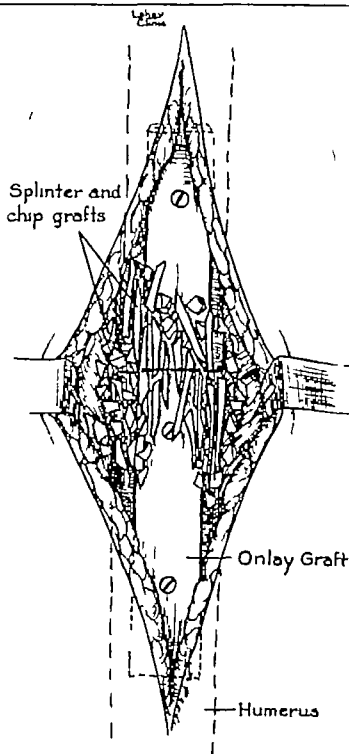


FIGURE 11 To illustrate placing of multiple bone chip and splinter grafts about the fracture line following the application of the onlay graft. The heavy dotted line represents the cut surfaces of the humeral fragments fitted together.

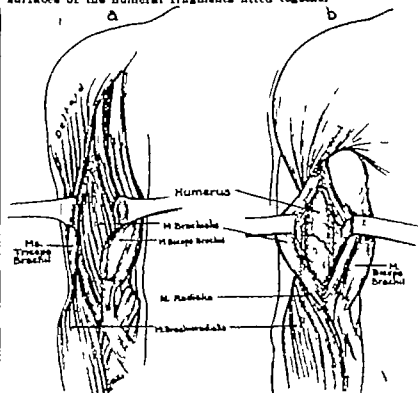


FIGURE 12: Operative exposure of the shaft of the humerus through an essentially avascular field. By splitting the fibers of the brachialis muscle the bone is exposed and at the same time the radial nerve is protected.

vious operation to obtain union one year before admission. The patient is of frail physique with marked bone and muscle atrophy of the injured arm. He was placed on the preoperative régime described for six months, with marked local and systemic improvement.

Operation October 19, 1934 consisted of a massive onlay graft held by metal screws with multiple chip and splinter grafts about the fracture line. Immo-

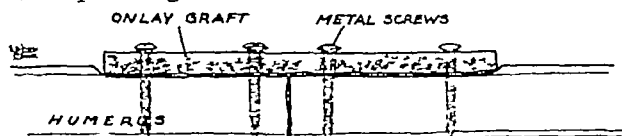


FIGURE 13 Line drawing to illustrate bed of bleeding bone in the fragments upon which the graft is placed, the contact of the cut ends of the fragments and the firm fixation obtained by use of metal screws which pass through the graft and both cortices of humerus.

bilized four months with firm union. Sixteen months follow up shows a good anatomic and functional result. The roentgenograms do not exhibit evidence of reaction about the metal screws.

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THE HEART IN CHRONIC GLOMERULAR NEPHRITIS*

BY ARTHUR B. RICHTER, M.D.,† AND JAMES P. O'HARE, M.D.†

WHILE most of our profession now appreciate the importance of the extrarenal elements in one form of Bright's Disease—chronic vascular nephritis—there are many who still regard glomerular nephritis solely as a disease of the kidneys. The first in a series of papers on this form of nephritis¹ pointed out that the eyeground changes found in glomerular nephritis are vascular in origin and that they are essentially the same lesions as those found in nonrenal vascular hypertension. Another paper, to be published later, will show that a significant number of patients with this type of nephritis die from causes other than their renal insufficiency. This paper is a study of the part played by the heart in chronic glomerular nephritis.

While the literature fairly teems with reports on the hypertensive heart there is a great paucity of writing on the cardiac changes in glomerular nephritis *per se*. To be sure, all textbooks refer to its hypertension and cardiac hypertrophy and the ominous significance of uremic pericarditis. Special articles are, however, few indeed and concerned chiefly with special phases of the subject. Barach² and Pyrah³ write specifically of pericarditis. Wood and White⁴ and Schwab and Heermann⁵ in their respective articles disagree on the interpretation

of the electrocardiograph changes found in uremia.

Such a scarcity of reports is easy to understand. In the first place, in acute nephritis the heart is a matter of concern only in the very rare patient in whom hypertensive crises or convulsive seizures bring about congestive failure. Then again in the entire group of patients with cardiac involvement the number of cases of chronic glomerular nephritis is, after all, relatively small. Finally most authors assume—perhaps correctly—that the heart in chronic glomerular nephritis is merely the ordinary hypertensive heart. Our chief purpose in making this report is the twofold one of remedying this lack of established data in the literature and of adding to the existing knowledge of pericarditis in nephritis.

A Renal Clinic in existence for eighteen years has given us an unusual opportunity to follow a fairly large group of these patients through out a large part of their illness. Our report is based on a study of all patients with significant chronic glomerular nephritis who have come to autopsy at the Peter Bent Brigham Hospital from its opening in 1913 to the beginning of the year 1935. From a total of seventy-five such cases five have been excluded for complicating cardiac valvular disease and four because they were examples of that unusual and complicated syndrome described by Libman and Sachs⁶, Tiemann⁷ and Christian⁸ of long continued fever with inflammatory changes in serous and synovial membranes, subsequent glomerular nephritis and chronic fibrous pericarditis.

*From the Medical Clinic of the Peter Bent Brigham Hospital Boston.

†Aided by the Fund for Research in Renal and Vascular Diseases.

This is the third in a series of papers on Chronic Glomerular Nephritis.

†Richter Arthur B.—Assistant Resident Physician Peter Bent Brigham Hospital 1935. O'Hare James P.—Senior Associate in Medicine Peter Bent Brigham Hospital. For records and addresses of authors see This Week's Issue, page 849.

Of the remaining sixty six patients, forty one were males and twenty five females, varying in age when first seen, from 2 6¹/₂ to sixty two years. One-third of our sixty six patients were observed periodically from one to ten years. Another third were followed from one to twelve months. Observation in the remainder was limited to a brief but variable period antedating death.

It is obvious that in nephritis as in any other chronic disease death may occur not from the primary disease but from related or wholly unrelated causes. This was so in seven of our patients who died not from uremia but from such extrarenal causes as cardiac failure, cerebral hemorrhage, pneumonia, etc., with renal function still adequate. In these seven the final blood urea nitrogens averaged 37 mgm. per cent. In the remaining fifty nine patients, death occurred in uremia with renal insufficiency practically complete. In them the blood urea nitrogens reached a terminal level averaging 172 mgm. per cent.

In the entire group of sixty six hypertension of moderate or severe grade (average 200/120) was present in all but five. The low pressures in the latter number are easily accounted for by the fact that they were seen only a few days before death and no doubt their pressures represented merely the prelethal fall.

SYMPTOMS

It is well known that most patients with a chronic glomerular nephritis have few or no complaints until the process is far advanced. This is particularly true of the cardiac phase of the disease. Occasionally one does see a patient in whom cardiovascular lesions outstrip the renal disease. In such a patient cardiac problems may appear early and play a predominant role.

While cardiac disturbances of one kind or another developed in every one of our patients, the time of onset, the type and the severity varied considerably. Complaints about the heart were rarely encountered until one year before death with the exception of certain significant differences that did occasionally occur. These will be discussed later. The cardiac symptoms and signs differ but little from those seen in primary hypertension.

Easy fatigue and flatulence possibly of cardiac origin, occurred frequently and early but these symptoms as well as the palpitation and vague apical discomfort, which were less often and more tardily noted, were difficult to evaluate. The two outstanding symptoms were pain and dyspnea and these rarely occurred until one year before death.

Cardiac pain apart from vague and insignificant apical distress was uncommon and when

present was due either to coronary artery disease or to pericarditis. Angina pectoris was a symptom in only one patient and typical coronary thrombosis likewise occurred in but a single patient a lad of twenty eight. This is a much lower incidence than in primary hypertension in which the age of the patient is greater and the arterial disease is usually of longer duration and of greater severity.

Uremic pericarditis, occurring in 44 per cent of our sixty six patients, was a more common cause of precordial discomfort. In sixteen patients it took the form of precordial distress or oppression but in five it was described as severe pain. In eight patients in whom a rub was heard the patient was unaware of any cardiac difficulty. In two cases the precordial pain associated with slight fever leucocytosis, a fall in blood pressure, a friction rub and even electrocardiographic changes so closely simulated coronary artery thrombosis that the true diagnosis became apparent only after the discovery of the urinary abnormalities and the high blood urea nitrogen.

Dyspnea was by far the most prominent cardiac symptom occurring in thirty two cases. As a rule patients first began to complain of this on exertion about one year—occasionally longer—before death. As the disease progressed with an increase in the diastolic pressure and gradually developing cardiac and renal failure shortness of breath became more severe. Shortly before death it was present in practically every patient.

In the late stages the dyspnea was not always exclusively cardiac. Frequently cardiac failure was complicated by severe anemia acidosis and a failing cerebral circulation making it very difficult at times to evaluate satisfactorily the various components that brought about the difficult breathing. Typical Kussmaul breathing was occasionally observed but Cheyne-Stokes dyspnea was much more frequent. Still another form of difficult breathing recurring paroxysmal dyspnea or acute pulmonary edema, was an important feature in six cases. In one of these the old fashioned sweat bath was responsible for a fatal attack. Another patient was of especial interest because his dyspnea was of such striking severity that some unusual pulmonary complication in addition to cardiac failure seemed evident. Autopsy revealed multiple thromboses of the smaller pulmonary arteries and numerous pulmonary infarctions.

SIGNS

While cardiac symptoms are relatively few in glomerular nephritis and important only late in the disease cardiac signs, as one would expect in hypertensive patients are common, and may occur early with the development of the permanently elevated blood pressure. Their significance varies with the individual signs.

*These cases were first seen at the Children's Hospital of Boston. We are indebted to this hospital for the early data.

SIZE OF THE HEART

An accurate determination of the duration and the degree of cardiac hypertrophy is one of the greatest aids in evaluating the cardiac status of the hypertensive patient. The hypertrophied and dilated heart is destined to failure. No accurate method for determining these factors is available and we are compelled to rely on the somewhat uncertain clinical determination of the position and force of the apex impulse and percussion measurements together with roentgen study.

The location of the apex impulse, together with the percussion measurements, was repeatedly recorded in the forty-four cases that were followed for a considerable period before death. By these clinical methods alone the heart seemed to be of normal size in only eight. It was slightly to moderately enlarged in fifteen and moderately to markedly enlarged in twenty-one cases. A rapid increase in size with onset of cardiac failure was noted in an occasional patient. In most instances the greatest degree of cardiac enlargement was found in those cases in which severe hypertension had been present for over a year.

Repeated x-ray studies, consisting of a fluoroscopic examination and a seven-foot film, were available in eighteen patients. By methods of physical examination alone in these cases the heart was moderately to markedly enlarged in twelve, slightly enlarged in two and apparently of normal size in four patients. In this same group by teleroentgenograms twelve of the eighteen cases had definitely enlarged hearts, five of severe grade. Of the six cases with a normal cardiothoracic ratio, roentgenoscopy showed evidence of hypertrophy of the left ventricle in two. The other four with hearts of normal size by Roentgen ray were also normal on physical examination.

In six cases serial teleroentgenograms over one to five years showed progressive cardiac enlargement, a feature not detected with reliable accuracy by physical examination. In three of these a rapid increase in size accompanied cardiac dilatation, the diagnosis being confirmed at the same time by a feeble beat on fluoroscopy. In another the heart was of normal size until an attack of lobar pneumonia. During the following ten months the heart enlarged so rapidly that acute myocarditis was suspected. However the fluoroscope revealed no weakening of the heart beat and necropsy revealed merely a markedly hypertrophied heart.

On roentgenologic examination the aorta was tortuous in over half of the eighteen patients examined. Most of these were in the older age groups. In none was there dilatation above the accepted normal upper limit of 6 cm. in the left oblique view.

HEART SOUNDS

Even when the heart sounds were carefully described in patients followed for several years, the quality, intensity, and splitting of sounds seemed to have but little significance except, perhaps, at the very end. In forty-one out of fifty-six patients the second sound at the aortic area was of increased intensity, accompanied in most instances by an accentuated first sound at the mitral area. This is to be expected with the elevated blood pressure. Diminished intensity of the first sound at the mitral area was only rarely noted.

ARRHYTHMIAS

Prior to the onset of uremic pericarditis clinical irregularities of the heart beat were uncommon. Of the sixty-six cases, premature beats in six and auricular fibrillation in one were the only arrhythmias noted. Those occurring after pericarditis developed will be discussed later.

GALLOP RHYTHM

A gallop rhythm, usually protodiastolic in type, was recorded late in the disease in one third of the sixty-six cases, twelve of these patients had congestive failure. Most of these patients with gallop rhythm died within six months. In this connection, however, it should be remembered that the element of progressive renal insufficiency is of more importance than the cardiac one in the majority of these cases of chronic glomerular nephritis. Therefore the prognostic significance of gallop rhythm can hardly be applied to primary hypertensive patients without renal failure.

MURMURS

In the entire group of sixty-six patients twenty-three showed no murmurs of any kind during the entire period of observation, for some as much as ten years. A fair number of these were, too, severely hypertensive. In forty-three a systolic or diastolic murmur was found at some time during the period the patients were followed. Thirty-seven had a precordial systolic murmur of greatest intensity in the mitral area, these being described as "faint" in seventeen cases, moderately "loud" in twelve, and "loud" in eight cases. A systolic murmur of moderate intensity was sharply localized to the mitral or aortic areas in three cases each. Three more had transient apical systolic murmurs. In ten patients the systolic murmur appeared only with the development of hypertension.

An early blowing diastolic murmur at the aortic area, along the left sternal border, and rarely at the mitral area is not very rare in hypertension. In such cases the heart valves and rings are usually normal at necropsy. A

diastolic murmur of this sort unaccompanied by a thrill, was present in ten cases. In at least three instances it appeared after the onset of hypertension. In two cases the murmur was transient and present only during periods of extreme elevation of the blood pressure. Although anemia was present in the late stages of the nephritis in all of the cases it could not be considered even a possible factor in the production of the diastolic murmurs except in two patients both of whom were adolescents. In one of the six cases in which the diastolic murmur was most typical of aortic insufficiency true structural disease of the aortic valves was suspected. At necropsy, however a markedly dilated pulmonic valve ring was the only valvular abnormality. Of the entire series this case was the only one with appreciable dilatation of a valve ring and in none of the cases did the leaflets show evidence of endocarditis. In four of the ten cases the diastolic murmur occurring early in diastole, was most distinct at the mitral area, resulting in a questionable diagnosis of mitral stenosis in each instance. The presence of diastolic murmurs did not appear to influence the course of the disease in these ten patients, nor was it an apparent factor in the congestive failure which was present in a third of them.

CONGESTIVE HEART FAILURE

Before the terminal stage of chronic glomerular nephritis, congestive failure becomes the most important clinical feature in about one fourth of the cases, as contrasted with primary hypertension where the cardiac factor is the significant one in about two-thirds of the cases. Probably this is due to the greater duration and degree of hypertension in the latter group and to the fact that only about 10 per cent of the patients with primary hypertension die of renal failure. In the primary vascular group the average age of the patients is greater, the incidence of coronary artery disease higher and the degree of cardiac hypertrophy usually greater.

In the present series congestive failure became an important clinical feature and a few months before death in 23 per cent. Left sided failure characterized by paroxysmal dyspnea was the outstanding feature in five patients. As mentioned above, one died in an attack of pulmonary edema produced by the use of the sweat bath. Eight of the ten cases with congestive failure had the usual signs of a failing right heart i.e. orthopnea, severe ankle edema, engorged liver, rales, hydrothorax, etc. In the other two cases the principal feature of the right heart failure was recurrent ascites which led to a consideration of cirrhosis of the liver. Abdominal pain due to an engorged liver was so severe in another patient that an acute surgical condition in the abdomen was at first suspected.

In the terminal stage of the nephritis, edema is usually present and is nearly always cardiac in origin and distribution. Late in the disease all but five of the sixty six cases had slight to moderate ankle and sacral edema. Right heart failure with generalized edema in four patients and left failure in one (pulmonary edema) was precipitated by forcing fluids to about 3000 cc in twenty four hours. This is an adequate warning to those who would force fluids in uremia without considering the enfeebled circulatory mechanism in the terminal stages of chronic nephritis. Two cases with a nephrotic component had generalized edema believed to be both cardiac and renal in origin, the rapid development of renal failure having been accompanied by hypertension and symptoms of cardiac decompensation.

PERICARDITIS

One of the most productive parts of our study concerned the pericarditis found in the uremic stage. In the literature the average incidence of acute fibrinous pericarditis in all types of Bright's disease studied clinically and pathologically is approximately 10 per cent. In fifty nine patients with glomerular nephritis who died in uremia a pericardial rub was heard in 36 per cent. Including those cases in which the acute pericarditis was found only at necropsy we find a total incidence in the fifty nine cases of glomerular nephritis of 48 per cent. This unusually high incidence can be explained only by the fact that we were especially looking for the rub or because our series of cases, though large for chronic glomerular nephritis, is after all relatively small. However, the former explanation seems more probable in view of the fact that the frequency of acute pericarditis in a parallel group of fifty five patients who died from vascular nephritis was 24 per cent more than twice that given in the literature for unclassified nephritis. Our total incidence for both groups of cases was 36 per cent.

In our patients the friction rub varied from the extremely soft and evanescent one to the very coarse one which persisted to death. The former is not infrequently missed because one does not happen to listen at the right time. The coarse rub, in our experience, is more lasting and therefore, rarely missed. In our entire group the rub disappeared permanently in only three patients.

Uremic pericarditis is one of the most important prognostic signs in all medicine the importance of this sign lying in the fact that death occurs ordinarily within a few days to a few weeks after it appears. Barach² however, has reported three patients who have lived from two to twelve months after a rub was heard. In our entire group of fifty nine patients the

²The interest and importance of our observations warrant a separate and detailed report which will be published elsewhere. Only a summary of our findings will be given here.

interval between the appearance of the rub and death varied from one to thirty-six days with an average of seven days.

As for signs other than the rub which has been described previously there were but few. Pericardial effusion was commonly present at necropsy but this condition was diagnosed clinically in only one patient on the basis of an increased area of cardiac dullness and diminished intensity of the heart sounds. The pulse and temperature rose moderately in an occasional case, and the blood pressure remained at its previous level except in the rare patient where a fall led to some difficulty in eliminating from consideration coronary thrombosis.

By far the most striking signs were the disturbances of the cardiac mechanism and various electrocardiographic changes.

ELECTROCARDIOGRAPHY

Electrocardiograph studies were available in thirty-eight of our patients. All had hypertension and about half were on a maintenance dose of digitalis. Eight had definite pericarditis. On the whole the electrocardiographic changes occurring prior to the onset of pericarditis seemed to be of minor importance. If we except the eight cases of pericarditis, arrhythmias were noted in but four patients. Three of these showed premature beats and in one there was auricular fibrillation. The thirty nonpericarditic patients may be divided into two groups, those with proved coronary arteriosclerosis and those without such. Of the former there were eleven with moderate to severe coronary artery sclerosis at necropsy. All of these had at least one tracing within two months of death. The electrocardiograms of four were normal, two showed only left axis deviation while in four more there was an additional T wave negativity in all three leads, and a low voltage of the ventricular complex in one case. The electrocardiographic changes of the one patient with coronary thrombosis were those of posterior infarction.

In the remaining nineteen patients without obvious coronary arteriosclerosis at necropsy the electrocardiograms in general differed but little from those in the group of eleven cases with definite coronary artery sclerosis at necropsy. A small proportion, two out of nineteen, showed negative T waves in all three leads. In four, the T waves were inverted only in leads I and II. Five cases with normal tracings developed, over a period of months, left ventricular preponderance or negative T waves, rarely both. In about 10 per cent of the series the so-called high voltage electrocardiogram was obtained.⁹

Wood and White⁴ in a study of the electrocardiogram in uremia and severe chronic nephritis described positive deviations of the RS-T segment, T wave negativity, and abnormalities of

rhythm and conduction and attributed these to the effect of the uremic toxins on the myocardium. Pericarditis was described in at least two of these cases. Levine¹⁰ in 1929 presented a case of uremic pericarditis with positive deviations of the RS-T segment similar to those described by Wood and White. Recently Schwab and Herrmann⁵ offered proof that pericarditis was the probable explanation of these T wave changes.

A study of our tracings seems to support Schwab and Herrmann. It is significant that no changes except the ones usually found in hypertensive patients occurred in our cases until pericarditis or myocardial infarction had developed. This, of course, does not absolutely exclude uremia or coronary artery disease as a factor.

Let us see what light our data throw on the possible relationship of uremia to the abnormalities found. Quite arbitrarily we have considered that uremia was present when the blood urea nitrogen was 70 mgm per 100 cc or more. For the purpose of comparing the electrocardiographic changes in various periods of the nephritis we divided the patients into three groups as follows:

- (1) Sixteen cases with two or more tracings before uremia developed.
- (2) Fifteen cases in which one or more tracings were taken during well-marked uremia before the appearance of the pericardial rub.
- (3) Eight cases with a total of fourteen electrocardiograms taken while a pericardial rub was present. All of these cases had hypertension. Digitalis effects need not be considered because the drug had been discontinued in all for some time because of vomiting.

Prior to the onset of pericarditis these cases had showed only such minor electrocardiographic changes as axis deviation, T wave negativity, low voltage of the ventricular complex, and an occasional ectopic beat. With the development of pericarditis all of the eight cases except one displayed abnormal electrocardiograms. A positive deviation of the RS-T segment was present in leads I and II in one patient and in all leads of another. The T waves were upright resembling those described by Wood and White. In both patients normal tracings had been obtained a few days prior to the onset of pericarditis. In one of them there was not merely deviation of the RS-T segment but also transient auricular fibrillation and premature nodal beats. Chest leads were normal suggesting that the coronaries were not a causative factor. The changes in the other five patients consisted of transient auricular fibrillation and auricular flutter in two, ectopic

beats (nodal auricular and ventricular) in three and a transient prolonged P R interval in one patient. Two of these cases also had inverted T waves either in leads I and II or in all three leads. Chest lead studies were normal in the latter case.

Although the blood urea nitrogen was slightly higher in these eight cases than in the uremic patients without pericarditis, in both groups the azotemia was severe, averaging 200 mgm per cent and 185 mgm per cent for the two groups. It seems to us probable therefore especially in view of the experimental and clinical studies of Schwab and Herrmann³ that it was the acute fibrinous pericarditis and not the toxic effects of uremia alone which accounted for the alterations in the electrocardiogram mentioned above. However, some unknown factor other than pericarditis must probably account for the occurrence of abnormalities in the R-S-T sector in but two cases. Schwab and Herrmann believe that these deviations in the R-S-T segment in pericarditis are due to ischemia of the heart muscle caused by interference with the coronary blood flow from a rapidly accumulating pericardial effusion. It is therefore of more than passing interest that one of our two cases with R-S-T deviations had less than 20 cc of fluid in the pericardium at necropsy twenty hours after the tracing was taken. The other patient had 400 cc of pericardial fluid. Of the remaining six patients, one showed a normal amount of fluid in the pericardium, three had hydropericardium of moderate amount, two had 700 cc each. A single tracing in each of the last two cases was normal except for an arrhythmia in one.

PATHOLOGY

As the most important pathologic features of the discussion we have selected the weight of the heart, sclerosis of the coronary arteries, pericarditis and the histopathology of the myocardium. Complete data regarding the heart were available for study in fifty nine of the sixty six cases. Fifty three of these died of uremia and death in the remaining six was due to other causes before renal failure became complete. All of the fifty nine cases had hypertension. The duration was known to be more than a year in most of the cases and at least five years in a fifth of those dying of uremia.

The cardiac weights of the fifty three patients who died of uremia ranged from 230 to 670 Gm, averaging 447 Gm, while the average weight of the heart in the six patients who died earlier before renal insufficiency became complete was only 375 Gm. We have arbitrarily used 400 Gm. in the female and 450 in the male as the upper limits of normal weight of the heart. On this basis twenty seven (51 per cent) of the fifty three cases of glomerular nephritis with complete renal insufficiency had hearts above

normal weight, while only one patient in the nonuremic group was found to have a heart above normal weight. The increase in heart weight was mainly due to left ventricular hypertrophy. Even in those cases whose hearts were within normal limits of weight, 50 per cent showed definite hypertrophy of the left ventricle.

The walls of one or both coronary arteries were definitely thickened in fourteen of our fifty nine autopsies. Seven of these fourteen died in the fifth decade, two in the fourth, three in the third and one each in the second and seventh. The average weight of these fourteen hearts was slightly less than that given for the entire series. Narrowing of the lumen was present in five cases with an old thrombosis and myocardial infarction in one. The incidence of definite coronary artery sclerosis in this group of glomerular nephritis is practically the same as that given in nonhypertensive heart disease for all ages by Bell and Clawson.¹⁴

Definite acute fibrinous or serofibrinous pericarditis was present in 48 per cent of the cases dying of uremia. Two cases showed advanced organization of the exudate and almost complete obliteration of the pericardial sac. In the others there were fresh adhesions with varying amounts of pericardial fluid. Hydropericardium of more than 75 cc was present in twelve patients, the largest amount being 700 cc and the average 300 cc. All had ascites or hydrothorax or both. In seven of these congestive heart failure played a part. It is significant however that in only one patient was hydropericardium present without pericarditis. It is also of interest to note that in these patients with pericarditis there was no inflammation of the other serous membranes except an acute pleuritis accounted for by pneumonia.

The pericardial exudate of uremic pericarditis is almost invariably sterile and when microorganisms are found they are usually considered to be secondary invaders. Cultures were sterile in all of our patients but one. In this case two types of bacteria (*B. coli* and a streptococcus) were isolated. These were definitely associated with a superimposed terminal infection of the pericardium. Histologic examination revealed in addition to the mononuclear infiltration of the pericardium commonly present in sterile uremic pericarditis a moderate polymorphonuclear cell infiltration.

The routine histologic study of the myocardium was usually limited to a single block of tissue, unless additional sections were made through areas found abnormal on gross examination. One third of the fifty nine cases showed slight diffuse interstitial fibrosis usually unrelated to significant sclerosis of the coronary arteries. Moderate patchy myocardial fibrosis was present in three cases of severe coronary sclerosis. When acute fibrinous pericarditis was

present an occasional case showed slight degeneration and mononuclear infiltration of the myocardial tissue beneath the layer of pericardial exudate. The histologic changes found in the myocardium were, therefore, comparatively unimportant.

SUMMARY AND CONCLUSIONS

1 Clinical and pathological observations have been made on the heart in sixty-six patients who came to autopsy with chronic glomerular nephritis.

2 The heart in this disease is essentially the same as the heart in primary vascular hypertension except for the modifications brought about by the lower average age, the duration of the hypertensive process, the degree of hypertension, and by the terminal uremic pericarditis.

3 The incidence of acute fibrinous pericarditis in fifty-nine patients who died in uremia was 48 per cent, a much higher figure than previously reported in the literature.

4 Our observations on the electrocardiographic changes occurring in uremia suggest that pericarditis is a more responsible factor than the uremia.

5 The frequency of cardiac disorders in

the last year of life and the significant rôles they at times play, emphasize again the importance of regarding glomerular nephritis not as a specific disease of the kidneys but as a generalized vascular and metabolic disturbance in which the extra-renal factors can never be ignored.

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ENORMOUS BENIGN GASTRIC ULCERATION CAUSED BY MULTIPLE FOREIGN BODIES

BY PHILIP H WHEELER, M D *

THE presence of foreign bodies in the stomach has been reported often, but ulceration of the stomach from such foreign bodies seems to be much more unusual. Such reports in the literature are few. Judd and Phillips¹, however, state that they consider ulceration caused by foreign bodies to be fairly common. Among these are two cases of gastric ulceration reported by E A Hallas², of Copenhagen. One of the cases showed the scar of healed ulcer. He also mentioned two cases, one reported by Tidemand, another by Grauer. The foreign bodies in all cases were cement casts of the stomach. In none of them was the ulceration larger than the size of a two mark piece of pfennig (18 mm).

A case of an unusually large benign ulceration caused by multiple sharp foreign bodies in the stomach, which entirely perforated the gastric wall without any resulting peritoneal contamination, is reported in this paper. We have been unable to find any such similar case reported in the literature. It is likely that the extreme sharpness of the foreign bodies was a very active factor in formation of the ulcer

and it is remarkable that none of these found a way into the abdominal cavity.

The patient, B T, a former railroad telegrapher, forty-three years of age, white, male, was a mental patient at the Brattleboro Retreat where he had been committed for the second time with a diagnosis of manic depressive psychosis, depressive phase. For a period of several months he had been vomiting occasionally, with increasing frequency. There was coffee ground vomitus with the occasional appearance of bright red blood. The stools were tarry. Careful observation of the patient by attendants led them to believe he was taking foreign bodies into his stomach. X-ray examination, October 10, 1933, by Dr C S Leach at the Brattleboro Memorial Hospital revealed a large irregular opaque mass in the cardiac region of the stomach about three inches by four inches in size which appeared to be made up of metal including staples, tacks, and wire. Staples and tacks were visualized in the right abdominal area in the colon (Plate 1). Catharsis delivered staples and tacks. On October 19, 1933, x-ray again showed the gastric mass still present. Two small pieces of metal and a short piece of wire apparently in the ileum and rectum, respectively, were present in addition. Dr Horace G Ripley, Superintendent of the Brattleboro Retreat referred the patient for immediate operative treatment as his vomiting and gastric pain were persisting and his general physical condition was becoming more and more poor.

When examined the patient was very anxious for relief and freely told of the foreign bodies he had swallowed during a period of three to four months

*Wheeler Philip H—Assistant Surgeon Brattleboro Memorial Hospital. For record and address of author see "This Week's Issue" page 949.

Before operation he prepared a partial list of objects he had swallowed in order that they might not be overlooked. Many of the objects such as razor blades, needles, pins and glass he had covered with gum, food et cetera. Yet in spite of these precautions he said that his throat had become very sore at times. His admitted intent was suicide, but death in this manner became so hard that he changed to become a very cooperative patient.

Physical examination revealed a moderately emaciated and pale, neurotic patient in some distress from epigastric pain. The teeth, ears, eyes, nose,

vertebral tenderness. Genitalia were normal. Rectal examination was negative. Reflexes were physiological. B P 120/80 weight 120 pounds pulse 80 temperature 98 respiration 20. The urine showed albumin slightest possible trace, rbc, rare, wbc, frequent. Blood count showed rbc 4,156,000 hemoglobin 65 per cent, wbc, 31,700. Polymorphonuclears 78, small lymphocytes 19, large lymphocytes 2, eosinophils 1.

Gastrotomy was performed October 20, 1933 and revealed a large stomach with the omentum adherent to the lower third of the lesser curvature. The stomach was opened through a transverse incision opposite this point. Numerous intermingled foreign bodies were removed with forceps and fingers. The entire gastric mucosa, especially along the lesser curvature, was badly lacerated, and friable. The omentum adherent to the lesser curvature covered the bed of an ulcer 45 mm. by 32 mm., eroded entirely through the gastric wall (Plate 2.)



PLATE 1

and throat were negative. The lungs and heart were negative to examination. The abdomen showed tenderness to pressure in the epigastrium. No organs or masses were palpable. There was no costo-

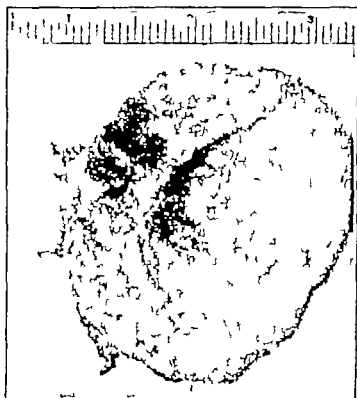


PLATE 2

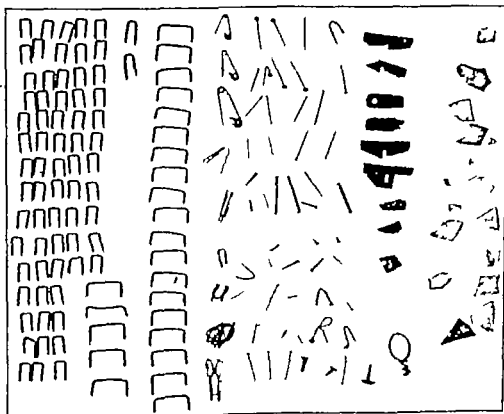


PLATE 3

Tissue immediately surrounding this was extremely friable. The original gastric incision was extended to permit resection of the ulcer. Closure was made, leaving a drain to the lesser omental cavity.

The pathological examination was made by Dr Theodore P Eberhard.

"Sections from four places around the edge show the following. Sharp end of mucosa followed by a thin layer of fibrin and necrotic tissue. The base of the ulcer was composed of granulation tissue and chronic inflammatory cells with complete destruction of the muscularis at some places, and partial replacement at others. The process had spread beneath the muscularis mucosae to the limits of the specimen in some places, and was heavily infiltrated with eosinophils. There is marked activity of the endothelium of the granulation tissue and occasional mitotic figures were seen. No evidence, however, of epithelial malignancy. Gastric ulcer."

Classification of the foreign bodies removed showed sixty-nine narrow staples, twenty-four wide staples, twenty-one pieces of glass, one pencil lead, seventy-two miscellaneous metallic foreign bodies including open safety pins, hairpins, corroded needles, pins, tacks, pieces of safety razor blades, a piece of hacksaw blade, and a screw (Plate 3). In addition to these foreign bodies two small nails, two staples, and two pieces of glass in the intestines were later delivered by enemata.

A gastric fistula opened through the drain the seventh postoperative day and closed spontaneously on the twentieth postoperative day. It never gave further trouble. The remainder of the wound healed per primam.

The patient continued to gain after discharge to the Biattleboro Retreat on his twenty-fifth postoperative day until November 13, when he suffered recurrence of pain typical of gastric ulceration. No knowledge was ever obtained of his taking more foreign bodies. A modified Sippy régime was ineffective. The patient was suffering severely, losing weight and strength. At this time he was despondent and attempted suicide. As a last resort he was placed on a course of Synodal. Coincident with the last treatment he became free of pain and commenced to gain. To the present he has remained in good health and at his normal weight. He occasionally has complained of minor gastric discomfort but there has been no vomiting, definite pain, or tarry stools. His mental recovery kept pace with his physical improvement so that he has been allowed vacations and discharges, from which he has voluntarily returned when the stress of society has become too great. He has shown no inclination to resume his suicidal tendencies and has good mental insight.

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ORTHOSTATIC ALBUMINURIA IN HOMOLOGOUS TWINS*

BY HENRY J BAKST, M D,† WINTHROP WETTERBEE, JR, M D† AND JOHN A FOLEY, M D†

THAT albuminuria may exist in the absence of any demonstrable pathology of the genitourinary tract is a fact which has been generally recognized since the appearance of Moxon's paper in 1878.¹ Although attention had been called to this matter previously, general acceptance was wanting until that time. Confirmatory reports then followed in rapid succession, with at least three in the same year^{2, 3, 4} and innumerable others since that time.

The term "orthostatic albuminuria" was first used by Heubner in 1911. Of the many theories available in regard to its mechanism of production, those of Jehle, Erlanger and Hooker, and Senator have received the widest attention. The first named holds that lordosis of a particular type involving the upper spine (12th dorsal and 1st and 2nd lumbar vertebrae) is responsible for the production of albuminuria because of stasis resulting from interference with renal circulation.⁵ Erlanger and Hooker believe that the chief factor in the production of orthostatic albuminuria is a diminished pulse pressure which occurs with the change from the reclining to the erect posture.⁷ Senator, however, pointed out that orthostatic albuminuria is indicative of some degree of

renal pathology, even though it may not be demonstrable by the methods now at our disposal.⁸

Various modifications of these three main ideas exist. It has been suggested that the condition may be due to a congenital histological defect resulting in increased glomerular permeability,⁹ or to local acidosis resulting from renal stasis.¹⁰ It also has been proposed that many cases of orthostatic albuminuria have their origin in infection,¹¹ and Janeway pointed out that a postnephritic albuminuria may often be brought out by standing, and that it may be increased by exercise.¹² In addition, it has been noted that orthostatic albuminuria occurs most commonly in a thin individual with poor muscle tone, visceroptosis, vasomotor instability and low blood pressure. The chief factor here is renal stasis, due to compression of the left renal vein between the aorta and the mesenteric artery. This view is favored by the fact that in lordosis, the aorta is pushed forward, and, in visceroptosis, tension is applied upon the mesenteric artery.¹³

In order to establish the diagnosis of orthostatic albuminuria, certain definite criteria must be satisfied. The essential finding is that of albuminuria when the patient is erect, and its absence when the patient is recumbent. In addition, as Thorp and Wakefield have pointed out, the sediment must be free from casts and erythrocytes, there must be no history sugges-

*From the Fifth Medical Service, Boston City Hospital and the Department of Medicine, Boston University.

†Bakst Henry J—Junior Visiting Physician, Boston City Hospital. Wetterbee Winthrop Jr—Junior Visiting Physician, Boston City Hospital. Foley John A—Visiting Physician and Physician in Chief, Fifth Medical Service, Boston City Hospital. For records and addresses of authors see This Week's Issue, page 849.

tive of nephritis or nephrosis, and no physical sign commonly associated with nephritis.¹¹

There have been many reports of various diseases occurring simultaneously in homologous or identical twins, but a careful review of the literature has failed to disclose any report of the occurrence of orthostatic albuminuria in identical twins.

CASE REPORTS

J. C., aged nineteen was referred to the Boston City Hospital on May 13 1935 by his family physician. The patient had applied for training with the Citizens Military Training Corps and had been rejected because of the presence of albumin in his urine. He was then referred to the Hospital for an investigation of this finding. The patient had no complaint of any description and felt well in every respect.

The past history was not remarkable. There was no history of symptoms referable to kidney disease no nocturia frequency hematuria edema, visual disturbances, headaches or similar complaints. He had had a tonsillectomy and mastoidectomy at the age of five. He had also had measles pertussis and chicken pox during his childhood. There was no history of scarlet or rheumatic fever sore throats pneumonia pleurisy or joint pains. He did however give a history of "bilious attacks" occurring at rare intervals consisting of headache nausea and urticaria usually lasting about an hour.

The patient's habits were not remarkable. He usually smoked less than a package of cigarettes drank one cup of coffee and three cups of tea daily and used no alcohol.

On physical examination he was found to be seventy nine inches in height and 163 lbs in weight. His blood pressure was 120 mm of Hg systolic and 80 mm of Hg diastolic. The examination was entirely negative. The eye grounds were normal. There was no cardiac enlargement, and no murmurs were made out. There was no scoliosis-lordosis or kyphosis.

Laboratory studies revealed no abnormal data. The hemoglobin and blood morphology were within normal limits except for the finding of 4 per cent eosinophils in the differential smear. The blood serology was negative, and the chemistry including the nonprotein nitrogen blood urea nitrogen blood chlorides, total protein and albumin-globulin ratio were entirely within normal limits as were also the urea clearance, phenolsulphonphthalein excretion, and urinary concentration tests. The daily urines showed wide variations in specific gravity with occasional albumin in varying amounts no sugar and a negative sediment.

X-rays of the kidneys ureters bladder chest, gastrointestinal tract, anteroposterior and lateral views of the spine and pyelograms were negative.

V. C., twin brother of the above entered the hospital on the same date for the same reason. He likewise felt perfectly well had no complaints of any kind and appeared to be in good health.

The past history was essentially not remarkable. He had had a tonsillectomy at the age of five, and also had had measles chickenpox, and pertussis at the same time that his brother had had these illnesses. In addition he had had a mild attack of diphtheria. There was no history of renal disease rheumatic fever tonsillitis pleurisy pneumonia or scarlet fever.

His habits varied slightly from those of his brother. He used a considerable amount of tobacco

including cigars pipe and cigarettes. He was accustomed to drink tea and coffee moderately but did not drink alcohol in any form.

Physical examination failed to reveal any abnormality save for a soft blowing apical systolic murmur which was heard only by one examiner. The heart was not enlarged the rhythm was regular and the pulmonary second sound was not accentuated. The blood pressure was 125 mm of Hg systolic and 80 mm of Hg diastolic. He was 70½ inches in height, and weighed 155 lbs.

This patient was put through the same laboratory procedures as his twin brother and here again, the results were entirely within normal limits. The same x-ray studies were also negative.

The family history revealed several interesting facts. The mother was supposed to have had "kidney trouble" during her second pregnancy (her first pregnancy had resulted in a stillbirth). The pregnancy in question however proved to be an eventful and she went through several subsequent pregnancies which were normal in every respect. Besides the twins aged nineteen there are four healthy children three boys aged eighteen, seven, teen and sixteen and one girl aged thirteen. The father is well except for the fact that he suffers from hay fever. This was of interest in that one of the twins showed probable allergic manifestations.

The maternal grandfather died of tuberculosis and the grandmother of childbirth.

The paternal grandfather is living and well and the grandmother died of cardiovascular renal disease.

One of the boys' aunts had had twins, and a first cousin also had had twins each on one occasion.

The twins were delivered at the Homeopathic Hospital in Boston on August 22 1915. One weighed 5½ pounds at birth, and the other weighed 6 pounds. This difference in weight persisted through childhood. They were always very similar in appearance in fact, they were indistinguishable to people outside the family circle. Their features and bodily characteristics showed a most striking similarity and while they were on the ward the nurses and doctors had difficulty in distinguishing them. Their mental reactions were likewise very similar and their school work had always been of the same quality. Both were right handed and were moderately athletic. One (V) wore glasses for reading the other did not.

The criteria for the recognition of identical twins mentioned by Leavitt¹² were fulfilled in that the boys showed a striking similarity in appearance in mental physical and emotional characteristics had similar birth weights and birth and life histories. It was not possible to determine whether there had been a single placenta.¹³ The general summation of resemblances¹⁴ was so striking as to leave no doubt in our minds as to their probable zygotic origin.

In attempting to form an evaluation of the renal function in each case it was felt that in view of a negative history and physical examination, normal blood chemistry and renal function tests, and negative urines save for the presence of transient albuminuria, we were entirely justified in assuming that demonstrable renal pathology did not exist. This point of view was further supported by negative x-rays of

the kidneys, ureters, and bladder, gastrointestinal tract, and dorsolumbar spine and negative pyelograms. It was further felt that we had not only excluded the presence of organic renal disease, in so far as was possible, but had also ruled out such factors as abnormal kidney position, aberrant ureteral course, and postural scoliosis.

In addition, the diagnostic test advised by Janeway was complied with in each instance.¹ The routine morning specimens from each patient showed the presence of albumin (they had been up and about the ward before passing the specimens). They were then put to bed and specimens were collected at the end of the first and second hours. These proved to be free of albumin. After standing for an hour in a lordosed position, the patients again voided. At this time J's specimen showed a slight trace of albumin, and V's a trace. After an hour in bed J voided a specimen which proved to be free of albumin, while V's showed the presence of the slightest possible trace of albumin. An hour later both specimens were albumin free.

SUMMARY

We have attempted to present briefly an instance of the occurrence of orthostatic al-

buminuria in identical twins, together with some of the views in regard to its etiology, and the accepted criteria for its diagnosis.

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ANOREXIA IN CHILDREN

BY MERRITT B LOW, M D *

THE incidence of anorexia in preschool and school children has been variously estimated to comprise twenty to eighty-five per cent of the pediatrician's practice. Brennemann states that "It is a matter of common knowledge among pediatricians that somewhere around fifty per cent of children seen in private practice do not eat well." In a scientific investigation made among educated people in a university neighborhood the incidence of anorexia was stated to be eighty-seven per cent. A pediatric colleague with a large office practice in a prosperous suburb estimated it at eighty-five per cent in his practice. A very prominent pediatrician has said that "he paid for his house with anorexia." Capper says, "The complaint of loss of appetite, or unwillingness to eat, not only constitutes the basis of the chief complaint in about thirty per cent of a pediatrician's office practice, but it also forms a chief secondary complaint in other so-called chronic diseases."

A practical working knowledge of what constitutes a suitable diet for children is the common property of all those scientifically or professionally interested in the subject. The aver-

age mother of today knows more about the essentials of an adequate diet as expressed in terms of food elements, foodstuffs, vitamins, iodine content, calories, etc., than did the best informed physician of twenty-five years ago. Yet the nutritional results are far from satisfactory. So stereotyped is the monotonous similarity of feeding histories in children that just won't eat that the pediatrician can reconstruct each one ahead of time. The children are not "sick"; they have no demonstrable organic illness, and the problem is not merely one of nutrition.

The chief cause of anorexia in children is well known by physicians to be psychic. It undoubtedly comes from the struggle of trying to standardize a product which is fundamentally individual. The evolution of so-called scientific artificial feeding has been a long, devious, and complicated process. During the past fifteen or twenty years, "standard" charts have crept in to our appraisement of the individual. A normal gain in weight is certainly one of the essential attributes of growth in childhood and is the best single, comparative, objective measure of normal physical development that can be expressed in figures. As a natural corollary have come height and weight charts, and the scale and measuring rod have become ar-

*Low Merritt B—Surgical Resident, Children's Hospital Boston. For record and address of author see *This Week's Issue* page 849.

biters of nutrition. The accumulation of a vast amount of new knowledge concerning an adequate diet has placed the emphasis on the physical to the exclusion of the psychological aspects of nutrition. Stature, weight and size have come to be intimately connected with, and sometimes synonymous with, health, resistance to disease, and many other less tangible but none the less valuable characteristics. The natural effect on modern mothers when confronted by standards has been to proceed to standardize their children to make them weigh what they should according to height-weight tables. That the etiology of anorexia is often purely psychological becomes evident when it is found that it is cured by hospitalization, summer camps, boarding school, etc.

Attempting to make children's weight conform to the standards of charts is the principal cause of anorexia. Schultz says "The environment of the child particularly its relationship to the mother or the immediate attendant, is probably the largest contributing factor or additive cause in the development of anorexia and creates often the most difficult problem in the successful and permanent relief of the condition." To the harassed mother of a "problem" child, with its somewhat intangible, difficultly treated "bad habits", we have in the eating of food a most tangible battlefield for the attempt to "reform", and a place to focus attention with an easily evaluated result. Furthermore, the mother easily rationalizes her self into thinking that here is no mere bad habit but a matter of life and death. Probably the most prominent cause of loss of appetite in an otherwise well child is the attempt to make the child eat a definite amount of food at each meal, day in and day out. As Holt has said, however, "Not what one eats but what one digests, matters."

Summing up then, there are at least three factors which enter into the explanation of this biological phenomenon, the young refusing to eat. First, it is a common trait of human nature to rebel against arbitrary authority. Cameron and others call this 'negativism'. When a child finds himself confronted by an arbitrarily imposed inflexible system of foods and feeding, he exercises a normal rebellion against a system which allows no choice whatever on his part as to time, place, kind, amount or manner of taking food, and which does not consider whether he is hungry or indisposed at the time. Secondly, it is again a part of human nature to glory in attention. A complacent triumph often characterizes the faces of children as their mothers recite to the doctor the long, woeful tale of their refusal to eat. Having been taught by circumstances how to acquire the spotlight, the child uses the tools at his command. Thirdly, it is well known and an established fact that physi-

cal discomfort (hunger contractions) is abolished in the presence of emotions. Pavlov, Cannon and others have conclusively demonstrated and explained the dependence of digestion on the mental state. Thus, forced feeding may have a direct harmful effect on the stomach that is not ready to function, and varying degrees of gastric atonia may ensue. Final support for the tenability of the psychic hypothesis of anorexia is furnished by the interesting experiments of Davis, who has shown that infants six to eight months of age and up, when placed before a varied assortment of simple foods, will invariably select a well balanced diet for themselves, adequate in every respect, and such babies never become anorexic unless sick. Of course there are other factors in anorexia than the psychic ones mentioned above: fatigue, excessive quantities of a particular food (e.g., milk, the baby sucking on the bottle simply because it is pleasurable), the stresses and strains of modern "in-door" life. In the main, however, the above mentioned are the factors involved in the production of what Brennemann has called an "active immunity" against eating and in fact, all discipline.

Now, then, are we to cope with the situation? The theory is obvious. First, we must make sure that an adequate diet (as regards quantity and quality) is provided, and secondly, no child must ever be forced to eat (with rare exceptions, as in typhoid fever, etc.). The elimination of organic disease (focal infection, anemia, chronic pyelitis, tuberculosis, syphilis, nasal obstruction, carious teeth, etc.) must be insured. It is probably wise to take the history in the absence of the child. 'Tonics' of various types undoubtedly have their place if only for the psychological effect. Oftentimes, when there is a "medicine", the mother will pay less attention to the eating, at least from the active standpoint. The intimate relation between mother and child from the start as regards nutrition is a fertile breeding place for all the tribulations that arise from anxiety, and any relief from anxiety and focussing attention often works wonders. The importance of the anxiety factor in the parents cannot be overstressed as regards all child behavior problems: feeding, enuresis and many others. A preliminary period of starvation is recommended by some. Small doses of insulin have been tried, but this is not often a happy choice. The "feeding habit" the well defined periodic desire or need for food occurring several times a day which is found in all healthy animals, must be cultivated. Attention must be given to taste and appearance of food, and eating between meals must be forbidden. The regulation of all bodily habits must be attained. A just system of reward that bears no connection with bribery seems warranted at least in many instances. It is im-

portant to remember that caloric requirements (i.e., calories per pound of body weight) decrease with the age of the child. A word of caution must be inserted here in regard to the so-called "bitters." Cushing and Carlson say, "We conclude that in therapeutic quantities the bitters, acting in the stomach alone, have no effect on gastric tonicity, on the gastric hunger contractions, or on the parallel sensation of hunger. In greater than therapeutic doses the bitters inhibit the hunger contractions and abolish the hunger sensations in direct proportion to the intensity and duration of the stimulation of hunger contractions and hunger sensations." The conclusion is thus that the beneficial effects from the use of bitters are largely or entirely psychic (as indeed, is much medicine), and the prescriber is much more important than the prescription.

One cannot fruitlessly nag or force a child to eat without losing that wholesome spontaneous discipline that alone leads to a normal behavior reaction. It is important to make few requests and have them obeyed, rather than many which are not "followed through." Cameron suggests that the best way to combat the child's "negativism" is often to appear to the child as determined to prevent him from eating too much, and not as eager to see him eat well. The mother's duties in regard to her child are therefore (as summed up by Sweet) (1) that she provide the child with regular meals, (2) that the meals be of good quality, (3) that the child shall come to the table with clean hands, so he may handle his own food, table manners should not receive too much attention, because eventually the child will copy the manners he sees, not the ones he hears about, (4) that he shall remain at table a definite length of time, for example, thirty minutes, (5) food must be served without one word being said about food. Food is of and from the parent, feeding is solely within the province of the child. We must let hunger lead to appetite and appetite urge on to the acquisition of food. There is no greater joy in life than to have urgent, earnest desire satisfied as the results of one's own efforts. Self-satisfaction is one of the true rewards of all endeavor. We must therefore allow our children the privileges of hunger and the joy of appeasing it.

In conclusion, as elsewhere prophylaxis seems to be the most practical key to the problem, as far as future progress is concerned. We are, furthermore, privileged to work in this disease with the brightest type of child, the sensitive high-strung slightly neurotic child who is to be the standard bearer and pioneer as an adult. New health standards in addition to height, weight, and gross size must be drawn up and borne in mind. Examples of these

might be posture, nervous stability, reactions to environment, resistance to disease, blood picture, intelligence, etc., difficult but very important standards to set. The importance of detail in the upbringing of babies cannot be over-stressed. Six to eighteen months is the crucial age. Feeding from the spoon should probably be started at one or two months. Just because the infant likes to suck, he should not be given excessive amounts of milk from the bottle between six and twelve months of age. No bottle should be indulged in after a year. The child should begin to feed himself at fifteen to eighteen months. Above all, we must bear in mind that the child has an individuality of his own which is entirely different from the individuality of adults. There is something biologically primitive about him that cannot be rapidly transformed into the more stereotyped requirements of adult life, and particularly of a confused "civilization" that is now moving so swiftly that even the adult is often lost trying to keep going. In growth and mental and physical expansion, there is a delicate balance between direction and self-expression, between convention and originality, between regulation and the fostering of initiative, between having one's problems solved and solving them, between prohibition and freedom, between the acceptance of the old and the desire for the new.

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VERMONT STATE MEDICAL SOCIETY

CHEMISTRY IN RELATION TO THE PRACTICE OF MEDICINE*

BY C. F. WHITNEY, M.D.†

A GENERATION ago the necessity of the study of chemistry as a preliminary to the practice of medicine was doubted by many and even now medical students ask what is the relation of biochemistry to medicine. Prior to the last century, due to the dearth of known facts chemical thought was largely limited to speculation. Having its origin, like the practice of medicine, in magic, explanations were largely fantastic rather than rational. Chemistry has made great strides during the last fifty years and one can assert without fear of contradiction that the elimination of superstition or useless remedies and foolish practices and the substitution of a rational treatment may be credited largely to the close and detailed study of the exact sciences, such as chemistry and physics.

A recent addition to the chemical armamentarium is the branch known as physical chemistry. Due to the fact that most reactions in the body are those involving surface phenomena and ionic dissociation in an organism made up largely of colloidal particles, one realizes the importance of a knowledge of surface tension, colloidal dispersion, interfaces, salt equilibrium, aggregation and dispersion, diffusion, viscosity, oxidation and reduction, x radiations, radioactivity, high tension and high frequency phenomena, electrical potential, optics, etc.

Physiology, pathology, and immunology could never have even distantly approached their present value were it not for the stimulus of chemical ideas and facts, nor could the field of nutrition have advanced to its present position without the help of chemistry. Formerly one spoke in vague terms of stimuli passing from nerve to nerve through nerve fibers like the wires of a telegraph system. We now know that this impulse is transmitted from nerve fiber to nerve cell by liberation of a minute charge of acetyl choline.

The weight of this substance used to transmit a single nerve impulse to a single ganglion cell is so minute as to be about equal to 10 to the minus 21st power in grams, or 20 eighths to the right of the decimal point followed by the figure one. Therefore, in precise chemical terms we seem soon to be able to describe the transmission of effects from nerve fibres to reception cells in the whole peripheral nervous system. The central nervous system has not been explored

in the same way and remains a deep complex problem.

In the work on vitamins, sometimes called exogenous hormones and on hormones rapid strides are being made. Vitamins C and D have been artificially prepared in the pure state, the chemical nature of A is known and the pure crystalline vitamin B is available commercially.

The hormones are produced in definite parts of the body and carried by the blood and lymph to other parts where changes are effected. The estrus producing hormone which is excreted in the urine in pregnancy can be extracted from the urine in large quantities by benzene and crystallized. This substance is now known to be one of a group of condensed ring compounds consisting of a phenanthrene molecule fused to a 5 membered ring and common to the organic compounds occurring in the body. Methods for separating the different principles of the pituitary lobe, appropriately called the conductor of the endocrine orchestra, which presides over the sex gland activities normal growth, and in some ways seems to antagonize the overaction of insulin are already being used. The chemical structures of epinephrine and thyroxine are now known and they are being prepared by artificial synthesis. Likewise the chemical structure of one of the female sex hormones is known and synthetic production will undoubtedly be made soon. Insulin is also obtained at the present time in crystalline form, though its chemical structure is not known.

The body is essentially organic in nature with 70 to 80 per cent water. It consists of proteins, fats (lipins), carbohydrates and mineral substances. All parts except the bones are of a fluid to plastic solid consistency, each maintaining its physical condition essential for proper functioning by chemical combination of very intricate and as yet little known nature. The mineral substances such as sodium, potassium, calcium, phosphorus, iron, iodine and sulphur are perhaps the simplest when considered by themselves, but in the body they are in organic combination and each absolutely essential for normal physiological action. Sodium and potassium, though very similar chemically cannot replace each other, both being essential. Calcium and phosphorus in definite ratio and with the aid of vitamin D are essential for proper bone growth. The former is also necessary for blood clotting, and the latter for the metabolism of carbohydrates, fats, mus-

*Read at the Annual Meeting of the Vermont State Medical Society at Rutland, October 17, 1932.

†Whitney, C. F.—Professor of Physiological Chemistry and Toxicology—University of Vermont. For record and address of author see "This Week's Issue" page 849.

cle contraction, etc Iron is necessary in hemoglobin and acts as a catalyst for internal oxidations Iodine is found in the thyroid gland and sulphur is necessary for growth and development This is a brief review of the value of the most important inorganic constituents A few others, including copper, are necessary, but less is known of their value

The carbohydrates used in foods are mostly confined to starches and the common sugars, which after digestion are absorbed into the blood as single sugars and stored as glycogen, circulate in the form of glucose, or are converted into fat The chief fatty foods are the well-known common fats These are absorbed and circulate in the blood as simple or compound lipins and later they are used to produce energy Proteins are much more complex and form huge molecules The molecular weight of hemoglobin which is one of the smallest is about 70,000 as compared with glucose which is 180 Proteins are made up of amino-acids of which there are some twenty-two or twenty-three All proteins are broken down into these comparatively simple bodies (the largest having a molecular weight of 190), before absorption into the blood It is these substances rather than their combination in the form of protein which interest the physiologist and upon which the well-being of the individual depends Fortunately the body can manufacture most of the amino-acids but about a half dozen cannot be so formed, and for that reason must be taken as such in the protein complex

The forms in which substances are excreted are well known but the great and undiscovered chemical changes are those which occur between absorption and elimination This is a most attractive and fertile field which will gradually unfold chemical changes of inestimable value to the physician As an illustration of the chemical changes known to take place in the body one might mention those that occur in the red blood cells in the process of internal respiration When oxygen enters the capillaries of the lungs as the result of increased oxygen pressure, it combines with hemoglobin thereby producing a stronger acid This robs the carbonate salt of its base converting it into carbonic acid and allows the passage of carbonic acid gas into the alveoli As the blood reaches the tissues the pressure of gases is the reverse of that in the lungs Oxygen leaves the hemoglobin to enter the tissues, and carbonic acid gas enters the blood Neither oxygen nor carbonic acid gas can be carried in any appreciable amounts in simple solution, but must be combined in the form of salts The reduced hemoglobin being a weaker acid than oxyhemoglobin, will give up the base taken over in the lung capillaries by the oxyhemoglobin and this base will be

available for union with the carbonic acid gas This exchange of gases is greatly aided by the passage of chlorine, and to a much less extent the acid radicals of phosphoric and sulphuric compounds, into and out of the red cell Only negative ions are allowed to pass, positive ones being barred This knowledge explains one of the chief mechanisms which regulate the acid-base balance of the body, changes which if equal to the difference between the hydrogen ion concentration of tap and distilled water would be incompatible with life

The arbitrary ways in which physicians in the past have outlined diets for their patients have often been unfortunate, allowing this and excluding that, red meat and white meat, no fruit juices with milk, no protein in nephritis or high blood pressure, etc Even now there are those who do not realize that most fruit juices owe their acidity to organic acid salts which leave an alkaline residue after metabolism, and so tend to reduce acidity rather than increase it Many things of surgical and medical value were learned during the World War Among them was the cause of "war edema" prevalent in prison camps, the underlying cause being protein deficiency The edema associated with nephrosis is due to a lowering of the osmotic pressure of the plasma Of the two proteins, albumin and globulin, it is the former that is excreted in greater amounts, has a greater osmotic pressure, and is less easily regenerated Blood analysis to determine the amount of these proteins in cases of edema may therefore aid in determining the cause and treatment

Psychochemistry is the name applied to that branch which particularly applies to the central nervous system In paranoia, dementia praecox, epilepsy and manic-depressive psychoses, chemistry is contending with histology in conveying the more knowledge regarding the fundamental changes Chemical examination indicates a deficiency in catalytic iron and neutral sulphur in some of the mental disorders These may be inherent deficiencies which cannot be corrected, but knowledge of these changes may aid in finding the remedy Dementia praecox may yet be found to be a deficiency disease as much as rickets or scurvy, and as amenable to treatment, the required adjuvant being in this case oxygen This deficiency may be due to dietary deficiency, production of toxins or some abnormal nervous interference with proper oxidation In this last connection one is led to believe that the beneficial effects of amytal may be the removal of some inhibitory action upon normal oxidation processes

We hear lately of the rôle of the water balance in epilepsy and of alterations in electrical potential and colloidal dispersion in the manic-depressive psychoses So long as these different physicochemical phenomena function nor-

mally between narrow limits there is no disturbance, but let an unbalance occur sufficient to disturb the equilibrium in oxidation reduction, aggregation and dispersion, hydration and dehydration, electrical potential or sodium potassium and calcium magnesium ratios and a disordered functioning of the brain will result. It has long been known that the metabolism of the brain is very active, no tissue needs more oxygen and no cells will be so quickly destroyed by lack of oxygen. The psychic phenomena shown in partial deprivation of oxygen as in carbon monoxide poisoning and partial suffocation or to increase atmospheric pressure as in caissons, are well known. Cytochrome and glutathione, besides being essential catalysts for oxidation with iron and other metallic substances, are comparatively abundant in the brain.

Many mental conditions seem to be affected by water balance. Particularly is this true in epilepsy. Free water in tissue spaces holds sodium, and in the cells potassium. Water is also bound in the cytoplasm and nucleus. Fevers can be produced by dehydration, and the delirium of fevers is attributed to increase in bound and decrease in free water. The convulsions and coma of water intoxications are due to increase of interstitial water and through osmosis can be relieved at once by intravenous administration of concentrated saline. It is well known that the size of colloids changes with absorption of water which latter is influenced by contact with acid. It is thought that the explanation of epilepsy rests in the hypothalamus which somehow has some control over water metabolism and the tone of blood vessels.

Much research work has been done on the biochemistry of cancer. Studies have been made of the chemical constitution of tumor tissues, blood analysis in tumor cases, and the metabolism of these growths. Of these three the most hopeful results come from the metabolism studies. Cancer tissues seem to have a high sodium and potassium and a low calcium content. It is more hydropic than normal tissue and the nitrogenous constituents differ from that of normal. Much speculation has resulted from the chemical findings, such as causation based on salt unbalance with its effect on cell permeability and treatment by administration of calcium salts. On the whole, however, little positive help has been gained from chemical analysis of cancer tissue. Blood analysis indicates that the alkalinity of cancer patients is higher than normal but this also is true of a number of maladies, so that little of practical importance has been found in such analyses. In metabolism experiments, it has been found that tumor tissue utilizes an excessive amount of carbohydrate and produces an excessive amount of lactic acid. Tumor tissue is able to utilize very little oxygen in comparison with

normal tissue. For this reason it has to obtain sufficient energy for growth by breaking down an excessive amount of glycogen to lactic acid. This is very different from muscle for example, which is able to form lactic acid from the hexosephosphates. These differences between the metabolism of cancer and normal cells seem to be fundamental and of great importance in the study of the cause of cancer.

In this brief discussion certain phases of the subject familiar to all physicians particularly those having intimate access to clinical hospital laboratories, have been omitted. These would include such subjects as gastric urine and blood chemistry, liver and kidney function and metabolism tests. Nor has any special mention been made of the discovery of insulin and only a brief mention of the vitamins and hormones. It might be mentioned that the determination of blood cholesterol is of assistance in confirming a diagnosis of nephrosis or mixedema or to determine the severity of diabetes, the icterus index test in cases of anemia or jaundice, the blood uric acid estimation in cases of suspected gout, the blood calcium in spontaneous fractures, bone softening, generalized osteitis due to hyperparathyroidism and in tetany of unknown origin, the inorganic phosphorus of the blood in cases of rickets or infantile tetany, and blood creatinine when the blood urea is over 30.

DISCUSSION

PRESIDENT MARSHALL. In regard to this excellent paper a good deal of thought was given as to whom we should have discuss it, and after considerable deliberation it was decided to ask Dr. Paul K. French of Burlington.

DR. FRENCH. Dr. Whitney's paper has opened up for me an unthought of field of speculation. He has stated that:

(1) "So long as the different physico-chemical phenomena function normally between narrow limits there is no disturbance of the brain, but let an unbalance occur sufficient to disturb the equilibrium in oxidation reduction aggregation and dispersion hydration and dehydration electrical potential or sodium potassium and calcium magnesium ratios and a disordered function of the brain will result."

(2) "That no tissue needs more oxygen and no cells will be so quickly destroyed by lack of oxygen."

(3) "It is thought that the explanation of epilepsy rests in the hypothalamus which somehow has some control over water metabolism and the tone of the blood vessels."

He has spoken of the fever produced by dehydration and suggested that delirium convulsions and coma may be due to an increase in bound and a decrease in free water mentioning the immediate relief of the convulsions of water intoxications by the intravenous administration of concentrated saline.

As we think over these statements and their application to the mental and physical brain disturbances,

which we as physicians are continually seeing, may not an understanding of the chemical relationship and balances present in the brain point the way to relieving symptoms by seeking a means of restoring the circulation and metabolism of the tissue to normal? A better understanding of the cause should afford a more successful approach toward relief

I feel that this paper is going to help me to study, from a chemical viewpoint, the symptoms of my patients, and I believe it can be of real help

All I could do in the length of time afforded was merely to touch on these things, and I hope this paper will make us think of their relationship so that we will study it out for ourselves

PRESIDENT MARSHALL Dr Dalton

DR. DARTON When you ask me about this subject you have something. I don't know a thing about I studied my chemistry a long time ago and there was not anything applicable to what Dr Whitney has said, and I am entirely unable to discuss this paper

PRESIDENT MARSHALL This paper is quite technical for most of us Dr Whitney, have you something to say in closing?

DR. WHITNEY* When I studied medicine I had chemistry, and as I recall I think the only technical procedures that we did were gastro-analyses and urinalyses At the present time they pay no attention, practically, to either of these, but to the fundamental chemistry so that the student will learn to interpret phenomena and, through chemical means, realize the great importance of chemistry This physical chemistry is very important, and the knowledge is much more important than it was thirty years ago when I studied medicine We are often criticized because we do not teach students, in the first year, how to analyze urine, but we do metabolism tests and try to get at the basis and fundamental rather than simple tests

*Dr Whitney's closing discussion has not been edited by him.

MISCELLANY

POSTGRADUATE FELLOWSHIPS AVAILABLE TO MEMBERS OF THE VERMONT MEDICAL SOCIETY

Under the Division of Public Health of the Commonwealth Fund, the office of which is at 41 East 57th Street, New York City, opportunities are offered to the members of the Vermont State Medical Society to receive postgraduate instruction at the Harvard Medical School, available to at least eight members

The following statement is from the Common

wealth Fund indicating the nature of the course and the necessary qualifications

WM G RICKER, M.D., *Secretary*

Commonwealth Fund fellowships available, in the subjects indicated below, to members of the Vermont State Medical Society given at the Harvard Medical School, Courses for Graduates, 25 Shattuck Street, Boston, Mass

Medicine, given at the Massachusetts General Hospital, Peter Bent Brigham Hospital or Boston City Hospital A group of at least six must take the course at one time Such a group may be made up from any one of the four states in which the fellowships are offered, namely, Vermont, New Hampshire, Maine or Massachusetts

Pediatrics, course is given at the Children's Hospital Not more than two may take the course at one time Fellows live at the hospital

Obstetrics, courses given at the Boston Lying in Hospital Not more than two may take the course at one time Fellows live at the hospital

Office Surgery, course is given at the Boston City Hospital, designed for physicians engaged in general practice, subjects studied are surgical problems met in the office, in instruction in the outpatient department A group of at least six must take the course at one time

Fellowships are for one month Preference will be given those who take the course in medicine, for a second month in medicine or in obstetrics, pediatrics or office surgery, when fellowships are available during succeeding years The stipend is \$250.00 plus tuition and traveling expenses from place of residence to Boston and return

Qualifications Applicant must be a graduate of a grade "A" medical school, a member of the Vermont State Medical Society in good standing, must have been in practice at least five years and should preferably be under forty five years of age, and must be a resident of a community of less than 10,000 population Application blanks may be obtained from the Commonwealth Fund, 41 East 57th Street, New York City, or from the Secretary of the State Medical Society

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT M.D.

TRACY B. MALLORY, M.D., Editor

CASE 22171

PRESENTATION OF CASE

A sixty-eight year old white Russian watchmaker was admitted complaining of constipation and bleeding from the rectum.

Six months before coming to the hospital the patient first noted that his bowel movements which had previously occurred regularly once daily, became lessened in amount and frequency. The stools gradually became narrow and finger like in character. For about two months he passed small amounts of dark red blood by rectum, and at the time of admission each bowel movement contained one to two tablespoonfuls of blood. During the three months preceding his entry he developed increased frequency of micturition associated with some burning dysuria. During the past one and a half years he suffered cramp-like pains in his right leg whenever he walked rapidly. For fifteen years he had recurrently a sensation of substernal oppression following exertion or excitement. This had recently become much less frequent.

Physical examination showed a fairly well developed and nourished sallow man in no discomfort. The lips were somewhat cyanotic. The chest was said to be emphysematous in configuration, and expansion was limited. The breath sounds exhibited a prolonged expiratory phase. Occasional expiratory wheezes and musical rales were audible. The heart was not enlarged to percussion. The sounds were loud, regular and a prolonged systolic murmur was audible from the apical to the aortic area. This was transmitted into the neck vessels. No thrill was palpated. The pulse was said to exhibit a slow rise long plateau and slow fall. The blood pressure was 190/85.

The temperature was 98°, the pulse 75. The respirations were 22.

Examination of the urine was negative. The blood showed a red cell count of 4,890,000 with a hemoglobin of 80 per cent. The white cell count was 9,700, 68 per cent polymorphonuclears. A stool examination showed a two plus reaction to the guaiac test. The nonprotein nitrogen of the blood was 38 milligrams per cent.

On the fourth day a first stage combined abdominoperineal operation for carcinoma of the rectum was done. The patient reacted well postoperatively but on the second day he began to complain of a sensation of pressure over the entire anterior chest. At this time the nurse noted that his pulse was irregular and had increased to a rate of 100 to 140. On the morning of the following day there was sudden increase in pain over the sternum and the anterior right chest, and the patient appeared cold and clammy. The lips and hands were markedly cyanotic, and the respirations were labored. The pulse was 140 and grossly irregular at the apex. The blood pressure was 110 to 130/75. The pain became more intense and radiated down the left arm. Examination showed that the right chest was full of coarse rales. An electrocardiogram exhibited auricular fibrillation with a rate of 170. There was inversion of T waves which was said not to be diagnostic of recent coronary occlusion. He had received about six grains of digitalis during the thirty six hours preceding his initial discomfort. On the following day the lungs were clear and there was a squeaky murmur at the apex of the heart. No details were noted. The temperature which had risen to 101.6° on the day succeeding his operation fluctuated thereafter between 98° and 102° for about a week. Two days after the acute attack the pulse was recorded as being regular, slow, and of good volume.

Two weeks after the initial operation a posterior excision of the rectum was done. On the following day his temperature, which had been moderate for the preceding week, rose to 101°. Thereafter for the remainder of his hospital stay it fluctuated between 98° and 100°. Two days postoperatively having received 300 cubic centimeters of an intravenous infusion, the patient suffered a sudden attack of substernal pain. The quality of the pulse remained good and its rate was unchanged. Thereafter there were several minor attacks of precordial distress, but on the twenty sixth day after the second operation he again suddenly developed severe substernal pain. Morphine was administered with some relief. He was found at this time to have a rather marked degree of pyuria and constant vesical drainage was instituted. He became progressively weaker, however and died nine days after his last acute attack, on the fifty third hospital day.

DIFFERENTIAL DIAGNOSIS

DR. PAUL D. WHITE. I think it is of some added interest to know whether this patient was a Hebrew. We do not know the incidence of this disease in the various groups that make up Russia but we do know that cardiovascular disease is very common in Hebrews who have come to this country from Russia.

Apparently his chief complaint was this difficulty with the bowels, giving evidence of a spastic state, bleeding, and local bladder irritation, which, as it turns out later, were the result of a rectal carcinoma.

"During the past one and a half years he suffered cramp-like pains in his right leg whenever he walked rapidly." This of course suggests intermittent claudication, which commonly occurs in both legs but may be limited to one leg.

"For fifteen years he had recurrently a sensation of substernal oppression following exertion or excitement." This sounds like angina pectoris of long duration, fifteen years. Its decrease may have been the result of the inability to walk because of the intermittent claudication. That is all there is in the past history. I would like to know many other things, particularly the physical examination in the past in view of what is to follow. It is quite likely that he had consulted a physician for the intermittent cramp-like pains in the leg and chest and it would be helpful to know what had been found on cardiac examination. We are prone too often to neglect such clues, which may be important and the chief aids to correct diagnoses.

We have then this abnormality of the lungs which may be on the basis either of chronic bronchitis with emphysema and asthma or of left heart weakness. The cyanosis of the lips may be associated with that condition of the lungs or it may be local. Sometimes lips and fingers are blue due to peripheral or local stasis and not to cardiac or pulmonary disease.

"The heart was not enlarged to percussion." Of course such a statement is entirely unreliable in this case because of the pulmonary condition which prevents one from outlining proper heart borders. If the apex impulse could not be felt we would like to have x-ray evidence, but there is no report of such. There should have been some statement as to whether or not the apex impulse could be felt.

From this description I should judge that this murmur was a single murmur, not composed of two separate murmurs, one at the apex and one at the aortic area. It probably sounded the same all over the precordium. It was loud and transmitted into the neck. One of the most likely causes of such a murmur is aortic stenosis. A murmur that is loud and well heard both at apex and aortic area is much more likely to be aortic than mitral. A mitral-systolic murmur is not well heard in the aortic area but an aortic systolic murmur is always well heard at the apex, especially if due to aortic stenosis. There has not been enough appreciation about these points of location and transmission of systolic murmurs. It is conceivable, however, that there may have been separate aortic systolic and mitral systolic murmurs that have not been differentiated in this

record. There is no evidence of a diastolic murmur or of a systolic thrill.

The character of the pulse is certainly important and this description, if not misleading, has probably been put in to give us a further important clue. It closely fits the description of a plateau pulse such as is found with aortic stenosis.

"The blood pressure was 190/85." In other words a definite hypertension which is superimposed on whatever else is present in the heart and makes us wonder if the systolic murmur heard over the aortic area may not be due to aortic dilatation after all, but we should remember that the blood pressure may be high in the presence of aortic stenosis. Evidently the aortic second sound was present. It would probably be mentioned as absent if it had not been heard.

The laboratory examination of the urine reveals no important renal or bladder infection at this time. There is no important anemia. The nonprotein nitrogen of the blood was normal.

"On the fourth day a first stage combined abdominoperineal operation for carcinoma of the rectum was done." Evidently it was hoped that the carcinoma of the rectum might be removed and that the risk which was considerable in this case was worth taking. He was evidently in poor health on the basis of the long history of angina pectoris, of the cardiac findings, and of the pulmonary findings. These are three points which made him an unfavorable risk for operation. There is no note of what anesthesia was used, but that is almost always less important than the skill of the anesthetist.

The sensation of pressure over the entire anterior chest would indicate the probability of auricular fibrillation starting at that time. A pulse is rarely irregular at a fast rate unless there is auricular fibrillation.

"The pulse was 140 and grossly irregular at the apex," more or less as it had been before, but now somewhat faster, sustained at 140 rather than 100 to 140. There was a marked drop in pressure.

"There was inversion of T waves which was said not to be diagnostic of recent coronary occlusion." I expect the inference is that there was no great change in the S-T interval, that is the level where the T comes off from the Q R-S, the shape of the T wave was not indicative of coronary occlusion. That is of considerable importance.

"Two days after the acute attack the pulse was recorded as being regular, slow, and of good volume." This is confirmatory, then, of the diagnosis of paroxysmal auricular fibrillation. At the beginning we noted the irregular pulse and sensation of pressure over the anterior chest. What may we say about that? I believe it is impossible on this evidence alone to tell whether the auricular fibrillation was secondary to his

coronary condition or vice versa. A number of times coronary thrombosis has been diagnosed in a patient with prolonged anterior chest pain and paroxysmal tachycardia without coronary thrombosis. Paroxysmal tachycardia or paroxysmal auricular fibrillation with a rate as fast as this can in itself produce angina pectoris, a kind of status anginosus. That is probably the situation here in view of the fact that he had had angina pectoris on effort for the previous fifteen years. He had narrow coronary arteries or at least an insufficient coronary blood supply. The narrowing of the coronaries in itself may not have been sufficient. We may have in addition aortic stenosis which would reduce still further the volume of the coronary circulation. The status anginosus due to paroxysmal auricular fibrillation with much narrowing of the coronary arteries and some aortic stenosis might explain the beginning of this postoperative complication, but we must assume that there is some other complication too such as congestive failure, if we take into account the increased respiratory difficulty the cyanosis, the signs in the chest and the rales in the lungs. It is not likely that congestive failure or the status anginosus alone or combined can do all this, because we have fever that lasted a week.

Pulmonary embolism is a common postoperative complication, especially in a patient who has had cardiovascular disease. Could this not have occurred here, complicating the paroxysmal auricular fibrillation and angina pectoris? It certainly is very suggestive, especially because of the fact that only one lung, the right, was involved. There is no note of any abnormality of the left chest. The right chest was filled with coarse rales. Did he have pulmonary embolism with infarction in the right chest complicating the paroxysmal tachycardia? It seems to have come on the second postoperative day. On the first postoperative day there was simply the rapid irregular heart action with pain on the next day there was a sudden increase of pain over the chest combined with a state of shock, cyanosis, drop in blood pressure and fever. The other two possibilities that could explain such a state of affairs would be complicating infection in the right lung and coronary thrombosis.

The electrocardiographic evidence is against acute coronary occlusion. Also the localization of the rales in the right lung, unless he were lying on his right side all the time, is against coronary thrombosis with secondary congestive failure. We would expect rales at both lung bases with failure sufficient to give rise to cyanosis and dyspnea.

The paroxysmal auricular fibrillation ceased two days after the acute attack began and several days before the temperature dropped back to normal so that toward the end of that week there was no longer any effect from rapid car-

diac action. You will notice that the heart was said to show a squeaky murmur at the apex when the lung cleared. That murmur was undoubtedly the remains of the loud systolic murmur that had been heard when he first came in, in better condition. This state of prostration in which we find these patients is an important reason why aortic stenosis has frequently been missed clinically in a very sick patient.

We may assume that this recurrence of pain came at the time of the intravenous infusion of 300 cubic centimeters. It is possible that angina pectoris was induced by the increased heart work in taking care of that extra amount of fluid, a thing that does happen in patients who are very prone to angina pectoris. There is no note as to what his pulse rate was at that time or of further electrocardiograms.

He was found at this time to have a rather marked degree of pyuria and constant vesical drainage was instituted. Thus we have a still further complication of pyelitis or cystitis making it more difficult for him to weather all these storms.

We would like to know whether his death was sudden. Was this terminal illness due to coronary thrombosis or pulmonary embolism or infection in a patient with a weak heart who had been through these two operations? Too many cards were stacked against him. I do not believe it is possible to tell from the few notes at the end of the record what the terminal event was.

I prophesy that we will find in this man a moderately enlarged heart (in spite of the statement at the beginning that the percussion failed to show any enlargement) secondary to two factors, hypertension and I believe also some aortic stenosis. Coronary artery narrowing will be present, on the basis of atherosclerosis. Coronary thrombosis is a possibility but there is no proof of it. I expect the aortic valve will be calcified. Paroxysmal auricular fibrillation and angina pectoris were functional events of importance. He also had carcinoma of the rectum, cystitis or pyelitis and probably pulmonary infarction. As for the cause of aortic stenosis if present, it is in just such a patient that aortic stenosis may be discovered usually without a clear history of previous attack of rheumatic fever. Sometimes examinations ten to twenty-five years before give evidence of a murmur such as is described here. I have recently seen a man whom I examined first nine years ago, at the age of fifty-three with a very loud murmur heard over the whole heart, maximum at the apex, and slight enlargement of the heart. I made a diagnosis of cardiac enlargement with mitral regurgitation of unknown cause. Last fall he had attacks of pulmonary edema and on examination he then showed an aortic systolic thrill and serious heart failure. It is possible

that our present case did not have aortic stenosis but certainly that diagnosis would explain best the original cardiac findings as noted in the record at the beginning of his stay in the hospital

DR TRACY B MALLORY This case obviously had two aspects, the medical and surgical. We chose to make the medical side the diagnostic problem, but we would like to hear about the surgical side

DR DANIEL F JONES I do not know what I can say about this surgically except to tell you that I think that anyone undertaking an operation for carcinoma of the rectum in a man with a heart like this is taking his reputation in his hands and at least trying to throw it away, but I have no such feeling about these cases. If it is possible to get rid of carcinoma of the rectum even at considerable risk—this was a very large lesion and he was very uncomfortable with it—I have no hesitation whatever in tying it. We nearly succeeded in this man. The strange thing is that he stood the abdominal part of the operation very well. He had ether during that time but I agree with Dr. White that it makes a great deal of difference as to whom you have to give the ether. I am quite alone on this question, except for one man, and that is Gabriel in London, he and I approve of ether in these cases. The patient had spinal anesthesia with the second stage because we are able to give a small dose and give it low.

There is nothing in regard to the diagnosis that I can speak of here. There is not enough history. There is one thing that I disapprove of very much, and that is the statement that the stools gradually became narrower and finger-like. I think that is a pretty uncertain thing to go by. The books all have a much more picturesque way of talking about it, that is, the 'ribbon stool' but I think it is about as poor a symptom to go by as anything can be, because if you know the structure of the sphincter, you know it is oval, and if the bowel movements are soft you will get a ribbon stool or with any soft movement you may get a narrow finger-like stool. Consequently I do not think that of much value.

As to diagnosis, there is only one thing I can say and that is he should have been examined six months before he came to this hospital. If you want to know why, there is a very simple reason. He should have been examined because he has had a change in bowel habit and sensation, and that is all that any general practitioner or medical man needs to know. I do not expect a general practitioner or medical man to make a diagnosis of carcinoma of the rectum every time, but if there is a change in bowel habit or sensation then somebody who can make a diagnosis should be consulted.

This case shows very well that you have to be careful too, in these heart cases. He stood the first operation very well and we let him go for

two weeks in fairly good condition. It was getting along and we had to operate. After the second operation he did not do so well because he had a load put on him which he could not get rid of and consequently went downhill. He had what you would expect, some infection. It was a very large wound, and many of these cases have temporary paralysis of the bladder as they must have drainage of the bladder, therefore, you must expect some infection of the bladder. He had nothing to indicate any pyelitis. As to lung emboli, an interesting fact is that in spite of the great extent of this operation and the fact that many pelvic operations are likely to cause lung emboli these rectal cases very rarely for some reason or other have lung emboli. I do not know why it is.

DR. DONALD S KING The day after operation this patient had an elevation of temperature, pulse and respirations. I was asked to see him with the question of a postoperative pulmonary complication. There were râles throughout the right side of the chest but no definite evidence of pneumonic consolidation or collapse. In view of the story, however, I felt that there was probably beginning postoperative atelectasis. I saw him again the following day, and in the meantime the patient had had the acute attack of pain in the precordium. His lungs at the time were clear and I felt that there had been a coronary thrombosis. I did not think that there was evidence for atelectasis or pneumonia, and did not believe that a pulmonary condition was playing any part in the symptoms. I did not see him again.

CLINICAL DIAGNOSES

Coronary thrombosis
Carcinoma of the rectum

DR PAUL D WHITE'S DIAGNOSES

Hypertensive coronary heart disease
Coronary artery narrowing due to atherosclerosis
Aortic stenosis
Pulmonary infarction from embolism?
Cystitis
Pyelitis?
(Carcinoma of the rectum)
Paroxysmal auricular fibrillation
Angina pectoris
Intermittent claudication

ANATOMIC DIAGNOSES

(Carcinoma of the rectum)
Operative wound. Combined abdominopelvic resection of the rectum with colostomy
Pulmonary embolism, bilateral
Coronary thromboses with myocardial infarction, old
Pulmonary tuberculosis, bilateral, active
Pleuritis, chronic fibrous, bilateral
Arteriosclerosis, marked coronary and aortic, moderate renal

Pyelonephritis, slight
Cystitis moderate

PATHOLOGIC DISCUSSION

DR. MALLORY The autopsy showed that Dr. White was correct in predicting that no acute coronary thrombosis would be found. The left coronary artery was completely occluded however along with its major branches, but the occlusion was evidently very old. The descending branch of this artery was reduplicated and was represented by a small obliterated cord-like vessel and a somewhat larger almost completely closed one. The circumflex branch of the left was also completely closed. The right coronary was narrow but not obliterated. There were three small separate areas of infarction all of them old and completely scarred. In one of them the scar tissue was rather vascular and it is conceivable it may have developed at the time of the first operation, at any rate it seemed consistent with a duration of about a month. The other scars were evidently of much longer standing. We also found pulmonary emboli. He had an embolus to each of the lower lobes the one on the right side being evidently much older than the one on the left, so I think perhaps the attack of right chest pain after the operation was due to the embolus.

The immediate cause of death was not entirely certain. He undoubtedly had a bad heart but we found one other totally unsuspected complication that I am sure played a significant rôle. The upper half of each upper lobe was completely consolidated with old tuberculosis and there were fresh foci of tuberculosis throughout both lungs. If Dr. King had had a chance to examine him at an earlier stage before the operation, I am sure he would have found something more definite. The aortic valve was described as not stenotic but the operator made note that the commissures and the valve margins were thickened and he measured the circumference as only six centimeters so that in spite of his statement I believe there was a slightly stenotic but not a massively calcified valve.

A PHYSICIAN May I ask Dr. White a question as regards postoperative fluids in cardiac patients? What is your opinion of the method of giving them, intravenously or hypodermicly?

DR. WHITE If as in this man patients show easy induction of angina pectoris or if congestive failure is impending I think extra fluid should be given slowly and not rapidly. I should think subcutaneous hypodermoclysis is wiser in such cases than rapid intravenous injection.

The patient had always lived a vigorous life and had eaten heartily of a well seasoned diet with only occasional gastrointestinal upsets until one year before entry. At this time he began to have more frequent similar upsets, which assumed the character of gnawing and burning sensations in the epigastrium, rarely occurring under two hours after a meal and usually appearing at or after going to bed. This discomfort was somewhat relieved by further ingestion of food or fluid. Three months ago he consulted a physician who found something wrong with his stools and told him he had an ulcer although no x ray was taken. He was given iron pills and a powder to take every four hours. He remained in bed for two weeks adopted a bland diet, and at the end of a month was almost completely relieved of his symptoms. Thereafter he returned to work but had very little success. For several years he had been informed by his employers that his work was becoming poor and that he frequently made mistakes indicative of poor judgment. Following his return to work his attempts to obtain business were unsuccessful. He began to look sallow and his weight which had been 250 pounds fifteen years before entry and had gradually diminished to 200 one year ago, now became approximately 175 pounds. Six days prior to admission he visited his daughter who stated that he looked weak, pale and listless. His appetite was poor and contrary to his previous assertive manner, he was very much subdued. He went to bed and appeared to remain asleep ever since. He was aroused only with difficulty was rather restless but uncommunicative and his skin was cold and clammy.

For years he had been told that his blood pressure was consistent with his age but eight months ago it was said to be 220.

The patient's father and brother had both had "ulcers of the stomach." His mother had had Bright's disease.

Physical examination showed a pale, slightly obese elderly male in restless coma. The mucous membranes were pallid the tongue dry, and the breath had no characteristic odor. The pupils were unequal the right being larger than the left. They reacted poorly to light. The lungs were clear. The heart extended 8 centimeters to the left of the midsternal line and 2 centimeters to the right. The rhythm was totally irregular and no murmurs were audible. The blood pressure was 120/80. The abdomen was large and flaccid. No masses were palpable nor was there evident local spasm or evidence of tenderness. A rectal examination showed a moderately enlarged prostate but no palpable masses. The examining finger was covered with blood stained fecal material. A neurologic examination was negative.

The temperature was 100.8°, the pulse 100. The respirations were 30.

CASE 22172

PRESENTATION OF CASE

A seventy three year old retired American insurance agent was admitted in coma.

Examination of the urine showed a specific gravity of 1.014 and there was no sugar, albumin, or diacetic acid. The sediment was negative. The blood showed a red cell count of 2,820,000, with a hemoglobin of 60 per cent. The white cell count was 19,100, 90 per cent polymorphonuclears. A Hinton test was negative. The nonprotein nitrogen of the blood was 120 milligrams per cent. A fasting blood sugar was 159 milligrams. A lumbar puncture showed clear colorless fluid with an initial pressure of 50 millimeters. The ammonium sulphate test was negative and there were two cells per cubic millimeter. The total protein was 58 milligrams. An electrocardiogram showed auricular fibrillation with moderate left axis deviation. S_2 and S_3 were prominent. There was a deep Q_4 and inverted T_4 .

The patient continued comatose and two other urine specimens showed no significant abnormality. On the second day the nonprotein nitrogen of the blood was 153 milligrams. The temperature subsided to 99° but the patient did not regain consciousness. He died on the second hospital day.

DIFFERENTIAL DIAGNOSIS

DR ALLEN G. BRAILEY. I think it is a very interesting case, and with this confusion of signs and symptoms one wishes one could rely on the old diagnosis of "complication of diseases." I think the place to begin is at the end. A man seventy-three years old dies in coma after five days to a week. Most of the causes of fatal coma are pretty easily eliminated. There is no evidence of trauma, for instance, and poisoning seems to be out of it. He has lost blood, he has anemia, the white count raised, but he certainly did not die of blood loss. Then there is a cerebral accident. It seems to me the onset of the coma was too slow for ordinary cerebral accident. The neurologic examination was negative except for minor differences in pupils. The spinal fluid was essentially normal. The total protein was 58. The pressure was 50 millimeters, which is very low. I do not know how to interpret either one of these figures unless they are the result of dehydration in a man who has been asleep for five or six days, and has had very little fluid. At any rate I think it is unlikely that his coma was due to any intercerebral condition. I think diabetes is pretty well ruled out. There is no characteristic odor to the breath. The blood sugar is somewhat raised, but not enough to be significant.

However, this is a very characteristic picture of uremic coma. He does not have convulsions but is restless. He had previous loss of appetite. In fact, going over the past history, for some time he has been under the weather. He has been losing weight in significant fashion for a year and there has been less efficiency at business. Then, also, he is anemic. The anemia may well be bleeding from the intestinal tract

which is probably due to colitis or ileitis which is so common with uremia. Of course uremia with a nonprotein nitrogen of 120 scarcely can be due to anything but chronic kidney disease. It occurs with prolonged vomiting in high intestinal obstruction but there is no reason to suppose that is the case here.

There are some things against this picture. If he has chronic kidney disease presumably he has had high blood pressure for some time and other evidence of renal and vascular damage. The record says that eight months ago the pressure was 220 but the one taken in the hospital was normal. The heart is described as small, — so small I think he undoubtedly has an emphysema and the percussion was unreliable. Still it must be admitted there is no evidence of its being enlarged. Then, of course, he had no convulsions. His urine on three examinations was normal. As a matter of fact they were not normal. The only one we have accurately reported is the first, with a specific gravity of 1.014. He is an old man and probably had taken very little fluid for five or six days and he is obviously dehydrated, so that the specific gravity of 1.014 is very significant of inability to concentrate. It is interesting that he has no albumin, no blood and no casts, it is unusual but not unheard of and does not make me change my mind about the diagnosis. I think there are a lot of contradictory statements here but I think he has had kidney disease of long standing and that he has uremia with colitis or ileitis, or both.

What other things do we have to consider? His doctor said he had an ulcer.

But the story of ulcer so far as it goes is not typical. He has had some gnawing, burning epigastric discomfort daily for a year, occurring for the first time in an old man. It is not well relieved by food. To be sure he gets better when he goes to bed with a bland diet and rest, but almost any stomach condition will improve under these conditions. He may have an ulcer but I do not feel obliged to suppose so. I think his symptoms can be better explained on the basis of uremia. Now as to carcinoma, he is an old man who has lost weight, who has anemia and bloody stools, but again I prefer the diagnosis of uremia with gastrointestinal bleeding.

What is the matter with his heart? He may perfectly well have had coronary accident. We notice the blood pressure is lower than it was said to have been. He has leucocytosis and fever. In fact, coma may conceivably be due to emboli from the left auricle. But the electrocardiogram does not indicate coronary occlusion. I suppose he probably does have some infection to account for fever and leucocytosis perhaps associated with the colitis, which I think he has. Also he may very well have a small amount of bronchopneumonia.

DR TRACY B. MALLORY. I might again ask if there are any alternative diagnoses.

DR WYMAN RICHARDSON. I suspect this man

also has a duodenal ulcer. I should like to inquire about the danger of treating an old man with duodenal ulcer with that large amount of alkali particularly if he has renal disease, vascular nephritis.

DR. MALLORY: I do not know how to answer that.

DR. WILLIAM B. BREED: I think that one cannot dismiss the diagnosis of carcinoma of the stomach here. It is of only a year's duration and we know of many cases of cancer of the stomach who have over a short period symptoms suggesting ulcer. He has lost a great deal of weight which is difficult to explain entirely on the basis of kidney disease and I think we should not lose sight of the possibility of cancer of the stomach.

DR. EARLE M. CHAPMAN: Will Dr. Breed explain the final episode with brain metastases of carcinoma.

DR. BREED: Certainly not.

CLINICAL DIAGNOSES

Chronic nephritis.

Uremia.

Gastrointestinal bleeding.

DR. ALLEN G. BRAILEY'S DIAGNOSES

Chronic nephritis

Uremia.

Gastrointestinal bleeding, probably from the colitis of uremia.

ANATOMIC DIAGNOSES

(Uremia.)

Nephritis, chronic vascular

Duodenal ulcer, chronic, without perforation

Cardiac hypertrophy, hypertensive

Arteriosclerosis, moderate aortic and coronary

Cholelithiasis

Choledocholithiasis.

Pulmonary edema and congestion bilateral

Cystitis, acute localized

Dilatation of the esophageal hiatus

Operative scar. Amputation of the distal phalanx of the right first finger

PATHOLOGIC DISCUSSION

DR. MALLORY: This man showed a very large penetrating ulcer on the posterior duodenal wall which had burrowed into the pancreas. He showed a greatly hypertrophied heart—Dr. Brailey was wise in questioning the apparent facts in the record. It weighed 650 grams which is double the normal. His kidneys weighed 325 grams, which is the lower limit of normal for a man, and they showed a little scarring on the surface but the cortex measured 5 millimeters which is pretty good for anyone of seventy. Microscopically, they showed very definite changes in the arteries and a few changes in the glomeruli which are consistent with long

standing hypertension, but they were not the kidneys that one would expect to find in a patient in uremia. He still had rather too much gross kidney substance for death from vascular nephritis and they also failed to show one other thing which is probably of some importance. One of the first clinical signs of insufficient renal function, whatever the origin is lack of tubular function, in other words, lack of concentration. Drs. Wilson and Kimmelstiel in going over 100 cases of vascular nephritis at the Boston City Hospital, found that the best correlation they could work out between the anatomic findings in the kidney and the functional evidence of renal failure depended upon the observation of dilatation of the tubules. Practically no cases showed real evidence of renal failure unless the tubules were fairly markedly dilated and hyperplastic. This man showed absolutely no dilatation of the tubules so I should say that they were not the kidneys that I would expect to have produced uremia. Recently Dr. Castleman has run across in Scandinavian publications several reports of uremic states following hemorrhage from the gastrointestinal tract. A man named Meyler* has reported six cases of impending or established uremia with a nonprotein nitrogen over 100 in patients with severe gastrointestinal hemorrhage. Some of these cases came to autopsy and were found to have relatively normal kidneys. Some recovered following appropriate therapy and the signs of renal failure disappeared.

I am inclined to raise the question concerning this case today whether we are not dealing with a synergistic effect of mildly damaged kidneys plus at least a moderate amount perhaps—we are not sure—a very considerable amount of gastrointestinal hemorrhage whether the hemorrhage from the gastrointestinal tract may not actually have played a rôle in producing the uremia. It is not an entirely satisfactory case because we did not have permission to examine the head.

A PHYSICIAN: Such an effect would be explained on the basis of damaged circulation of the kidney?

DR. MALLORY: Yes the mechanism is rather uncertain and although there are a considerable number of reports of the condition of nitrogen retention associated with hemorrhage, the various authors who have reported the cases differ widely in their theories of the pathogenesis. On the whole they think dehydration is most important and that anemia can play some rôle but a relatively unimportant one.

DR. GEORGE W. HOLMES: I have seen with Dr. C. M. Jones two patients who had duodenal ulcers and who illustrate what Dr. Richardson has said. Each of them had some kidney damage and as soon as they were placed upon an alkaline diet their condition became more serious.

*Meyler L. (Groningen, Holland). Post haemorrhagic uremia. Acta med. Scandinav. 57:113, 1925.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$8.50 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass

SERUM TREATMENT OF LOBAR PNEUMONIA

IMPROVEMENTS in the concentration of anti-pneumococcic serum, chiefly those suggested by Felton, have resulted in establishing the value of serum in the treatment of certain cases of lobar pneumonia. With accurate diagnosis, with proper selection of cases and with adequate doses of potent serum there seems to be little or no doubt but that the mortality in over 50 per cent of all cases of lobar pneumonia can be nearly cut in half. The importance of serum therapy as a life-saving measure is forcefully brought out by Heffron¹ who states that over 18,000 lives in the United States might be saved annually by this method of treatment. This figure is based on an estimated annual total of approximately 128,000 cases of lobar pneumonia and 4,000 cases of bronchopneumonia, all due to Types I and II pneumococci.

Until quite recently this method of treatment has been considered possible only in the larger medical centers and there only in the larger hospitals. The Massachusetts Pneumonia Study,

financed by the Commonwealth Fund and carried out from 1931 through 1935 by the Massachusetts Department of Public Health, has shown that equally successful results can be obtained in smaller communities and by physicians without hospital connections in the larger centers, provided typing facilities are available and provided the treatment is properly carried out. Based on these findings, the Massachusetts Department of Public Health has recently announced its willingness to supply all physicians in the Commonwealth with antipneumococcic serum, subject to certain reasonable restrictions. Similar action has been taken by the Departments of Health of Connecticut, New York State and Detroit. A valuable, but expensive, therapeutic agent is thus made available and the responsibility for its judicious use falls entirely upon the practicing physician.

As an aid in properly discharging this responsibility a small book, "Lobar Pneumonia and Serum Therapy", recently published by the Commonwealth Fund, should prove invaluable. The authors, Dr. Frederick T. Lord and Dr. Roderick Heffron, are well qualified—the former being a member of the Massachusetts Advisory Committee on Pneumonia and the latter Field Director of the Massachusetts Pneumonia Study. The important questions of diagnosis, selection of cases, precautions and methods of treatment are simply and briefly, but adequately, discussed. The success of serum therapy in lobar pneumonia depends, in a large measure, upon its intelligent use. The text of this handbook is based, chiefly, on data from the Massachusetts Pneumonia Study, a highly successful five-year experiment, and the book itself cannot be recommended too highly to those who aim to make the best use of a most important addition to their armamentarium.

REFERENCE

1. Letter from Dr. Roderick Heffron. New Eng J Med 214: 2-2 (Jan. 30) 1936.

PROBLEMS OF THE FLOOD

THE devastating floods which inundated parts of fourteen states in March gave rise, naturally, to a considerable degree of alarm concerning the hazards to health which might follow in their wake. Apprehensions were expressed by many individuals, even those living remote from the flooded districts, of a menace to health in the subsiding waters, a rush for typhoid vaccination was experienced and many families and even physicians prescribed the consumption of raw fruits and vegetables, regardless of their source.

It is natural that the specter of typhoid fever should arise when vast areas of settled country are covered by possibly polluted waters. Undoubtedly countless cesspools and

privies have been irrigated by the swollen rivers. Two factors of safety however, lie in the in calculable dilution which the contents of contaminated feci have experienced, and the fact that in most sections, at least, municipal water supplies have remained unpolluted. As a state health official recently pointed out, all public water supplies in Massachusetts were examined following the floods, the only one showing any suspicion of contamination coming from outside the flood areas.

According to the statement of this same official, the Massachusetts floods presented a problem of relief rather than of public health administration, although the Department of Public Health discharged its obvious duties immediately, efficiently and conservatively. Actually exposure and destitution provided the immediate health hazards, pneumonia constituted a graver risk than did typhoid fever and the pressing need at the time was for food shelter and clothing.

Continuing problems are being met as rapidly as possible. The debris is being cleared away and homes are being renovated. Roads are being opened and bridges replaced in order that life may resume its normal course. In some sections arable lands have been stripped of their top soil and left barren, in others the fields have been enriched by the deposit of silt left upon them. As Commissioner Chadwick has indicated however, these newly dressed fields must be cultivated and sown as soon as possible, lest the drying winds of summer again scatter the soil abroad. Before the roots of a new crop have anchored it to its place

TUBERCULOSIS OUTBREAK IN AN ACCREDITED HERD

An unexplained extensive outbreak of tuberculosis in the Government's herd of dairy cattle at Beltsville, Maryland is being investigated by the United States Department of Agriculture, according to a recent release. In this outbreak eighty two positive reactors and eleven suspicious animals were discovered in a previously clean herd of 378 animals. Of thirty-one reactors and suspects slaughtered at the time of this report, twenty five showed tuberculous lesions practically all of these being in cervical and thoracic lymph nodes.

This herd has been for eighteen years in an accredited status. In April, 1935 on a periodic test, one animal was regarded as suspicious. A ninety-day retest in July showed three reactors, a further retest in October disclosed one infected animal. Reactors appeared in seven of eight buildings in January, only the bull barn escaping infection. For seven years the herd has been maintained almost entirely by replacements raised on the farm, the few cattle from

outside sources having come from accredited herds.

The theory of accreditation by herd or area eradication, is eventually to establish and maintain a tuberculosis free cattle population. If bovine tuberculosis could be completely wiped out, there would, in theory, be no source for further infection and the millennium would be reached, in this respect at least. Complete eradication however is obviously difficult of achievement and similar outbreaks of unknown source, in accredited herds have not been unknown. An accredited herd or an accredited area is a laudable ambition but the goal once reached cannot be accepted with complacency, for continued enjoyment of it is at the cost of eternal vigilance.

A tuberculosis free herd may become in time, a highly susceptible herd and frequent retests with ideal conditions for isolation and segregation are necessary for its maintenance.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

HAGGARD, G. E. A. B. M. D. Harvard University Medical School 1919 F. A. C. S. Orthopedic Surgeon. Lahey Clinic. New England Deaconess Hospital and New England Baptist Hospital. Address 605 Commonwealth Avenue Boston Mass. Associated with him is

PEELEN, MATTHEW M. D. Rush Medical College 1931. Orthopedic Surgeon. Lahey Clinic, 1933-34. Address Kalamazoo Mich. Their subject is Nonunion in Shaft Fractures of the Humerus. Page 815.

RICHTER, ARTHUR B. A. B. M. D. Indiana University School of Medicine 1931. Previous Internships at Indiana University Hospitals, Peter Bent Brigham Hospital and Cleveland City Hospital. Assistant Resident Physician, Peter Bent Brigham Hospital 1935. Now practicing in Flora Ind. Address Flora Ind. Associated with him is

O'HARL, JAMES P. A. B. M. D. Harvard University Medical School 1911. Assistant Professor of Medicine. Harvard University Medical School. Senior Associate in Medicine. Peter Bent Brigham Hospital. Address 520 Commonwealth Avenue Boston Mass. Their subject is The Heart in Chronic Glomerular Nephritis. Page 824.

WHEELER, PHILIP H. A. B. M. D. Harvard University Medical School 1930. Assistant Surgeon, Brattleboro Memorial Hospital. Junior Consulting Surgeon, The Northfield (Mass.) Schools. His subject is Enormous Benign Gastric Ulceration Caused by Multiple Foreign

Bodies Page 830 Address 4 Elliot Street, Brattleboro, Vt

BAKST, HENRY J Ph B, M D Harvard University Medical School 1931 Junior Visiting Physician, Boston City Hospital Assistant in Medicine, Boston University School of Medicine Address 482 Beacon Street, Boston, Mass Associated with him are

WETHERBEE, WINTHROP, JR A B, M D Columbia University College of Physicians and Surgeons 1931 Junior Visiting Physician, Boston City Hospital Assistant in Medicine, Boston University School of Medicine Address 482 Beacon Street, Boston, Mass And

FOLEY, JOHN A A B, M D Harvard University Medical School 1915 Clinical Professor of Medicine, Boston University School of Medicine Visiting Physician and Physician-in-Chief, Fifth Medical Service, Boston City Hospital Address 464 Commonwealth Avenue, Boston, Mass Their subject is Orthostatic Albuminuria in Homologous Twins Page 832

LOW, MERRITT B A B, M D Harvard University Medical School 1933 Formerly, Surgical House Officer, Children's Hospital, Boston Medical House Officer, Children's Hospital of Philadelphia Now, Surgical Resident, Children's Hospital, Boston His subject is Anorexia in Children Page 834 Address Children's Hospital, Boston, Mass

WHITNEY, C F B S, M S, M D University of Vermont College of Medicine 1903 Director, Laboratory of Hygiene, Department of Public Health, Vermont Professor of Physiological Chemistry and Toxicology, University of Vermont His subject is Chemistry in Relation to the Practice of Medicine Page 837 Address Burlington, Vermont

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SECTION OF OBSTETRICS AND GYNECOLOGY³

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TREATMENT OF CHRONIC HEART DISEASE COMPLICATING PREGNANCY

As is to be expected, treatment of cardiacs in pregnancy is based chiefly on (1) preventing heart failure, (2) recognizing it early if it occurs, and (3) treating it adequately

Though the great majority of failures occur in the last trimester of pregnancy, the rule that

³A series of short selected articles by members of the Section is being published weekly
Comments and questions by subscribers are solicited and will be discussed by members of the Section

any cardiac may develop heart failure at any time during pregnancy or puerperium must be appreciated Clearly every human being who has heart disease should be under medical supervision, and part of the supervision of married women of child-bearing age who have heart disease should be specific instruction to report at once if pregnancy is suspected A suitable régime should be instituted immediately

The management of cardiacs is based, in general, on a study of unsuccessful cases The commonest cause of failure is accumulating fatigue Therefore, a schedule of regular hours of rest at night and for one or more periods during the day is essential Patients should be instructed never to break these fundamental rules under any circumstances The nature and duration of house or other work and of walking, the number of flights of stairs each day, should be carefully discussed with the patient and regulated Clearly no set rules can be made that are appropriate to all women In general, I have never seen any real harm come from restriction of activity and I have seen much harm from failure to control activity adequately Many failures could be averted if patients were carefully instructed on these simple matters and persuaded to follow their instructions The commonest causes for breaking these rules and allowing fatigue to occur are the following sickness in the patient's family, journeys, shopping trips, moving the household either to or from a summer home or to another home

Next to balancing rest and exertion, diet is probably the most important single factor Proper diet should cover the following points (1) weight control Weight reduction is of immense benefit to obese cardiacs Patients who are not obese should not be allowed to gain more than the standard amount during pregnancy Meals should be regular and at no time should a patient be allowed to gorge (2) Fluid intake should be controlled Excessive fluids particularly must be avoided where heart failure is present or feared (3) Adequate nutrition and (4) control of anemia Fruits meats, vegetables and milk must be taken to aid in maintaining a satisfactory high red blood cell count and hemoglobin Anemia seems to be an especially severe burden on cardiac patients in pregnancy, and it should be treated vigorously by drugs if diet control is insufficient There is no reason why the modern accepted requirements for nutrition of the mother cannot be made to fit the requirements of the cardiac patient

Oral sepsis may be a heavy burden and should be searched for and treated reasonably if found

The rôle of infection in producing heart failure in pregnancy is as follows the typical rheumatic heart disease patient in pregnancy has acquired a satisfactory immunity to recur-

rence of the active rheumatic disease. This is a fortunate and not thoroughly appreciated fact. We do not need to dread a flare up of rheumatic carditis. It is an extremely rare occurrence during pregnancy. Intercurrent infections—tonsillitis, grippe and the like—occur more often than not at some time during a pregnancy. They have a certain danger. It is remarkable how well cardiac patients tolerate these illnesses if they go to bed at the onset of symptoms and stay there until the infection is thoroughly over, then slowly increase their activities, taking a week or two to return to the level of physical exercise allowed before the infection. They seldom develop failure. If these precautions are neglected, the average upper respiratory infection may readily cause heart failure in a cardiac during pregnancy.

Patients with cardiac disorders must report for examination at least once a week. The main object of these visits is to detect early signs of failure. Though refinements of observation for example changes in the movements of the chest wall with respiration and careful vital capacity determinations may in some cases warn of a threatening failure, the earliest reliable signs of heart failure are persistent râles at the lung bases posteriorly. If a cardiac develops these rules during pregnancy, she should be considered to be in failure.

Failure means that the patient has suffered serious damage. The usual treatment for heart failure should be started and *the patient should be in bed or in bed or in chair until delivered* no matter how promptly and completely the signs of failure may clear with treatment. Failure in any pregnancy also means that the patient faces approximately a death rate of 25 per cent if she tries to go through another pregnancy.

An immense amount of ingenuity can profitably be used in selecting type and time of delivery in selecting the form of anesthesia and in its administration, in careful preparation and nursing of the patient through labor, delivery and recovery from operation. No set rules can or should be followed. Fortunately granted skillful delivery and aftercare, few cardiacs fail for the first time during or following delivery. The emphasis of the treatment of heart disease during pregnancy should be on careful early diagnosis of the heart disease and relentless control of the cardiac patient throughout the whole of pregnancy, delivery and puerperium. I have deliberately accented these apparently simple details of prenatal care of the cardiacs since these are by all odds the most important part of the problem.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning April 20

Berkshire

Thursday April 30 at 4 30 P.M. at the House of Mercy Hospital Pittsfield. Subject Kidney and Bladder Diseases A (Surgical)—Hematuria Its Significance in Surgical Diseases of Kidney and Bladder Instructor F. H. Colby Melvin H. Walker Jr., Chairman.

Bristol North

Wednesday April 29 at 7 30 P.M. at the Morton Hospital, Taunton. Subject Pediatrics (Medical)—The Neonatal State Instructor W. R. Sisson Arthur R. Crandell Chairman.

Bristol South (New Bedford Section)

Friday May 1 at 4 00 P.M., at the St. Luke's Hospital New Bedford. Subject Diseases of the Liver—Hepatitis and Painless Jaundice Problems in Diagnosis and Treatment. Instructor C. Frothingham Harold E. Perry Chairman.

Franklin

Wednesday April 29 at 8 00 P.M. at the Franklin County Public Hospital, Greenfield. Subject Dermatology—Ten Common Skin Diseases—Diagnosis and Treatment (1) Impetigo Contagiosa (2) Scabies (3) Acne Vulgaris (4) Psoriasis and Seborrheic Dermatitis, (5) Epidermophytosis (6) Herpes Simplex and Zoster (7) Eczema, (8) Erythema Multiforme (9) Verruca Vulgaris and (10) Dermatitis Medicamentosa and Dermatitis Venenata. Instructor J. H. Blaisdell. Halbert G. Stetson Chairman.

Middlesex East

Wednesday April 29 at 4 00 P.M. at the Melrose Hospital Melrose. Subject Kidney and Bladder Diseases A (Surgical)—Hematuria Its Significance in Surgical Diseases of Kidney and Bladder Instructor G. O. Prather Joseph H. Fay Chairman.

Middlesex North

Friday May 1 at 7 30 P.M. at the Lowell General Hospital Lowell. Subject Cancer of Breast and Uterus Instructor J. V. Melga Leonard C. Dursthoff Chairman.

Norfolk

Friday May 1 at 8 30 P.M. at the Norwood Hospital Norwood. Subject Lung Diseases—(a) Significance of Symptoms and Signs in Chronic Lung Diseases Tuberculosis Bronchiectasis etc. (b) The Value of Surgery in Above Disease Problems Instructor S. H. Proger and R. H. Sweet H. B. C. Riemer Chairman.

Worcester (Milford Section)

Wednesday April 29 at 8 30 P.M. at the Milford Hospital Milford. Subject Arthritis—(a) Medical Care of Patient in the Home.

(b) Orthopedic Treatment in Hospital and Aids in Home Treatment Instructors R T Monroe and W T Green Joseph I Ashkins, Sub-Chairman

APPLICATION FOR MEMBERSHIP IN THE ESSEX NORTH DISTRICT MEDICAL SOCIETY

New England Journal of Medicine,

According to the resolution adopted at the last Council meeting, I am sending you the names and addresses of an applicant for Fellowship and five sponsors which are to be published three weeks prior to the Censors' meeting

Applicant — Dr Lawrence Murphy, 216 High Street, Newburyport, Mass

Sponsors—Dr Frank W Snow, 24 Essex Street, Newburyport, Dr R L Toppan, 148 High Street, Newburyport, Dr C F A Hall, 210 High Street, Newburyport, Dr L C Peirce, 279 High Street, Newburyport, Dr R C Hurd, 244 High Street Newburyport.

In compliance with the By Laws of the Society (Chap I, Sec 1, Chap V, Sec 1, and Chap VII, Sec 5) the application and letters of the sponsors have been sent to Dr Fitz, Chairman of the Committee on Medical Education and Diplomas

E S BAGNALL, M D

April 14, 1936

MISCELLANY

\$10,000 PRIZE FOR RELIEF OR CURE OF DISEASES OF REPRODUCTIVE ORGANS

A prize of more than \$10,000 will be awarded in 1940 and every seven years thereafter by the American Academy of Arts and Sciences in Boston for 'outstanding work with reference to the alleviation or cure of diseases affecting the human genital organs' The award is to be known as the Francis Amory Septennial Prize, since it is made possible by a fund established by the will of the late Francis Amory of Beverly, Massachusetts In case there is work of a quality to warrant it, the first award will be made in 1940 It rests solely within the discretion of the Academy whether an award shall be made at the end of any given seven year period, and also whether on any occasion the prize shall be awarded to more than a single individual

While there will be no formal nominations, and no formal essays or treatises will be required, the committee invites suggestions, which should be made to the Amory Fund Committee, care of the American Academy of Arts and Sciences 28 Newbury Street, Boston — *The Diplomat*, April 1936, page 136

DR JIM, HEALER FOR 1,000,000 ZULUS, RETURNS FROM THIRTY FIVE YEARS IN SOUTH AFRICA

"Dr Jim," physician for over thirty five years in Durban, South Africa, arrived in Boston April 14

In Africa, where he founded the first hospital for Zulus in 1899, that is his title His hospital is the "House That Jim Built," and his wife, a trained nurse, is "the Princess"

His New England friends who were skeptical when he left here as a young missionary doctor, knew him as Dr James B McCord of Oakham, Mass

"There is only about one doctor to every million people in Africa," Dr McCord informed us

To meet this great medical need, Dr McCord is training the black to care for his own, as well as relieving sickness and suffering in his hospital

Last year, after a seventeen year struggle, Dr McCord induced the South African Government to put through a plan whereby young Zulus will receive medical education in the South African Native Colleges — *Boston Transcript*, April 14, 1936

AMERICAN COLLEGE OF PHYSICIANS

At the recent annual meeting of the American College of Physicians, held in Detroit, the following members assumed office or were elected for the year 1936-1937

President, Ernest B Bradley, Lexington, Ky

President Elect, James H Means, Boston

First Vice President, O H Perry Pepper, Philadelphia

Second Vice-President, David P Barr, St. Louis

Third Vice-President, Walter L Bierring, Des Moines

Secretary General, William Gerry Morgan, Washington, D C

Executive Secretary, E R Loveland, Philadelphia — *The Diplomat*, April 1936, page 134

ANNUAL JOINT MEETING OF AMERICAN ASSOCIATION OF MILK COMMISSIONS AND CERTIFIED MILK PRODUCERS

Immediately preceding the eighty seventh annual meeting of the American Medical Association, the American Association of Medical Milk Commissions will hold its annual joint meeting with the Certified Milk Producers' Association of America, May 11-12, at the Hotel Baltimore, Kansas City, Mo

In addition to reports from the eighty six Medical Milk Commissioners in the United States, Hawaii and Canada, addresses will be delivered by a number of prominent physicians and scientists These will include Dr Milton J Rosenau, formerly head of the Department of Preventive Medicine and Hygiene at the Harvard Medical School, President of the American Association of Medical Milk Commissions, Dr Boyd S Gardner of the Mayo Clinic, Rochester, Minn, Dr Paul J Zentay, Secretary, St. Louis Pure Milk Commission, Dr Harold L Barnes, Chairman, King's County Medical Milk Commission, Brooklyn, N Y, Dr Oscar Reiss, Secretary, Los Angeles County Medical Milk Commission, Dr Edwin T Wyman, Boston Medical Milk Com

mission, and Dr Hugh L. Dwyer Medical Milk Commission Jackson County Medical Society Kansas City Mo

WHY TRY TO PERSUADE THE PUBLIC?

Today medicine is where theology was when Gutenberg invented printing

The Bible, which was the special and sacrosanct possession of a small highly specialized group the clerics soon became after the invention of printing a book about which anybody could have an opinion—almost everybody did have an opinion—and the result of the clash of beliefs in extreme instances resulted in the overthrow of governments and in wars By virtue of the Bible becoming accessible to the public, civilization was profoundly changed

We live today in another age of change change which is affecting medicine along with everything else. The loafer on the street corner considers himself competent to express an opinion on the gold standard. What is still worse competent men in one field consider themselves qualified to express opinions in another field in which they are not competent.

Thousands of medical men trained in our medical schools are occupied in rendering a partial and limited knowledge of medicine widely available to the public, as employees of official and voluntary health organizations or as popular writers on medical subjects. True they are imparting only a smattering. Their work is open to the criticism that it indirectly encourages self-diagnosis and self-medication. The increasing growth of this movement cannot be stopped by condemning it, if indeed it should be condemned. A little learning is not a dangerous thing to a man who knows it to be little. If organized medicine co-operates and itself becomes vocal we will not be overwhelmed in the sea of created opinion which if it be not altogether opposed to the purposes of organized medicine is in substance indifferent to them

Justice Oliver Wendell Holmes said The best test of truth is the power of thought to get itself accepted in the open market — *Public Relations Bureau New York State Medical Society*

THE CONTROVERSY OVER WHETHER ALEXIS ST MARTIN EVER VISITED ST LOUIS

For a considerable time the story that Alexis St. Martin visited St. Louis has been disputed

In the *Bulletin of the Medical Library Association* for February 1938 there is a copy of an editorial (St. Louis Med. & Surg J [July] 1856) found by Miss Harriette Worthmuller Assistant Librarian of the Library of the St. Louis Medical Society which establishes the fact that Alexis St. Martin did visit St. Louis in charge of Dr Bunting

The text of the editorial is as follows

ALEXIS ST MARTIN

Dr Bunting late of the British army in Canada recently visited our city having in charge St Martin so well known in this community and by physiologists everywhere, as the subject on which our late distinguished fellow citizen, Dr Beaumont, performed his celebrated experiments on the physiology of digestion. While here Dr B exhibited this unique specimen in the amphitheatre of the St. Louis Medical College and performed a few so-called experiments before a large number of physicians and other scientific gentlemen of the city at the close of which a collection was taken up for the benefit of his patient. It is now some thirty five or six years since St. Martin received a gunshot wound in his left side, which has left a large fistulous opening into his stomach through which the rare opportunity is afforded of examining the contents of that organ during the various stages of digestion. At present, he is 53 years old is in good health and in the full and vigorous possession of all his functions seeming to suffer but little inconvenience from his wound. When the bandage is removed and the side exposed the inner coat of the stomach slightly protrudes presenting a red almost scarlet, appearance

It is understood that Dr Bunting and his attaché are on their way to Europe where it is to be hoped the case will fall into the hands of some of the eminent physiological observers of the old world who are capable of using it for the advancement of science. Such a case has never before occurred and may not occur again yet it is greatly to be regretted that as yet but comparatively little practical good has resulted to physiological science from it. In the exhibition which we witnessed it was evident that the object was more to realize money than to promote science, but we hope that hereafter a different course will be pursued and that the profession will yet have the benefit of all the light that this rare case is capable of shedding on the interesting subject of digestion. We therefore earnestly desire to hear from St. Martin again.

From this it can be seen that he came about three years after William Beaumont's death which occurred on April 15 1853

CHILD HEALTH DAY

On April 13 President Roosevelt proclaimed May 1 as Child Health Day. The text of the proclamation is

Whereas the Congress by joint resolution of May 18, 1923 (45 stat., 617) has authorized and requested the President of the United States to proclaim annually May 1 as Child Health Day and

Whereas the health and security of its children are essential to the well being of the nation and

Whereas it is advisable this year as we launch the social security program to encourage by every possible means the development of plans to pro-

mote maternal and child health, and to extend child welfare services

Now, therefore, I, Franklin D. Roosevelt, President of the United States of America, do hereby proclaim and designate the first day of May of this year as Child Health Day, and do urge all agencies, public and private, concerned with the health and welfare of children, on this day to study the plans for Federal, State, and local co-operation in promoting the health and security of children, to note the extent to which those plans have so far been put into effect, and to make arrangements for carrying their benefits to the children in every county in the United States

BOVINE TUBERCULOSIS IN CONNECTICUT

The U S Department of Agriculture has added Connecticut to its list of states practically free of bovine tuberculosis. This brings the number of states in the modified accredited area to thirty nine.

Tuberculosis eradication work among the cattle in Connecticut was begun more than a quarter century ago and has been in progress in co-operation with the federal government since 1918. Recently New London, New Haven, and Fairfield counties were added to the official list of modified accredited counties in that state. Official tuberculin testing of cattle in other counties had been completed previously to an extent whereby these counties could be made modified accredited areas.

Co-operation of the livestock owners with state and federal officials made it possible to reduce the incidence of the disease, which formerly was rather widely prevalent. Before an area can be designated as modified accredited, the degree of infection among the cattle must be less than 0.5 per cent as shown by official tests.

When a state becomes a modified accredited area the most difficult part of the eradication work has been completed. However, it is necessary to prevent the disease from getting new footholds, officials explain. This is done by retesting the formerly infected herds at regular intervals and removing any diseased cattle found.—*Bulletin, U S Department of Agriculture*

CORRESPONDENCE

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Illinois,

April 1, 1936

Managing Editor, *The New England Journal of Medicine*

In addition to the articles enumerated in our letter of March 4 the following have been accepted:

Abbott Laboratories

Ophthalmic Ointment Butesin Picrate 1% and Butesin 1%

Cheplin Biological Laboratories, Inc.

Cheplin's Sodium Cacodylate 0.05 Gm ($\frac{1}{4}$ grain), 1 cc

Cheplin's Sodium Cacodylate 0.1 Gm ($\frac{1}{2}$ grains), 1 cc

Cheplin's Sodium Cacodylate 0.2 Gm (3 grains), 1 cc

Cheplin's Sodium Cacodylate 0.3 Gm (5 grains), 1 cc

Cheplin's Sodium Cacodylate 0.5 Gm ($\frac{7}{8}$ grains), 1 cc

Cheplin's Sodium Cacodylate 1.0 Gm ($1\frac{1}{2}$ grains), 2 cc

Lakeside Laboratories, Inc.

Ampoule Solution Sodium Cacodylate 3 grains (0.195 Gm) 1 cc

Eli Lilly and Company

Tablets Amytal, $\frac{1}{4}$ grain

Ophthalmic Ointment Metycaine 4 per cent

National Drug Company

Antipneumococcal Serum Felton — Type I (Refined and Concentrated)

Antipneumococcal Serum Felton—Types I and II (Refined and Concentrated)

Parke, Davis & Co.

Kapseals of Ortol Sodium Phenacetin

U S Standard Products Co.

Scarlet Fever Streptococcus Toxin for Immunization

Ampule Compound Solution of Calcium Gluconate 10%, 10 cc

PAUL NICHOLAS LEECH, *Secretary*,

Council on Pharmacy and Chemistry

RECENT DEATHS

HILL—THOMAS CHITTENDEN HILL, M.D., formerly of Gloucester, Massachusetts, with an office at 270 Commonwealth Avenue, Boston, died at his winter home at Vero Beach, Florida, April 11, 1936.

Dr. Hill was born in Charlotte, Vermont, in 1871, and graduated from Vermont University and the University of Vermont College of Medicine. He subsequently studied at St. Mark's Hospital, London, England. Dr. Hill was a Fellow of the Massachusetts Medical Society, the American Medical Association, and the American College of Surgeons. His specialty was proctology. He was the author of the "Manual of Proctology" which passed through three editions and was translated into foreign languages. By reason of his standing in the specialty, he was elected to the presidency of the American Proctological Society and to the teaching staff of the Harvard Medical School.

Dr. Hill is survived by his widow, the former Mrs. Marion Whitin Brewer, two stepsons, Cyrus and Whitin Brewer, and two brothers, Monroe and Martin Hill, of Charlotte, Vermont.

McGRAW—ANDREW JAMES McGRAW M.D., of 93 Washington Street, Taunton Mass. died April 20 1936 after a long illness.

Dr McGraw was a native of Fall River the son of Hugh McGraw. He graduated from the College of Physicians and Surgeons of Baltimore in 1906 and settled in Taunton soon after. He joined the Massachusetts Medical Society in 1913 and was also a Fellow of the American Medical Association.

Dr McGraw became interested in civic affairs was a member of the School Committee for many years and served the City of Taunton as mayor for eight years. During the World War he trained at Plattsburg and was assigned to the 20th Ohio Infantry with which he went overseas, and was returned with the rank of major.

His widow Mrs. Anna McGraw two sons John and Andrew of Taunton two sisters Mrs. R. E. McDonald and Mrs. Mary Perry of Westford and two brothers Edward McGraw of Westford and John McGraw of Ohio survive him.

BULKELEY—FRANK S. BULKELEY M.D., of Taunton, Massachusetts died at the Ayer Hospital April 19 1936, after an extended illness. Dr Bulkeley was born in Ayer in 1879 the son of Joseph W. and Serena (Taft) Bulkeley. After studying at Phillips Andover Academy he entered the Harvard Medical School graduating therefrom in 1902 and immediately afterward settled in Ayer. He had served as a medical examiner of the North Middlesex District for twenty-four years.

Dr Bulkeley joined the Massachusetts Medical Society in 1903 and terminated his membership in 1918.

KELLY—JOHN S. KELLY M.D., of Quincy with an office on Harvard Avenue Allston died as the result of an automobile accident, April 20 1936.

Dr Kelly was born in 1887 and graduated from the Middlesex College of Medicine and Surgery in 1921.

His widow and three children survive him.

NOTICES

THE HENRY JACKSON LECTURES OFFERED BY THE NEW ENGLAND HEART ASSOCIATION

These lectures will be given by Tinsley R. Harrison M.D., Associate Professor of Medicine Vanderbilt University School of Medicine at 4:45 P.M. on Thursday April 30 and Friday May 1 at the Boston Medical Library (John Ware Hall).

Subjects

1. The Pathogenesis of Circulatory Failure
2. The Principles of Therapy in Patients with Congestive Heart Failure.

Physicians and students of medicine are cordially invited to attend.

The annual business meeting of the New England Heart Association will precede the lecture on April 30.

MEDICAL CLINIC AND STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P.M. on Thursday April 30 in the Amphitheatre of the Peter Bent Brigham Hospital Dr. Henry A. Christian, Physician-in-Chief, Hersey Professor of the Theory and Practice of Physics in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students.

This will be the last clinic until the first Thursday in October.

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12 staff rounds will be conducted by Dr. Christian.

REPORTS AND NOTICES OF MEETINGS

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

A meeting of the Middlesex South District Medical Society was held on March 18 1936 at St. Elizabeth's Hospital. The attendance was unusually large 125 members being present. The meeting was called to order by Dr. Remick, the president. He introduced Father Brennan who welcomed the members present, expressing his regret about the inclement weather and the pleasure of the hospital in offering its facilities to the District Society.

Seven very interesting papers were presented by various members of the staff. Short summaries follow.

ALEXANDER A. LEVI, M.D.

Secretary Middlesex South District

Dr. George F. Keenan, Surgeon-in-Chief, East Surgical Service, presented a Case of Abdominal Pregnancy of Ovarian Origin. The condition was encountered as an unexpected complication in hysterectomy for uterine fibroids.

The patient presented no signs or symptoms of pregnancy. The Aschheim-Zondek test was negative. The classification of all types of extra uterine pregnancy was briefly reviewed.

Specimens exhibited were a fibroid uterus, right ovary with placental attachment and invasion, and a four months normal fetus.

Dr. Edward J. O'Brien showed a most interesting case of Bilateral Pyonephrosis with a massive calculus in the left kidney with the lantern slide demonstration of the same.

It was the case of a girl twenty-six years of age who had a giant calculus of the left kidney with loss of function on this side, complicated by a massive pyonephrosis of the right kidney which filled the entire right side of the abdominal cavity to the extent that a gastrointestinal series demonstrated that the entire ascending colon and transverse colon were displaced to the left side of the abdomen. The stone was removed followed by

the return of function to the left kidney The right kidney was later operated on and drained with a view to restoring some of its function

Dr John E Burns gave a short talk on Bronchoscopy as an Aid in Diagnosis with Particular Reference to Pneumonography He showed several lantern slides illustrating the value of lipiodol in mapping out lung pathology

Dr John G Downing spoke of the present day status of Industrial Dermatitis, citing instances of various legal conditions in the different states He also spoke of the legal problems encountered in some cases here in Massachusetts, and discussed the various dermatoses as defined in law, with reference to a classification which he has compiled from personal cases and the literature, which is as follows

- 1 Mechanical or physical agents, i.e., abrasives, heat, cold, actinic rays, friction
- 2 Flowering plants and their products—resins, lacquers, wood dusts
- 3 Vital agencies
 - a. Bacteria, yeasts, molds
 - b. Members of the animal kingdom—mites, etc.
- 4 Chemical agents
 - a. Inorganic compounds—acids, bases, salts
 - b. Hydrocarbons and crude coal tar products—oils, tar, pitch, etc.
 - c. Other organic compounds

He then showed lantern slides depicting the patch test (which he explained), and also pictures of characteristic types of Industrial Eruptions

Dr Edward M Hodgkins stated that he was in the habit of regarding the space through which either direct or indirect inguinal hernia occurred as triangular, the boundaries being, the internal oblique and transversalis muscles above the lateral border of the rectus muscle and its fused sheath medially and the spine of the pubis and inguinal ligament below The triangle becomes dilated by atrophy and retraction medially of the internal oblique and transversalis muscles

The widening is when a large sac of long duration or a large recurrent sac has been pushing through Wearing of trusses over a long period likewise causes definite atrophy of muscles and widening of the triangle It is therefore impossible to do a repair by attempting to draw muscle over to the inguinal ligament without undue tension by the usual oft repeated catgut methods of operation Some type of living suture method must be used to build a new protective wall A method of using strips of fascia from the rectus sheath as sutures to span this space and build the new wall was described and illustrated with lantern slides An experience of ten years with huge primary and recurrent hernias was reported Fascia is autoplasmic, heals readily into contiguous structures and becomes perma-

nent tendinous grafts Previous publications with reported cases were cited as convincing evidence of the efficacy of this method The method is important in economic rehabilitation, as it places people back at work who would otherwise be dependent on family or charity

Dr John F Casey gave a brief talk on Peripheral Vascular Disease, particularly emphasizing the early symptoms and diagnostic points He felt that early diagnosis and early treatment would result in the saving of many extremities The Pa-va-ex machine was demonstrated at the close of the meeting

Dr Francis P McCarthy, Pathologist at the hospital, gave a report of a group of unusual and interesting cases with gross and microscopical pathological specimens

One unusual breast tumor, an adenomyxoma fibrosarcoma was shown This tumor was of twenty years' duration and began as an adenofibroma

A case of lymphosarcoma involving the mediastinal and retroperitoneal lymph nodes with diffuse involvement of both kidneys was demonstrated. The kidneys were tremendously enlarged, each weighing over 700 grams and were the only organs involved other than the lymph nodes

An embryonal sarcoma of the right kidney, in a child of two years, which involved a greater part of the abdominal cavity was also shown

A specimen of lung showing typical silicotic nodules in an advanced case of silicosis was demonstrated together with the microscopical sections

An enormous fatty cirrhosis of the liver weighing over 7000 grams and a large aneurysm of the ascending and transverse arch of the aorta were demonstrated

An interesting specimen of an adenocarcinoma of the stomach and a rheumatic heart, weighing 1120 grams, from an eighteen-year old boy who had rheumatic fever in early childhood, were demonstrated

THE FAULKNER HOSPITAL CLINICAL MEETING

The regular monthly clinical meeting was held at The Faulkner Hospital on Thursday afternoon, March 5, at 5 00 P M

One of the cases which had come to autopsy during the month was that of a male, forty-eight years of age, who presented a typical picture of infection involving the larynx Although diphtheria was suspected, the culture was negative Examination of the larynx showed a congested and swollen epiglottis and vocal cords It was not possible to see beyond the vocal cords A short time after the patient arrived in the hospital he coughed up a perfect cast of the trachea and beginning of the bronchi From this cast diphtheria organisms were obtained Despite large doses of antitoxin, laryngeal obstruction developed and a tracheotomy was done The patient succumbed from what appeared to be general

toxic reaction At autopsy a typical picture of laryngeal diphtheria was present. Marked congestion and edema filled the alveolar spaces. From the lungs a culture of streptococcus viridans was obtained. In certain places in the lungs there was a hyaline-like membrane such as is found in cases of the epidemic disease generally called influenza, but the distribution of this membrane was different from that found in the epidemic disease. An interesting feature of the case was a leukocyte count of 47400 with 92 per cent polynuclears which is rather high for infection with diphtheria and would not be expected in a streptococcus viridans which was the only other organism found at the autopsy.

The other case was that of a woman seventy eight years of age who had a terminal infection with high fever gradually rising pulse rate and elevated respirations with a moderate leukocytosis. There were a few crackling rales at the base of one lung and it was felt without doubt that the case was one of terminal pneumonia in an old woman. This case demonstrates the value of having a post-mortem examination on all cases no matter how simple they seem, because there was no pneumonia. The cause of death was a staphylococcus aureus septicaemia with marked involvement of the heart muscle. Microscopic abscesses were found elsewhere especially one in the brain which was just about to burst through into the meninges and, had she survived a day or so longer it would have undoubtedly produced a staphylococcus meningitis. Another interesting feature in the case was the practically complete occlusion of the coronary arteries without pronounced cardiac infarction.

Following the presentation of these two cases Dr Richard C Eley talked on the clinical applications of extracts obtained from the human placenta. He called attention to the fact that there were two extracts at the present time one a 3 per cent salt extraction with the resulting protein which had the power of neutralizing the poison of poliomyelitis preventing measles blanching the scarlet fever rash and neutralizing diphtheria toxin. Although this extraction has these four qualities, the practical application of it at the present time has been in the prevention of measles. He called attention to the fact that attempts to prevent measles had been tried by the use of serum from patients convalescing from measles adult human serum and adult human whole blood in addition to the use of this placental extract. The advantage of the placental extract is that it can be used in smaller quantities than either adult whole blood or adult serum. Since it is put out by the Commonwealth of Massachusetts ready for use, it is easier to obtain than the serum from a convalescent patient.

He then showed figures to demonstrate that this placental extract is more effective in preventing measles or making the disease milder than the serum or the whole blood. He called attention to the fact that if this placental extract is taken by mouth it will reverse the Dick and Schick tests

temporarily. Just what clinical application can be made of this has not as yet been decided.

He then called attention to another extract of the placenta which has a coagulating action upon human blood. He emphasized the importance of realizing that this coagulating action was not present in the extract of the placenta which is distributed by the Commonwealth of Massachusetts. The extract of the placenta used for the prevention of measles is sterilized by passing through the Berkefeld filter. The coagulating agent in the placental extract will not go through the filter and therefore cannot be sterilized. It is given by mouth and one of the difficulties is the tendency of the gastric juices to destroy it. The results upon children who are hemophiliacs have been very remarkable in many cases. In some cases it has not been so successful. In adults the results have not been so satisfactory as in children and it is felt that there is some point in regard to the destruction of the substance in the gastric juice which has not as yet been overcome. In addition to the value of this preparation in children with a tendency to bleed it has been successful in stopping the oozing from raw surfaces after adenoid operations thus saving the packing of the nasopharynx, stopping the bleeding from cleft palate operations and also stopping hemorrhage from the pockets from which teeth have been extracted. Some interesting results have also been obtained in cases of prolonged menstruation. Up to the present time the results on cases of purpura and leukemia have not been encouraging.

This extract of the placenta which contains the coagulant can be given by mouth intramuscularly or applied locally.

WILLIAM HARVEY SOCIETY

The William Harvey Society held its regular monthly meeting on February 14 1936 with Dr Elmer W Barron presiding. Dr L Emmett Holt Jr., Associate Professor of Pediatrics at Johns Hopkins University School of Medicine spoke on the "Significance of the Fats in Infant Nutrition. High fat diets in infant feeding have been advocated periodically since Biblical times. A wave of enthusiasm for this type of feeding which spread to England and this country was started by Bledert in Germany in the latter part of the nineteenth century. In its trail came a reversal of feeding fats being deprecated and avoided because of their supposed tendency to produce diarrhea, their demonstrated inhibitory action on the stomach, a belief that they were responsible for certain types of anemia and that their prolonged use in large quantity might lead to the syndrome of fat intolerance. Particular opprobrium has been attached to the fat of cows milk and, in the belief that fats are species specific, many attempts have been made to imitate the fat of human milk in artificial feeding. This doctrine has survived and finds expression in the current practice of feeding not more than 35 per cent of the calories as fat when cows milk is used and also in

the use of various fat mixtures designed to imitate breast milk fat.

Dr Holt and his collaborators were led to question the soundness of these views. They undertook to re-investigate the question of the species specificity of milk fat and to make comparative studies of various fats in infants from the point of view of ease of absorption, of their inhibitory influence on the stomach, their supposed hemolytic effects and their internal utilization.

Observations on human milk fat indicated there was comparatively little species specificity. The fat could be greatly altered by changes in the character of the fat of the diet, this had been previously reported by Engel whose work was generally overlooked.

The conditions influencing fat absorption in general were studied. It was found that the size of the fat particles is not a factor of importance, the quantity of protein and carbohydrate present exert no appreciable influence, but minerals, particularly calcium in excess, may impair fat absorption.

The retention of different fats by infants was studied. These were selected with a view to demonstrate the effects of varying the composition of the fat. It was found that the completeness of absorption could be predicted within narrow limits from a knowledge of the component fatty acids. The shorter chain fatty acids were more readily absorbed than those with longer chains. The presence of an unsaturated linkage in the fatty acid chain favored absorption. The evidence as to whether more than one double bond was advantageous was not conclusive, but there was suggestive evidence that this was the case. No evidence was obtained that the volatile fatty acids are irritating or cause diarrhea, as had been claimed. It was found that several vegetable fats, notably olive oil and soya bean oil, were even better absorbed than average human milk fat. The "imitations" of human milk fat were not so well absorbed as the human milk fat itself. They represented little or no improvement over butter and one preparation was less well absorbed than butter. The differences in absorption found with normal infants on these various fats were not so great as to be of practical importance. In a series of premature infants, however, who are notoriously poor fat absorbers, the substitution of a more digestible vegetable fat for butter caused a significant increase in absorption which was promptly reflected in the weight curve.

It has been known for many years that fats inhibit the motility and secretion of the stomach. The phenomenon is due to a humoral mechanism released after fat enters the duodenum. Lim and others have extracted a chalone from the duodenum which is capable of producing this effect, when introduced into the circulating blood. Cameron and Tidwell in Dr Holt's laboratory made comparative studies of the inhibitory effect of different fats, and found that the fats which produced the greatest inhibition were those which were most readily assimilable. The purpose of this inhibitory phenom-

non remains obscure, but at least it does not appear to be harmful.

In the past it has been maintained that fats gave rise to increased blood destruction, although recent work has cast doubt upon this. The problem was restudied in Baltimore with the collaboration of Dr Josephs in a series of infants whose urobilin output was determined on various high fat diets. The response was uniform regardless of the type of fat used. The urobilin output rose promptly but within a few days it fell again, being maintained at a level almost twice as high as the normal for that individual. It did not at any time reach the high values found in infections or hemolytic anemias. The preliminary marked rise appeared to be due to a washing out of stores, since it could be produced by mineral oil alone. The protracted effect could not be produced with mineral oil. It is not proved that the sustained increase in urobilin output is due to blood destruction. Other evidence of blood destruction was not found, but by exclusion it would seem that a mild degree of increased blood destruction is responsible for the increased urobilin output.

Attempts were made to study the internal utilization of various fats in infants. Intravenous injections of various emulsified fats revealed no differences in the rate of removal from the blood. This may, however, have been due to the fact that in all instances egg lecithin was used as an emulsifying agent, giving the fat particles a uniform coating. Studies were also made by Nichols and Myers in Dr Holt's laboratory on the alimentary lipemic curve after the ingestion of various fats. When the quantity of fat ingested for the test is sufficiently large, a striking alimentary lipemia is exhibited by the infant. If, however, the infant is maintained upon a high fat diet for some days or weeks, the lipemic curve induced by the same test dose of fat gradually diminishes, as the organism acquires an increased ability internally to dispose of fat. This same phenomenon has been observed in animals by Bang and by Leites. Whether it is due to a "training" of the tissues to utilize fat or to some circulating hormone elaborated in larger quantities upon demand is still unsettled. In an infant adapted to utilize a large quantity of one fat, other fats were substituted for the test meal in the hope of detecting by variations in the alimentary lipemic curve, whether this fat adapted state was specific for particular fats. No such specificity was demonstrated.

NEW ENGLAND ROENTGEN RAY SOCIETY

The February meeting of the New England Roentgen Ray Society was held at the Massachusetts General Hospital on the evening of February 21, 1936. After the brief business of the Society was over, Dr Holmes presented the various speakers of the evening.

Dr A. O. Hampton spoke on "Boeck's Sarcoid." The etiology of this condition is unknown, it may involve any tissue of the body, but the lesions in the lungs and bones are of chief interest to the roentgenologist. Where the lungs are involved,

there is a symmetrical enlargement of the lung roots with or without a diffuse parenchymal lesion. There are no pulmonary symptoms the condition is not malignant and the lesions disappear of their own accord without treatment within six to eight months. One-third of the patients have bone changes which are typically in the fingers causing fusiform swellings and present x-ray lesions varying from pinpoint destructive areas to large areas of pressure erosion. Biopsy of involved glands shows multiple tubercles without giant cells or central necrosis. Patients with erythema nodosum may present the same chest picture. In some cases sarcoid presents itself only in the pulmonary manifestations. Dr Hampton showed x-rays of several of these patients.

Dr Frank Hunter spoke on *Spray Radiation in the Treatment of Polycythemia Vera and Erythroblastic Anemia*. In both these conditions there is an overactivity of the bone marrow. Patients with polycythemia vera have pains in the bones enlarged spleens and dusky complexions. Two cases treated by spray radiation were discussed and blood charts shown. About 1000 r units were given over a period of two to three months in each case. All the blood elements fell and the red count stayed normal for some years. Thus far spray radiation seems to be the most successful treatment in this condition.

Erythroblastic anemia of Cooley occurs chiefly in infants and young children causing extreme pallor weakness and an enlarged liver and spleen. These patients often have Mongolian facies and may have pathological bone fractures and the blood picture presents numerous nucleated red blood cells. One such case has been treated by x-ray and the nucleated reds have fallen, while the red count has risen to a more nearly normal value.

Dr J M Robinson spoke on "The Radiographic Demonstration of Rupture of the Intervertebral Disc. This condition may occur in the cervical and dorsal region, but the condition occurs more commonly in the lumbosacral region and gives signs of a cord tumor. The soft nucleus of the intervertebral disc may rupture posteriorly or into the vertebral bodies as well as anteriorly. Two-thirds of the cases give a clinical picture of low back pain typical of sacro-iliac strain. Lantern slides were shown to demonstrate the use of lipiodol to show the rupture. In 50 per cent of these cases, there is no visible narrowing of the disc. An increase in the spinal fluid protein is a constant finding. Approximately 50 per cent give a history of trauma and 90 per cent of the group occurring in the lumbosacral region between the fourth and fifth lumbar and fifth lumbar and first sacral vertebrae. In 95 per cent of the cases the pain disappears immediately following operation.

Dr H. O. Peterson spoke on *Analysis of 100 Cases of Ureteral Stones*. Only those cases in which the indisputable diagnosis of this condition was made clinically were selected. Twenty-one out of the 100 cases had given no x-ray evidence but

reexamination of the plates found stones in 96 per cent of the cases. The x-ray tube should be centered so that the bones of the pelvis are not superimposed on the orifice of the ureter. Eighty per cent of all ureteral stones are found within the boundaries of the pelvis and 66 per cent are located in the small area near the ureteral orifice. All the small stones are in this latter area.

Dr R. Lingley spoke on "Malignant Small Bowel Tumors". He presented four cases of this condition. Dr Lingley concludes that these malignant tumors of the small bowel may obstruct the lumen but more often dilate it and there is usually a large, soft, tissue mass palpable.

The last paper was by Dr R. H. Schatzki on "The Diagnosis of Tumors of the Colon". He pointed out several practical points in the examination of the colon. First, the patients should be prepared carefully. Secondly the most important part of the examination is a careful fluoroscopic study in which every inch is carefully observed. The rectum should be slowly filled and the enema stopped following this because the peristalsis will fill the sigmoid and part of the colon without more barium. The less barium used the clearer the outlines of the colon will be. Spot films are taken of any suspicious areas. The patient should be reexamined by fluoroscopy after evacuation of the barium.

Obstruction is the most common finding and several plates were shown to demonstrate the different kinds of obstruction. The differential diagnosis between stenosis due to diverticulitis and that due to tumor may be difficult. The diagnosis of small tumors was stressed and the typical findings in cases of polyps shown. Spasm is often present with polyps. These conditions are often only found in the post-evacuation studies.

HARVARD MEDICAL SOCIETY

The Harvard Medical Society met at the Peter Bent Brigham Hospital February 25 1936. Dr Elliott C. Cutler presiding. The medical case was presented by Dr Charles B. Kimmel. An eighteen-year-old boy a known diabetic for nine years, had been referred to the hospital for medical observation and treatment of an abscess of the left thigh. He had been seen on two previous occasions because of threatened diabetic coma, which had been precipitated on both occasions by upper respiratory infections. He had been well until six days before the present admission, when he developed a localized abscess in the left thigh at the site of a hypodermic injection of insulin. Physical examination was negative except for the abscess, which was subsequently incised and drained. He was placed on the usual diabetic régime but was given protamine insulin which decreased his insulin requirements, at 10 p.m. and 7 a.m. Dr Marshall N. Fulton remarked that this was the second case which had been given protamine insulin at the Brigham Hospital. It was admin

istered at 5 p m and somewhat decreased the patient's tendency toward high blood sugar values in the morning. Dr Elliott C Cutler commented on the obvious immaturity of the boy and emphasized the fact that many patients with diabetes show associated endocrinological abnormalities.

Dr Richard C Durant presented the surgical case. A forty year old woman entered the Brigham Hospital on Oct 17, 1935, complaining of abdominal pain and vomiting of twenty hours' duration. Her distress had begun as nausea, and then pain had appeared in the right upper quadrant which soon became of a colicky nature. She had had a small, soft, apparently normal bowel movement after the onset of her pain. Her local physician reported that examination of her abdomen was negative, and that 15 milligrams of morphine were required to relieve her pain. Some ten hours after the onset of the pain she vomited material containing blood. The next day she entered the Brigham Hospital. Examination on entry revealed abdominal spasm and tenderness, most marked on the left side. Rectal and pelvic examinations were negative. The white count was 12,200, 92 per cent polymorphonuclear leucocytes, the red count was five million, and the hemoglobin was 85 per cent. Exploratory abdominal laparotomy was performed, and revealed a serosanguineous exudate in the peritoneal cavity, and numerous small necrotic areas scattered over the peritoneum. The bowel was hemorrhagic in appearance, and the pancreas was found to be several times its normal size. The pancreatic capsule was incised, and the abdomen was closed with drainage. She experienced a moderate amount of postoperative nausea, vomiting and pain, and had several recurrent attacks of these symptoms. A draining sinus persisted, with the discharge of approximately 300 cubic centimeters of fluid daily. On December 22, 1935 after a severe coughing spell a piece of necrotic tissue was found in the dressing. Microscopic study did not reveal the nature of this tissue, because of its poor condition, but it was assumed to be pancreatic tissue. Following the discharge of this tissue the amount of drainage steadily decreased. Her temperature, which had been persistently elevated to 101° to 102° Fahrenheit, subsided to 99°. A fluoroscopic study of the gastrointestinal tract revealed a hyperirritable stomach, with large rugae, and a five per cent residue. There were numerous shallow defects on the lesser curvature which were interpreted as representing ulcerations. The duodenum emptied satisfactorily, but was irregular in outline, due to adhesions. Dr Cutler remarked that inasmuch as a large portion of this patient's pancreas had been destroyed, it would be reasonable to expect a variation in sugar tolerance which might simulate diabetes. Although her sugar tolerance was normal shortly after her operation it subsequently became very similar to that of a diabetic patient. Dr Russell Wilder commented on the fact that, even though large portions of the pancreas were often destroyed by pancreatitis, only rarely do such cases develop diabetes. This fact illustrates

the large margin of reserve function possessed by this organ.

Dr Russell Wilder, chief of the Department of Medicine of the Mayo Foundation, delivered the address of the evening. His topic was "Spontaneous Hyperglycemia." The clinical condition designated by this term might better be known as "paroxysmal hypoglycemia", because the syndrome is characterized by periodically recurring attacks or fits. This condition was recognized clinically in 1927, when a patient was observed at the Mayo Clinic suffering from symptoms which were similar to those of insulin shock, and were immediately relieved by the administration of glucose. The blood sugar during an attack was found to be only 30 mg per cent. Operation revealed carcinoma of the pancreas with metastases. Postmortem studies demonstrated that the carcinoma was composed of cells which resembled morphologically the cells of the islands of Langerhans. Extracts of the metastases in the liver when injected into rabbits produced variations in blood sugar levels identical with those produced by insulin, confirming the belief that this metastatic tissue was functionally active. Subsequent cases which have been seen at operation have been either adenomas of the islets, or very early carcinoma without metastases. Although extracts of such tissues have been shown to have activity like insulin it cannot be said with absolute certainty that such tissue is hypersecretory. However the clinical evidence points toward this belief. Very recently a second case with metastatic involvement of the liver has been seen at the Mayo Clinic, and extracts of the metastases have given results similar to those obtained in the first case described.

Some cases of hypoglycemia have been encountered in which no islet tumor could be demonstrated, either at operation or at postmortem study. Some of these cases have been found to have abnormalities in the anterior hypophysis, e.g., a chromophobe adenoma. Cushing first described low blood sugar levels in patients with pituitary lesions. Many of these latter cases suffer symptoms from their hypoglycemia, although an occasional patient may have a persistent low blood sugar level without discomfort. It is believed that the anterior lobe of the hypophysis elaborates a hormone which is antagonistic to insulin in its action. The exact mechanism of this action is at present unknown, although it is believed by Long that the pituitary mediates its influence through the adrenal cortex.

It has been suggested that disturbed function of the adrenal cortex may be responsible for some cases of hypoglycemia. Clinical observations have not supported this hypothesis. In 150 cases of Addison's disease observed at the Mayo Clinic marked hypoglycemia was never observed.

It seems unlikely that the thyroid dysfunction is of importance in causing severe hypoglycemia, since this symptom is not observed following subtotal or total thyroidectomy.

Experimental and clinical observations have indicated that the presence of adequate hepatic func-

tion is essential for the maintenance of normal blood sugar levels. The reserve power of the liver in this respect is enormous at least 80 per cent of the hepatic tissue must be removed in order to cause a lowering in the blood sugar. Complete removal of the liver brings about marked symptoms of hypoglycemia, which are quickly alleviated by the administration of glucose. Severe liver damage such as is encountered in advanced cirrhosis, or extreme fatty degeneration results in low blood sugar values.

Paroxysmal hypoglycemia may be precipitated in perfectly normal men by sufficiently strenuous exercise (e.g. a marathon race). Some individuals apparently are less well able to manufacture blood sugar than others and less severe exertion causes hypoglycemia in them.

Hypoglycemia has been observed to occur in newborn infants of diabetic mothers. Postmortem study has revealed very large pancreatic islets in some but not all, of these infants. It is supposed that the pancreas of the fetus functions more actively than in adults in order to supply insulin for the maternal organism and that this hyperfunction continues after birth and results in a true hyperinsulinism. Frequent oral feedings with glucose immediately after birth supplemented with subcutaneous administration of 10 per cent glucose solution, have prevented the loss of infants from hypoglycemic death. Dr Wilder suggested the possibility that some of the convulsions seen in children of nondiabetic mothers within the first few days after birth might be due to unrecognized hyperglycemia, instead of the usually diagnosed birth injuries.

The treatment of hypoglycemia in adults entails the administration of glucose either orally or intravenously in the acute stages. Mild cases should be prescribed small frequent meals of the same general type as that recommended by diabetic patients in order to avoid stimulating the overproduction of insulin. Exercise should be curtailed, and the patient warned to be on his guard for early manifestations of a hypoglycemic reaction. Severe cases frequently are due to islet tumors, which occasionally are found to be malignant. Operation should be advised in all severe cases. In cases in which no tumor has been found at operation some surgeons have performed a "subtotal resection of the pancreas with good results. Recently in one such case a silk ligature was carried around the body of the pancreas and ligated anteriorly to the divisions of the celiac axis and tied snugly. The patient developed mild diabetes and previous attacks of hypoglycemia ceased.

CLINICAL MEETING OF THE FIFTH SURGICAL SERVICE AND SURGICAL RESEARCH LABORATORY OF THE BOSTON CITY HOSPITAL

A clinical meeting of the Fifth Surgical Service and Surgical Research Laboratory of the Boston City Hospital was held in the Choever Amphitheatre on March 15 1936 Dr Irving J Walker presiding. The

first paper of the evening was presented by Dr Stanley J G Novak, who spoke on Cross Circulation Studies in Surgical Shock. There are four main theories concerning the etiology of surgical shock, which may be briefly summarized: (1) That of Crile who believes that there is a paralysis of the vasomotor center; (2) That of Cannon who believes that as a result of trauma and tissue destruction there is liberation of some sort of toxic substance which is absorbed into the blood stream and produces shock; (3) That of Blalock, who believes that shock is produced by hemorrhage merely as a result of lowered blood volume; (4) That of Freeman who attributes the condition to overactivity of the sympathetic system. The latter worker observed the onset of shock (as indicated by lowering of blood volume) after the prolonged intravenous injection of physiological quantities of adrenalin, and after prolonged and profound hyperactivity of the sympathetic nervous system in animals showing "sham rage" (hypothalamic preparations).

Dr Novak accepted the fall in blood pressure as the criterion of shock in his animals and used the cross circulation method of Delezenne in which the hind limb of dog "B" is isolated from its body except for the nerve supply and all blood for the limb is supplied by means of cross circulation from dog "A". This isolated limb was subjected to extreme trauma, and by following the blood pressures in the two dogs by means of arterial cannulae it was determined which animal went into shock. If shock were due to absorption of toxic substances or to blood loss animal "A" would be expected to show marked drop in blood pressure while if shock were due to pain and overactivity of the sympathetic nervous system dog "B" would be expected to exhibit the lowered blood pressure. The amount of hemorrhage into the limb and total blood loss were accurately determined after the completion of the experiment by weighing the limb and by determining the amount of hemoglobin present on the sponges and instruments.

In a long series of experiments it was consistently observed that dog "B" sustained its normal blood pressure, and showed no evidence of shock, while dog "A" the "perfuser" dog went into shock with marked fall in blood pressure.

Calculations of the loss of blood in the leg and on sponges showed that there was an average loss of approximately 23 per cent of the total blood volume. It was found experimentally that a hemorrhage with the loss of 20 per cent of the blood volume was sufficient to cause shock.

By crushing the other leg of dog "B" which had previously been denervated and observing the vasomotor responses of the isolated leg it was found that dog "B" went into shock. The isolated leg showed vasoconstriction and although dog "A" showed variations in blood pressure there was no shock.

Retransfusion of the dog exhibiting shock promptly elevated the blood pressure and alleviated the symptoms of shock.

These studies of Dr Novak confirm the theory of Blalock that "shock is hemorrhage, and hemorrhage is shock"

Dr Charles C Lund spoke on the subject "Arterial Embolism", stating that emboli in the larger arteries must arise from either the pulmonary vein, the left side of the heart, the aorta, or some portion of the artery above the site of the embolus. In extremely rare instances an embolus may pass through a patent foramen ovale, although there is little tendency for blood or emboli to pass through such an orifice, even though existent, since the blood pressures in the two sides of the heart are practically equal under normal conditions. If, however, there is an embolus to the pulmonary artery in a person with a patent foramen ovale, there is an elevation of the blood pressure in the right heart, and a second embolus may be forced through the opening into the left auricle.

In general there are two types of emboli, the first and most usual being a hard plaque of material which occludes the vessel at one point only, and the second being a soft "mushy" clot, which may fill up the whole of the artery peripheral to the occlusion. Only the first type is amenable to treatment by embolectomy.

In former years many more patients were subjected to the operation of embolectomy than at the present time. The use of the suction pump on the extremity, peripheral to the embolism, has proved successful in establishing collateral circulation in many instances. A recent report of the use of papaverine hydrochloride in patients suffering from emboli has suggested that this drug may be of value in relieving the arterial spasm which occurs following the occlusion of a vessel with an embolus.

Patients experiencing peripheral emboli are extremely poor surgical risks, and even though fifty per cent of those operated upon within twelve hours after the onset of embolism get complete restoration of circulation, many will die in the hospital of some other cause. A survey of cases subjected to surgical treatment of emboli has shown that 25 per cent leave the hospital with good circulation in the affected limb, 25 per cent leave the hospital after amputation of the limb, and 50 per cent die while in the hospital. The mortality of such patients is 90 per cent within the first two years following the embolus.

Dr Novak stated that papaverine had been used at the Peter Bent Brigham Hospital in the treatment of emboli with very discouraging results.

Dr E Everett O'Neil presented a paper on 'Gangrene and Impending Gangrene of the Extremities: Considerations and Treatment'. He emphasized the importance of careful instruction of patients with vascular disease as to the proper care of the feet. In appraising the true state of the circulation in an extremity it is important to differentiate the true occlusive type and the spastic type. The index of arterial sufficiency, the histamine test, skin thermometry before and after spinal anesthesia,

and the Landis test are all of distinct value in making this appraisal.

Application of the suction apparatus to the affected extremity is often effective in elevating the skin temperature, and alleviating pain, and may permanently aid cases with frozen feet, or arterial emboli. Dr O'Neil does not believe that cases of Buerger's disease should be so treated, however.

Cases of diabetic gangrene should be treated as surgical emergencies, and after amputation the stump should be treated with primary closure. The guillotine amputation is of distinct value in many such cases, and should be more widely used than it is at present.

'Renal Colic in the Male Caused by Vesiculitis' was discussed by Dr Augustus Riley. The anatomical location of the seminal vesicles on the posterior surface of the bladder and overlying the lower portion of the ureters is such that swelling may occlude the ureteral lumen and cause back pressure. Such occurrences have been observed in a considerable number of cases by Dr Riley, and these cases were found to have elevated temperature, abdominal spasticity, and pain fully as severe as that caused by the passage of a ureteral stone. The only method of establishing this diagnosis is by means of cystoscopy, and pyelograms. Cystoscopically a characteristic swelling and edema are observed in the trigone at the ureteral orifice, and the ureter can be catheterized for a distance of about two centimeters only. Dilatation of the ureter often will result in drainage of infected urine which may contain red blood cells. Such blockage may occasionally be the underlying factor in the production of pyelitis.

Chronic vesiculitis may cause pain localized to the inguinal regions, which is often mistakenly diagnosed as appendicitis or "gas pains".

Dr Irving J Walker and Dr W B Castle presented a case, and discussed the "Dietetic Problems Associated with Total Gastrectomy". The patient was a forty one year old male who was first seen one and one-half years previously, complaining of loss of appetite, general malaise, and weakness of three months' duration. Except for loss of appetite there were no symptoms of gastrointestinal disease. The past history was negative. X-ray studies showed a "fixed stomach" with poor peristaltic activity, and the diagnosis of gastric carcinoma or gastric ulcer with gastritis was made. The physical examination was negative, and laboratory studies, except for a low gastric acidity, were within normal limits. Dr Walker performed a total gastrectomy, making an end-to-side anastomosis between the esophagus and jejunum, and an enteroenterostomy between the jejunal loops. A Levine tube was put in place at the time of the operation, and brought into the loop of jejunum proximal to the stoma. This was left in place for four days postoperatively. The abdomen was drained under the left costal margin to remove what serum might accumulate. The patient was kept in an oxygen tent for three days after the operation, and fluids were given by hypodermoclysis.

and intravenously up to 3000 cc. daily. A soft-solid diet was given after the third day.

Gross examination of the stomach after removal showed what appeared to be an ulcer two centimeters in diameter. Microscopic studies showed a carcinoma simplex with numerous mitoses. No metastases were found. Dr. Walker believes that patients with histories and x-ray findings such as were observed in this case should be considered as having carcinoma until proved otherwise.

Dr. Castle stated that loss of weight is not to be expected in cases of carcinoma unless the disease is widespread or involves the essential organs of digestion. This patient lost thirty pounds after his operation and had weighed only 100 pounds for several months. This weight loss might be due to metastatic disease, but there was no indication of such invasion. It could not be attributed to the loss of the chemical products of the stomach. His basal metabolic rate was normal, and there was no increase in the fat in the stools. Although he showed a very great alimentary hyperglycemia and glycosuria, the loss of calories in this fashion was insignificant compared with the total caloric requirements of his body with his dietary intake. The true explanation of his failure to gain weight was finally found to be his refusal to take in adequate amounts of food. By using concentrated foods and much persuasion, he had been induced to take a 1000 caloric diet for one week, with the result that he gained three pounds. The whole problem in this case was the effort to overcome the patient's reluctance to eat.

This case was also interesting since it illustrated the fact that pernicious anemia does not occur after total gastrectomy although it is known that the stomach is of importance in preparing the anti-anemic principle. This patient did not develop pernicious anemia because of the fact that there is a store of "liver extract" in the liver sufficient to last for many months because of the fact that liver extract can be absorbed from food, and because the pyloric glands have a physiological analogue in Brunner's glands of the duodenum which act as a source for the "intrinsic factor." Because of the latter two reasons there is no reason to suppose that gastrectomy patients would develop pernicious anemia. It is true that several cases of pernicious anemia have been reported following gastrectomy but it is believed that these patients developed the disease as a result of inadequate diets and not directly because of the loss of the stomach. In true pernicious anemia there is probably a degeneration of the whole gastrointestinal tract, with many abnormalities such as poor absorption and inadequate formation of the intrinsic factor.

Dr. David D. Berlin reported on the End Results of Total Thyroidectomy for Chronic Intractable Heart Disease. He pointed out that cases subjected to this form of therapy must be very carefully selected. Surgical treatment has no place in heart disease if any benefit can be obtained from medical treatment, if the basal metabolic rate is low or if

the disease is rapidly progressing. One hundred and eighty-five cases were analyzed representing the results in twenty-six clinics. The average operative mortality in the various clinics was between five and eight per cent. Since the adoption of local anesthesia, and careful selection of cases there have been no operative deaths at the Beth Israel Hospital. A summary of the results in the two groups of cases was presented.

Results	Beth Israel Hospital	Other Clinics
A Congestive Failure		
Excellent	31%	31%
Moderate improvement	17%	32%
Slight improvement	21%	18%
No improvement	31%	18%
B Angina Pectoris		
Excellent	35%	53%
Moderate improvement	28%	33%
Slight improvement	16%	9%
No improvement	23%	5%

In summary Dr. Berlin stated that 132 of the 185 patients subjected to the operation received benefit from the procedure. He believes that it is a valuable method of treatment in properly selected cases.

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Essex North District Medical Society will be held Wednesday May 6 1936 at the Hotel Hawthorne, Salem Mass.

PROGRAM

- 12 30—Dinner
2 00—Business meeting—Nomination of officers adoption of changed By Laws.
3 00—Fundamentals in Cancer Treatment—Grantley W. Taylor M.D. Harvard Medical School, Boston.
The Role of the Pathologist in the Diagnosis of Neoplasms—Béla Halpert, M.D., Head of the Division of Pathology The Jewish Hospital, Brooklyn.
Censors meeting at the Hotel Bartlett, Haverhill Thursday May 7 1936 at 4 00 P.M.
E. S. BAGTALL, M.D. Secretary-Treasurer

THE WACHUSETT MEDICAL IMPROVEMENT SOCIETY

Under the auspices of this Society a Medical Historical Pageant will be presented at the Rutland State Sanatorium on April 30 1936 at 8 00 P.M.

PROGRAM

The Story of Early Medicine in Massachusetts given by students of Tufts College Medical School Director—Professor B. Spector

Colonial Period (1620-1700)

Indian Medicine Man (1620-1640) R. A. Johnson, '37
Deacon Dr. Samuel Fuller (1580-1633) M. V. MacKenzie '38.

BOOK REVIEWS

Lobar Pneumonia and Serum Therapy With Special Reference to the Massachusetts Pneumonia Study Frederick T Lord and Roderick Heffron 91 pp New York The Commonwealth Fund \$1 00

This small handbook concerns the diagnosis and serum treatment of lobar pneumonia. A large proportion of the text is based on information gained through the Massachusetts Pneumonia Study from 1931 through 1935, which was financed by the Commonwealth Fund and carried out by the Massachusetts Department of Public Health.

Following introductory chapters dealing with the more general aspects of the problem is one concerning diagnosis and the proper selection of cases. In others, the methods of determining the type of pneumococcus and the properties of antipneumococcal serum are briefly considered. Subsequent chapters deal with the necessary precautions prior to serum administration, rules for the injection of serum and a description of serum reactions and a consideration of their treatment. Finally, the results of serum therapy are given.

The subject matter is presented simply and concisely. For those interested in more detailed information adequate references are given. Marginal notes emphasize most clearly the more important points.

Both authors are admirably qualified to write a book of this sort and it should prove of incalculable value to practicing physicians, particularly those with remote connections with the larger medical centers.

Obstetrical Practice Alfred C Beck 702 pp Baltimore The Williams & Wilkins Company \$7 00

The author's preface begins with this statement: "The purpose of this book is to present the essentials of obstetric practice to undergraduate students and young practitioners as concisely as is consistent with the requirements of a textbook", and admirably has the author fulfilled his purpose.

There are thirty-nine chapters of text, beginning with a description of the ovarian cycle, and ending with instruction in the various standard methods of resuscitation of the newborn. Between these two is included a succinct presentation of the essential accepted facts of obstetrical practice. There is here no detailed discussion of physiological theories, but there is a clear factual recital of the whole subject. One who reads this book carefully will become acquainted with the whole range of obstetrics, he will even become familiar with the mechanics of labor and delivery which are described in enlightening detail, but he will not thereby equip himself as an expert obstetrician. The toxemias of pregnancy including hyperemesis and nephritis are discussed in fifteen pages. One page is given to pulmonary tuberculosis almost a page,

to both kinds of anemia. Heart disease is considered in little more than one page. To engross such subjects in such limited space the author has applied himself to the specific purpose of presenting to "students and young practitioners" the essentials as they are commonly accepted at present. Theories, divergent opinions and varied methods of treatment are scrupulously elided. The result is a clear didactic unit which must not be expected to serve as a complete exposition of the subject in hand.

The book is lavishly illustrated with excellent line drawings, well chosen and well placed. They illuminate the already lucid text. The paper is substantial, the print is large, the spacing is generous. A book, for the student or young practitioner, comfortable to read and profitable to study.

Lilly Research Laboratories, Dedication Indianapolis Eli Lilly & Company

No one can read the account of the dedication of the Lilly Research Laboratories in this attractive book without a thrill of joy and pride that an American Pharmaceutical concern is so progressive. The building itself, 220 feet by 53 feet, is admirably arranged and houses much of the purely research work of the Eli Lilly Staff. To go through it with out envy was more than one could expect of hard working professors and doctors who gathered there on October 11 and 12, 1934, from various medical schools in the United States.

To the opening came more than a thousand guests of whom one-fourth were beyond Indiana state lines. In this dedicatory volume one can read the welcoming address of the chairman, Mr. Eli Lilly, the remarks of Mr. J. K. Lilly, the founder, fifty years ago of the first Lilly Laboratory, upon Research in Manufacturing Pharmacy, the conceptions of Dr. Irving Langmuir, regarding the Unpredictable Results of Research, Sir Frederick Banting's Early Story of Insulin, and Sir Henry Dale's paper on Chemical Ideas in Medicine and Biology. It is fortunate that the words of these famous men have been preserved and made available to all.

At the banquet, in the evening, given the visiting scientists and clinicians, there were brief after dinner speeches by Mr. J. K. Lilly, Sir Henry Dale, Dr. Elliott P. Joslin, Dr. George R. Minot, Dr. Frank R. Lilly, Dr. George H. Whipple, Dr. Carl Voegtlin, and the Director of the Laboratories, Professor George H. A. Clowes. The volume also contains informal talks upon special problems of research which were given on the following day, together with a general description of the Lilly Research Laboratories.

Our congratulations, Eli Lilly Company, for the forward step you have taken to help humanity and the medical profession, and especially for the high ethical standards which now as always have characterized the endeavors of your organization.

The New England Journal of Medicine

VOLUME 214

APRIL 30, 1936

NUMBER 18

NEW ENGLAND BRANCH AMERICAN UROLOGICAL ASSOCIATION

METASTATIC ABSCESS OF THE PROSTATE*

BY C. J. E. KICKHAM, M.D.† AND NORMAN A. WELCH, M.D.†

ABSCESS of the prostate gland is generally regarded as a direct or indirect complication of Neisserian infection, either in its acute or chronic process. Frequently, as a result a prompt diagnosis is not made and the proper therapeutic measures are unnecessarily delayed. There is no basis for this attitude, as such abscesses are not infrequently encountered where there is no history of venereal infection and where its absence is substantiated by the clinical findings. Prostatic suppuration may occur as a sequela to some acute systemic infections such as influenza and typhoid fever. Bugbee reported four cases which followed influenza during the epidemic of 1918. Abscess in the prostate gland may be frequently precipitated by urethral trauma following instrumentation. Kemble recently reported a case complicating diabetes mellitus and septicemia. A similar case has come under our observation. There is also the group in which the prostatic infection is metastatic in origin and in which the primary focus can be demonstrated. The most common foci are superficial pyogenic infections such as boils, carbuncles, felon, and paronychia. Strominger reported four instances of fatal carbuncle with metastatic abscesses in the prostate gland. Randall, Kretschmer, Ball, and Herman and Carp have described cases of metastatic prostatic abscesses from demonstrable distant foci. The bacteriological cultures from the prostates in these patients showed *Staphylococcus aureus*. The usual history is that of a healthy individual with a recent pyogenic infection and with symptoms out of proportion to the local pathology who suddenly develops bladder difficulty in the form of frequency and painful urination which progresses rapidly to a complete retention.

Patch and Reid, in 1932 reported a case of prostatic abscess, metastatic in origin complicated by bilateral renal carbuncles. Cases have been described in which perinephritic suppura-

tion followed prostatic abscess of pyogenic origin. However, in a recent review of sixty-six cases of carbuncle of the kidney, including a personal report, Graves and Parkins found only one instance (Patch and Reid) in which the renal condition was preceded by prostatic suppuration. von Lichtenberg refers to the association of renal and prostatic abscesses. He attributes this to a special etiological factor connecting the two organs but he does not specifically state what this mysterious factor is. He does say, however, that in a pyemic condition the obstruction offered by a swollen prostate would easily tend to lower the resistance of the kidneys and thus render their hematogenous infection all the easier.

Our interest in the subject was stimulated by the following case:

The patient, Carney Hospital No 34297, a Canadian American married male of twenty-nine years was admitted on January 3, 1934 with a history of diurnal and nocturnal urinary frequency and pain on voiding of eight days duration which was climaxed by complete retention two days before admission. Five weeks previously he had developed a boil on the dorsum of the left wrist which was incised by his local physician. He denied venereal disease by name and symptom. The past genito-urinary history was negative.

The family history was negative. The patient was married and had two children. His past history was unimportant. He had always been in good health and the systems were essentially negative.

Physical examination found a well-developed and nourished man. The color was good and the tongue moist. The heart and lungs were normal. Blood pressure was 118/72. On examination of the abdomen the kidneys could not be felt and were not tender. There was definite resistance to palpation tenderness and dullness over the suprapubic area. The external genitals were negative. Rectal examination found a normal sphincter. The prostate gland was somewhat enlarged and boggy throughout. The right lobe felt a little elevated and more prominent than the left, but was not fluctuant.

Laboratory findings. The urine was cloudy alkaline specific gravity 1.013 albumin trace sugar none sediment pus, free and in clumps. The white blood count was 32,000.

Clinical course. There had been no elevation of temperature, but the history and clinical findings suggested a prostatic abscess. He was placed on a program of alternating hot rectal irrigations and hot sitz baths high fluid intake and urinary antiseptics. He was placed on catheter drainage. After

*Read at the Meeting of the New England Branch of the American Urological Association at Boston, February 7, 1935.
†From the Urological Service, Carney Hospital, South Boston, Mass.
Kickham, C. J. E.—Assistant Urologist, Carney Hospital.
Welch, Norman A.—Visiting Physician, Carney Hospital. For records and address of authors see "This Week's Issue" page 219.

being on this régime for six days with no apparent improvement, the rectal findings indicated the presence of definite suppuration in the right lateral lobe. On January 9 a perineal incision and drainage was carried out and approximately two drams of pus were liberated from the right lobe of the gland. The report of the culture was "Staphylococcus aureus." There was a postoperative elevation of temperature, but his convalescence was otherwise uneventful. He was discharged from the hospital January 19 at which time he was voiding without discomfort although some frequency persisted.

Interval history About three weeks following discharge the patient developed acute pain in the right flank which had been preceded by several days' premonitory flank discomfort. This was accompanied by marked vomiting and neck pain. Abdominal examination revealed marked spasm and tenderness over the right renal area. The temperature varied from 100 to 103 degrees. He was definitely toxic. Readmission to the hospital was advised. Digital examination of the rectum found no evidence of recurrent abscess formation.

Readmission (February 15, 1934) Cystoscopy. No obstruction was encountered in the urethra. The bladder tone, tolerance, and capacity were normal. The mucosa was moderately injected. The left ureteral orifice appeared normal. The right orifice was quite red in appearance. Number 4 ureteral catheters were passed along the ureters 28 cm and no obstruction encountered. There was a slow intermittent drip. Specimens were obtained from both kidneys for culture and sediment examination.

Laboratory findings The bladder urine showed many pus cells. The right kidney urine showed eight to ten red blood cells and an occasional white blood cell, and the left kidney two to six red blood cells per high power field. The kidney cultures were negative. The phenolsulphonphthalein divided function test showed the appearance of the dye from both sides in three and one half minutes and 2 cc, 625 per cent on right, and 4 cc 12 per cent on left, after ten minutes. The blood urea nitrogen was 13 mg per 100 cc of blood. The Wassermann was negative. Blood culture was negative.

Days Plain kidney ureter bladder with the catheters in position delineated the left renal shadow normal. The right side was somewhat obscured but did not appear definitely abnormal. No shadows were present which were consistent with calculi. The left ureteropyelogram was normal. The right pyelogram revealed the upper and middle calyces normal but the lower calyx was slightly elongated and there was a definite small filling defect delineated.

Clinical course The patient's general and local condition did not improve. He experienced a great deal of pain in the right renal area, over which region he was quite tender and spastic. At this time the right kidney was definitely enlarged, especially at the lower pole where a palpable excruciatingly tender mass could be outlined. His temperature varied from 100 to 102.6 degrees and his pulse rate was 100 to 120. The white blood count remained elevated. It was felt that we were dealing with a carbuncle of the lower pole of the kidney, although the possibility of a solitary renal abscess or infarct was kept in mind. On March 18, the patient was taken to the operating room and preparations carried out for an exploration of the right kidney. Spinal anesthesia was administered following which his blood pressure climbed from 122 to 226 and the pulse rose to above 140. His general condition was very poor and he was returned to his room. Following this, his renal pain and tenderness subsided and the palpable mass could not be felt. His temperature gradually subsided also. Any further at-

tempt at surgery did not seem to be indicated. Slight tenderness over the lower pole of the right kidney still persisted, however. The report of the urine sediment on the day he was taken to the operating room showed "many pus cells." There was no change until four days later when the report was "a large number of pus cells, free and in clumps." Several days before his discharge, he developed severe pain over the left renal area, but this persisted for only a few days. He left the hospital on March 27, 1934. Following discharge, the patient's general condition gradually improved, although his temperature was elevated to 99 to 100 degrees for over a month. He was placed on a program of general supportive treatment consisting of a high caloric diet, increased fluid intake and ultraviolet lamp therapy in conjunction with regular office treatment. The smear of the prostate showed a few pus cells when last seen and the voided urine still had a few white blood cells present. He was symptom free and apparently in excellent health.

COMMENT

Since we were dealing with a patient who had a recent superficial pyogenic infection, and since we had no reason to suspect the presence of Neisserian disease, it was felt that a diagnosis of prostatic abscess, metastatic in origin, was consistent with the clinical and laboratory findings. Relative to the nature of the kidney pathology, a tentative diagnosis of renal carbuncle was justified although solitary abscess and infarct were not excluded in the differential. The physical findings and general clinical picture did not suggest perirenal suppuration. Microscopic and cultural studies of the urine from the affected kidney disclosed no evidence of infection. The delineating of a filling defect in the lower calyx of the right renal pelvis by retrograde pyelogram, suggested pressure from an intrarenal mass. The history of staphylococic infection, both superficial and in the prostate gland, the clinical course and local physical findings correlated with the laboratory and roentgenological studies seemed to confirm this diagnosis. Cardiac pathology, the most common factor in the development of renal infarcts, was not present so far as we could determine clinically, although there was a rapid pulse rate for several weeks. Barney and Mintz state that acute or chronic heart disease, especially of the valvular type, is almost always present when renal infarcts are encountered.

The spontaneous regression of the renal pathology was quite remarkable. However, in reference to carbuncle of the kidney, Lazarus states that the process may point toward the pelvis and extend into it, rupture spontaneously, and drain itself with ultimate healing and cure. He adds, however, that this is unusual. It is not uncommon to encounter perirenal suppuration due to direct extension from a renal focus, such as renal carbuncle or solitary abscess, to the perinephrium. It is likewise logical to expect in some cases direct extension and rupture into the renal pelvis. The reaction to

the spinal anesthesia in this instance was quite unusual. The definite change in the clinical picture immediately thereafter as revealed by the disappearance of the renal mass and the symptomatic improvement of the patient was probably a coincidence. The manipulation and attendant trauma in placing the patient in the right lateral position may have been a precipitating factor in the rupture of the carbuncle into the renal pelvis; however, although this is quite conjectural.

SUMMARY

A case of metastatic abscess of the prostate with secondary renal suppuration rupturing spontaneously into the kidney pelvis is reported. The importance of staphylococcal infections as primary foci for abscesses of the prostate and kidneys is emphasized. Urinary difficulty and retention in a patient with a history of recent

superficial pyogenic infection should suggest metastatic abscess of the prostate gland.

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A WARNING ABOUT ACIDIFICATION THERAPY IN CASES OF
RENAL INFECTION DUE TO THE PROTEUS BACILLUS*

BY RICHARD CHUTE, MD†

RECENTLY acidification therapy in the treatment of urinary tract infections and calculi has been advocated so widely and enthusiastically, and without warning that it could do harm, that I am impelled to point out one condition in which I feel that the indiscriminate use of acid therapy may lead to trouble. This condition is renal infection with the proteus bacillus. This bacillus is a not uncommon invader of the urinary tract and produces an infection which is extremely persistent and stubborn, and is very resistant to the ordinary methods of combating urinary infections. It has the property of rapidly splitting the urea of the urine and producing ammonia thus making the urine intensely alkaline. This alkaline infected urine greatly predisposes to the formation of calcareous incrustations and stones in the urinary tract which are a characteristic finding in these cases.^{1,2} These stones and incrustations are composed chiefly of calcium phosphate. Phosphates, as you know, tend to precipitate out in an alkaline urine, and will not precipitate out of a strongly acid urine. In accordance with this property of phosphates systemic acidifying therapy is used in patients who form calcium phosphate stones in order to keep the urine strongly acid and thus prevent any tendency of the phosphates to precipitate out with the possibility of a tendency to stone formation.

With these facts in mind let me tell you about

a certain patient of mine a man of thirty-one who had one stone removed from his right kidney in 1929 and another removed from his left kidney in 1933. Both these stones were composed chiefly of calcium phosphate. In 1933 he was studied thoroughly from the metabolic standpoint and in view of a slightly raised blood calcium and a slightly increased amount of calcium excreted in his urine it was thought that he might possibly be suffering from hyperparathyroidism and his neck was explored, but no parathyroid tumor was found although one parathyroid gland was never located. Last fall (1935) he entered the hospital again and I found that he had a proteus bacillus infection of each kidney and that a stone in the right kidney which I had been watching grow gradually for more than two years had become large enough to require surgical removal. This I did leaving in a nephrostomy tube for irrigations of acid. Then I decided on a drastic and forceful campaign to stamp out this infection. Since he was rather washed out following the operation and since the ketogenic diet has not been remarkably successful in treating proteus infections I did not start him on this diet, but decided to acidify his urine strongly and give large doses of methanamine. Accordingly I started with the usual dose of one gram of ammonium chloride four times a day and the urine remaining alkaline, gradually increased the dose over a period of about five weeks reaching a peak at the end of this period when by means of a modification of Keyser's acidifying syrup³ I gave as much as twenty grams of ammonium chloride per day for three days. Still the urine did not become acid. At this point Dr. Fuller Albright pointed out that ammonium compounds are nitrogenous and are excreted in the urine as urea.

Years ago Folin showed that an increase in the nitrogen of the diet is followed by an increase in the amount of urea excreted in the urine. Therefore, in this case by the ingestion of large amounts of ammonium chloride, the amount of urea excreted

From the Massachusetts General Hospital.
†Chute, Richard—Assistant Urologist, Massachusetts General Hospital. For record and address of author see "This Week's Issue" page 153.

in the urine must have been greatly increased, which superabundance of urea had doubtless been giving the proteus bacilli a very rich pasturage and promoting their growth and their output of ammonia. Then I switched to nitrohydrochloric acid and gave that for another month, at one time giving as much as 60 cc of Crances nitrohydrochloric acid mixture² in twenty four hours. I had only slightly better luck with the nitrohydrochloric acid and, even with the maximum dose, never succeeded in getting the urine more than very slightly acid (never below pH 6.5). During these two months of intensive acid medication the patient passed at least four unilateral stones, each one about the size of a drop of water, which were composed chiefly of calcium phosphate. Near the end of the two months, the patient began to complain of pain in the unoperated kidney, and you can well imagine my feelings when x rays showed that a good sized stone had formed in the kidney pelvis (figs 1 and 2). Plates taken

smaller dose than I had given, that person will excrete, via his urine, more than six times as much calcium and more than one and a half times as much phosphorus as he ordinarily would.

Then I saw the explanation. By giving a large amount of acidifying medicines I had strongly acidified the system and caused a great increase in the amount of calcium and phosphorus excreted via the urine, a condition analogous to hyperparathyroidism. This would probably have been all right if I had succeeded in getting and keeping the urine strongly acid, thus absolutely preventing the precipitation of phosphates. However, due to the rapid ammonia production by the proteus bacilli, I was never able to get the urine really acid, and so there existed the unfortunate combination of a greatly increased amount of calcium and phosphorus in a urine which was alkaline and infected with proteus bacilli—a combination strongly predisposing to stone formation.*



X-ray on December 17 1935 showed one small stone in left kidney

FIG 1



X ray on January 24 1936 showed the same small stone and in addition a large stone in the kidney pelvis which had formed since the last x rays—thirty eight days before.

FIG 2

thirty eight days before had not shown this, so that the stone must have formed pretty much during that period of about a month between pictures. The other kidney on which I had operated and which was getting daily lavage with acetic acid through the nephrostomy tube, showed no new stone formation. Shortly after this, the patient had his fourth kidney operation and I removed this stone. It was soft and crushed easily and was obviously a new formation not yet fully calcified. It was composed chiefly of calcium phosphates, but also showed some oxalate and a little carbonate.

On thinking this case over and wondering why the patient had this sudden increase of stone formation—one large stone and at least four small ones in less than two months—and had formed stones infinitely faster than he ever had before, I remembered that acidifying the system greatly increases the excretion via the urine, of both calcium and phosphorus. This has been pointed out by Hunter³ of London, and Aub and his co-workers⁴ in this country. This latter group showed that when a person's system is acidified by taking four to six grams of ammonium chloride per day, a

SUMMARY

The three points which I wish to make are the following:

1. The urine in infections of the urinary tract should always be cultured in order to know what organism one is dealing with, since what may be the proper régime in treating infections

*Since the above paper was written Dr. Edward L. Pearson, Jr. of Salem has reminded me of the importance of the functional efficiency of the kidney in the matter of urinary acidification. The better the renal function the more effect the acid medication will have in the direction of acidifying the urine and the less effect it will have in the direction of producing systemic acidosis and increased excretion of calcium and phosphorus. On the other hand in the presence of poor renal function there is a greater tendency toward systemic acidosis and thus probably toward increased calcium excretion with at the same time a lessened ability of the kidneys to excrete a strongly acid urine.

In the case reported above I do not believe this matter played an important part as the nonprotein nitrogen of the blood was not elevated and the renal function as measured by the excretion of phenolsulphonphthalein by each kidney was pretty good. No estimations of the CO₂ combining power of the blood were made. However I believe that this is an important consideration and I plan to carry on further investigations along this line with complete biochemical studies.

due to the colon bacillus may be the wrong thing in dealing with infections due to the proteus bacillus

2 In cases of infection with the proteus bacillus, ammonium chloride would seem to be unsuitable as a urinary acidifier for biochemical and bacteriological reasons.

3 In treating infections of the kidneys with the proteus bacillus, systemic acidification may be dangerous and lead to the formation of new stones, unless one is successful in obtaining a strongly acid urine. This may be impossible

due to the rapid manufacture of ammonia by the proteus bacilli

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THE TREATMENT OF HYOSPADIAS
IN THEORY AND PRACTICE*

BY H. H. CABOT, M.D.†

I DO not propose this evening before this society of experts to discuss in detail the well established methods of dealing with the deformities of hypospadias. Rather I propose to draw upon my own experience in the attempt to point out some of the difficulties and hopefully to suggest some methods of avoiding them.

The requirements of successful correction of the deformities of hypospadias are twofold: first the correction of the almost always present deformity of curvature, and secondly the construction of a satisfactory urethral canal.

CORRECTION OF THE DEFORMITY OF CURVATURE

It has, I think, been too widely assumed that the correction of the deformity of curvature may properly be regarded as a step or stage in the procedure of correcting the deficiency of the urethra. This has led but too often to the attempt to correct the deformity after the child has reached the age of eight or ten or even adult life. Thus no opportunity is allowed for development of the parts after the correction has been satisfactorily done. Although the desirability of correcting the deformity in very early life has been frequently stressed by various writers on the subject, it has not, I think, been sufficiently grasped by the people who are most likely to see these patients, namely the obstetricians, the pediatricians, and the general practitioners. I therefore risk stating again the opinion that the correction of the deformity should be undertaken in very early life probably at or before the age of two years. A considerable interval amounting to at least three or four years should then be allowed to elapse before the construction of the urethra is undertaken.

Methods of overcoming the deformity of cur

Read before the meeting of the New England Branch of the American Urological Association at Boston, Massachusetts, February 7, 1926.

*Cabot, Hugh—Consulting Surgeon, Mayo Clinic. For record and address of the speaker "This Week's Issue," page 849.

vature.—For this there are three types of procedure which are perhaps applicable to more or less definite types of deformity. For the average deformity seen in the cases of penile and penoscrotal hypospadias the method by transverse incision on the ventral aspect is as a rule satisfactory. It is commonly held that in the more severe deformities two such incisions should be made, one near the base of the glans and one just in front of the opening of the urethra. This method I have used in a considerable number of cases but have come to the opinion that one incision is as a rule sufficient. The crux of the matter lies in the very complete removal of the fibrous tissue occupying the position of the missing part of the corpus spongiosum.

One would gather from the literature that the transverse incisions are often carried only through Buck's fascia, and deeply through the abnormally thick fibrous septum lying between the corpora cavernosa. This does not seem to me satisfactory and I believe that the very complete removal of the fibrous tissue, chiefly in the midline through a transverse incision placed about the midway between the meatus and the glans, is more satisfactory. Success will as a rule depend upon the completeness with which the fibrous tissue is removed together with a fairly free mobilization of the skin flaps on either side, so that they may be readily approximated vertically and without tension. In some cases the satisfactory bringing together of the lateral ends of the incision will bring tension upon the skin of the penis to an undesirable extent. This can be readily overcome by a longitudinal dorsal incision which relaxes the skin so that approximation on the ventral surface becomes easy and the dorsal incision can be closed transversely a position which it will occupy of its own accord.

The next method is that involving the use of pedicle flaps, and it is most likely to be required in the extreme deformities generally associated with the perineal types of hypospadias.

Blair has devised a very clever method of utilizing the prepuce to cover the raw surface on the ventral side necessarily created by the removal of the confining fibrous tissue and the straightening of the penis. I have myself most frequently used the method of Edmunds, which consists in the creation of a buttonhole flap in the prepuce which some weeks later when the blood supply has become satisfactorily adjusted is utilized after division in the center to close the gap (fig 1). By the use of these flap



FIG. 1. Buttonhole flap of Edmunds two months after the first operation.

methods the deformity can be considerably overcorrected, which in these extreme cases is, I believe, desirable.

It should be pointed out that the flap methods which utilize the prepuce will veto the possibility of using one of the methods for formation of the urethra, namely, that of Ombiédanne. It is essential, therefore, that a decision be made at this time whether the Ombredanne operation is to be utilized and, if such is the case, correction by other methods than the use of flaps from the prepuce will be essential.

The third method is that suggested by Hagner who utilizes skin grafts passed above the confining fibrous tissue at two points. These grafts are sutured about a trocar, which is then passed through the penis transversely above the fibrous bands. This of course means that they must invade the cavernous tissue of the corpora cavernosa. After an appropriate interval these tunnels are divided on the ventral surface, thus overcoming the deformity. Hagner reports very favorable results by this method. With it I have no personal experience and tend to think that it is more likely to be useful in the patients at or approaching adult life than for the children at the more appropriate age. I should also be fearful that the placing of these

grafts through portions of the cavernous tissue would result in the formation of scar which might itself as time went on reproduce the deformity.

THE CONSTRUCTION OF THE URETHRA

Here we have at our disposal and in more or less common use three types of procedure. These stated in order of their historical precedence are the Thiersch-Duplay type, the Bucknall type, and the Ombiédanne type. I do not propose to discuss in detail or to illustrate these operations, since they have been fully illustrated in articles by Cecil, Lyle, and Cabot, Walters, and Counsellor.

The Thiersch-Duplay type — The principle here involved is the use of flaps with very broad pedicles taken from the shaft of the penis, and in the case of the perineal type of deformity from the non-hair-bearing skin in the cleft of the divided scrotum. The operation is applicable to any type of deformity. It is, I think, essential to recognize the principle introduced by Thiersch of turning the skin flap which is to form the urethra from one side, and the flap which is to form the outside covering from the other, thus avoiding as far as possible the superimposition of suture lines.

The next point which I wish to stress is the importance of broad union of the edges of the flaps rather than the attempt to suture edge to edge as is appropriate for the average surgical incision. It seems desirable to invert the flaps forming the urethral tube in such a way that the edges are turned inward and the surfaces applied to each other by sutures which do not emerge on the skin margin. For the purposes of this suture I believe the use of very fine catgut, articulated to a fine curved needle so that there is no excessive bruising of the tissues, as is involved where the ordinary eye needle is employed, is desirable.

Diversion of the urine during the period of healing is essential. This may be done either by suprapubic cystostomy or by the creation of a perineal boutonnière. Cecil, who has had a large experience, strongly advocates the use of the suprapubic method. In my hands this has not worked notably more satisfactorily than has the perineal method. In either case should the catheter become obstructed or displaced, urine will pass along the new formed urethra. Particularly in children, suprapubic drainage does not seem to me secure against failure of drainage, and in fact has in my hands been less satisfactory. The perineal boutonnière can be easily made after the plastic operation has been carried out on the urethra, over an indwelling catheter. This will be facilitated if a suture upon a curved needle is passed deeply about the urethra after the patient has been placed in the lithotomy position. Tension on this suture draws the

urethra up against the skin, and a very small opening can then be made directly into the urethra through which the catheter can be readily withdrawn and properly adjusted. Young advises the placing of a suture about the urethra in front of the boutonniere, tied sufficiently tightly to close the canal and thus avoid urinary contamination. I have not felt willing to do this since the risk of constricting the urethra to such an extent as to form a stricture does not seem to me one which can be safely overlooked.

In passing it may be noted that the accurate adjustment of the catheter should be made only after the patient has been replaced on the table with the legs extended normally. If adjustment is made while the patient is still in the lithotomy position, it will almost always be faulty, commonly because the catheter will lie too far out as the result of change of the tension of the perineal tissues. In keeping the catheter draining constantly, the addition of a constant suction by means of the principle of the Bunsen pump has seemed to me very helpful. Certainly the liability to blocking of the catheter and passage of urine about the catheter is very importantly diminished and generally avoided.

The aftercare of these cases is one of considerable importance, and there is, I think, no very general agreement as to the best method. There is much to be said for the very early removal of dressings, thus allowing the parts to be exposed and kept under electric lights. This requires very careful supervision by the nurse and will in practice require twenty-four hour supervision in order to avoid accidents. In some cases, at least, my experience has shown that there is liability to edema coming on during the first few days, and I have therefore compromised by using a dressing for three or four days, at the end of which time lights are substituted. The original dressing should be a moist one—we have generally used acriflavine—placed in such a way as to keep the penis in full extension and exert moderate, even pressure. This moist dressing will dry during the first twenty-four hours and form a very effective splint.

Where all goes well and particularly in the hands of surgeons who have had considerable practice, this operation gives, I think, the most perfect result of any of the methods (fig. 2). On the other hand, it must be freely admitted that the liability to fistula formation is a serious handicap. Although the principle of avoiding overlapping flaps is undoubtedly important, it will be found in practice that these flaps tend to contract in such a way as to bring the suture lines particularly at the penoscrotal angle very closely into line. The occurrence of a fistula is most common at the penoscrotal angle and in my experience has been difficult to repair in some cases requiring two or three attempts. I tend to think that this is due to the increased tension which occurs in the lateral flap at this

point, and I particularly call attention to the desirability of mobilizing the flaps very freely, avoiding tension of even the most moderate amount and if necessary releasing the tension on the flaps by a dorsal incision at the base of the penis. Complete success with this operation requires experience, scrupulous care in the placing of sutures and patience during the operative procedure. Skillful aftercare is undoubtedly more important in the success of



FIG. 2. End result of the Thiersch-Duplay operation shortly after closure of a small fistula at the penoscrotal angle.

this operation than in the case of the other two types.

The Bucknall operation.—As you know, the principle here involved is the use of the skin of the scrotum in the formation of the lower wall of the urethral canal. In his original communication in 1907 Bucknall suggested that the operation had two limitations. He thought that it could not be applied to cases of perineal hypospadias and he suggested that since the skin from the scrotum was hair-bearing, this might give rise to complications after the patient reached puberty. His first objection namely that the operation is not applicable to cases of perineal hypospadias, is not valid. It is very easy to convert the perineal type of hypospadias into the penoscrotal type. In these cases where there is always a cleft scrotum the skin which will be utilized in the formation of the urethra is non-hair-bearing. The inner tube having been formed from this non-hair-bearing skin the dissection should then be carried deeply in to the scrotum on either side and the cleft deformity entirely obliterated. I have found it useful to bring the loose connective tissue on either side of the scrotum together over the newly formed tube of the urethra and then to approximate the skin of the scrotum so that the parts are restored to a practically normal rela-

tionship At this stage in the operation perineal diaphragm should be employed An interval of some months should then be allowed to elapse before the typical procedure of Bucknall is carried out on the urethra which now emerges at the penoscrotal angle

Bucknall's second objection, that the hair-bearing skin may introduce a later complication, is a valid one Vermooten reported to this Association in 1930 a case previously operated upon by Churchman in which the growth of hair in the urethra had caused serious compli-

Bucknall method may avoid what appears to me to be the only serious objection to this operation

In my earlier cases I thought it would be safe to leave out the quilled suture which was advised by Bucknall Experience, however, satisfied me that the use of the quilled suture in approximating the lateral flaps was highly desirable For this purpose I now use a heavy aluminum wire which seems to me more satisfactory than any other method of quilling the suture

As to the place of the operation it may be

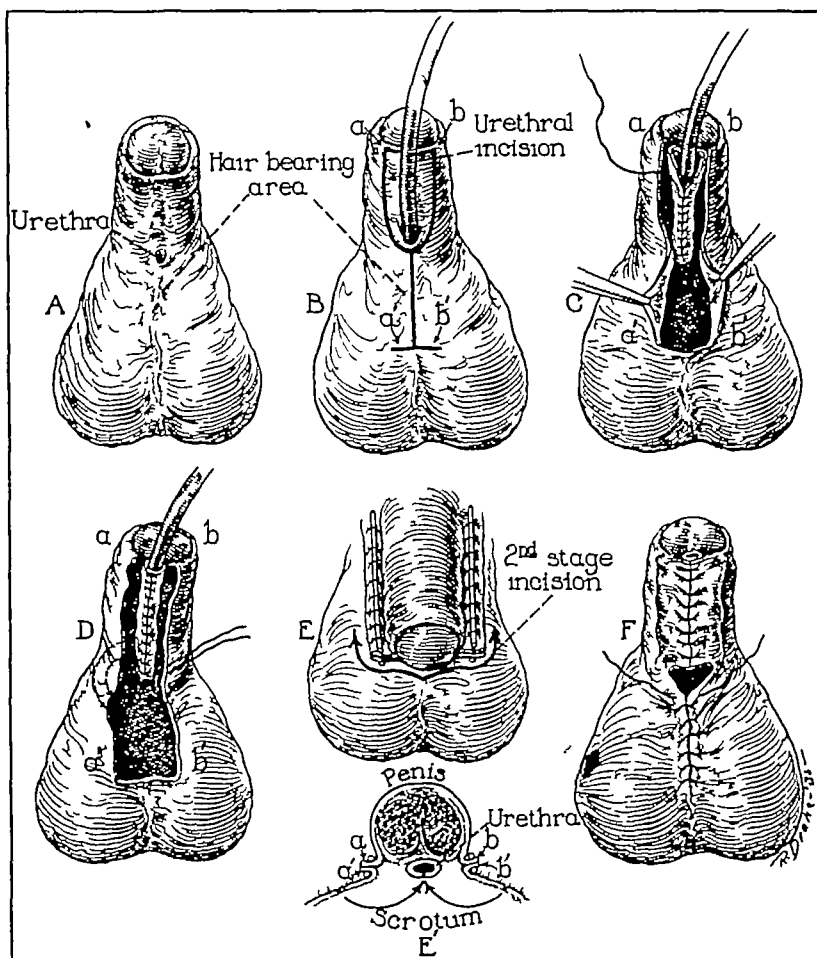


FIG 3 Modified Bucknall operation It will be noted that the skin utilized in the formation of the inner urethral tube is from a non hair bearing region In other respects the operation follows closely the procedure of Bucknall

cations I have myself seen two cases in which this complication had arisen and I shrewdly suspect that it is more common than we have been led to suppose from a perusal of the literature This complication led me to abandon the Bucknall operation after ten years of quite successful use More recently I have carried out a procedure suggested by Cecil of using only non-hair-bearing skin for the formation of the inner tube (fig 3) This I have had an opportunity of doing in two cases, with successful immediate results Since the end-result will not be complicated by the development of hair, it seems possible that this modification of the

operation safely said that it avoids the danger of fistula formation with great certainty The immediate result is unsightly as compared with the Thiersch Duplay operation, but if it is done at the appropriate age, growth of the parts overcomes the redundant tissue and the functional results are sound As originally described, the operation left an unduly large meatus This can be satisfactorily corrected at a later stage, preferably one year after the original procedure, and is, I think, a desirable addition to technique

The Ombiédanne operation—This is a highly ingenious method which has been utilized by its author in an amazingly large series of cases

The principle is to utilize a scrotal flap to form the urethra up to a point near the base of the glans. The balance of the urethra is then formed from the buttonholed prepuce which, although at first giving a wide funnel shaped meatus can be reconstructed by later steps in the operation to give a most satisfactory canal. The operation is not technically difficult and does not require the niceties of technique of the Thiersch procedure. Occasionally the portion of the canal formed from the prepuce may be lost as the result of sloughing but this is on the whole an uncommon accident. The only valid objection that I can see is the use of the hair bearing tissue of the scrotum for the formation of a considerable part of the canal. This is the same objection which has proved a stumbling block in the Bucknall operation as originally devised. It is true that there is no evidence from the literature that this is an important complication. On the other hand there is perhaps no field in urologic surgery in which we know so little in regard to what may be called the end result. As a rule these patients are or should be operated upon in childhood. An end result cannot be estimated until these patients have grown to full maturity and the final evidence in regard to the complete correction of the deformity and the complete utility of the urethral canal can be satisfactorily judged. I have been unable to find any considerable collection of such end results and can only hope that as time goes on we shall get more evidence upon this point.

In summing up, it seems to me quite clear that the surgeon who desires to offer to these little patients the most satisfactory outcome must be equipped to utilize each of these various procedures where it seems most appropriate. For the skilled plastic surgeon the Thiersch operation has many advantages. For the occasional operator it is likely to prove difficult. The Bucknall and Ombredanne procedures are less difficult and are likely. I think to prove more satisfactory in the long run. In certain cases both operations may be employed as for instance where some surgeon has light heartedly done a circumcision thus removing essential tissue. Also the Bucknall type of operation may be used in those probably rare cases in which the preputial flap of the Ombredanne operation has sloughed to a greater or less degree. Again the Bucknall operation can be utilized where previous operations of the Thiersch type have failed and where there is excessive scar tissue in the region from which the lateral flaps of the Thiersch operation would have to be taken. Time alone will allow a decision as to the importance of the growth of hair as a complication of the Ombredanne operation.

In a recent paper by Walters he reports his results in thirty two patients subjected to the

Ombredanne procedure. In these the results were excellent in twenty-eight. In four, more or less sloughing of the preputial portion of the canal required the use of the Bucknall procedure to finish the job. This is a most satisfactory showing and is the largest group of cases of this operation reported in this country. He also reports on sixteen cases where the Bucknall type of operation had been employed. Of these, excellent results were obtained in fourteen, while in two on account of injury to the skin flap in the second stage of the Bucknall procedure, small fistulae developed, which, however, were readily corrected. I have myself utilized the Thiersch method in thirteen cases. They have required forty six operations which means of course that particularly in the early cases I was not able to avoid fistula formation. The end results, however, after these many procedures have been eminently satisfactory.

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DISCUSSION

DR. GEORGE G. SMITH. I must admit that I have approached the few cases of hypospadias that I have seen in the last few years with a great deal of trepidation. I have had a good deal of grief. The earlier ones I tried to get away with by making a perineal boutonnière but I didn't find it worked so well. Within the last few months I have done two cases in boys of five to six years in whom I did suprapubic cystostomies with practically primary union in both cases. One of these has left the hospital. I saw him several months later and he has a fistula of about the size of a hair through which a few drops of urine leak at the original site. I suppose some time I shall probably have to do something to that. I will remember what Dr. Cabot said about the closure of it. The other case is still in the hospital. We just took his tube out today and I think he has a small fistula. There is a suspicious looking little hole there but in the main it looks very satisfactory. I think that in any I do after this I shall do a suprapubic cystostomy at the time.

There is one point that I think is very essential to bear in mind. That is that either the patient or the patient's family shall understand what your plan

is I remember one Italian boy on whom I did a fist stage at the Baker. He was a rather wild patient while he was there. We didn't speak the same language and about a week after he got out he came around to the office and I thought he was going to commit mayhem. He said "Before the operation, the hole is down at the end, now look where it is."

I have enjoyed this talk of Dr Cabot's very much, as I always enjoy everything he says. I think he has covered a great many of the practical difficulties which have not been covered in any of the talks I have heard before. I have seen pictures of the finished results, but haven't heard of any of the hot spots on the way and I appreciate very much Dr Cabot's going over these hot spots so thoroughly.

DR J DELLINGER BARNEY I also approach a hypospadias in fear and trembling. I will omit the subject of fistula because it has been talked of before. As a father must stand up for his own child, I would like to say that I think the perineal drainage is rather better than the suprapubic, perhaps because of the fact that I haven't had the difficulty that Dr Cabot spoke of in finding the urethra. This is due entirely, of course, to the fact that I have done it by the method of making a perineal boutonniere which I described some time ago. I think the urethra is pretty easily found by this method and I think it will work in these penoscrotal cases perfectly well, but I must confess I have not used it in one of the perineal type. The catheter is pushed into the bladder entirely and the outer end of the catheter grasped by a clamp. The clamp bearing the catheter is carried on through the urethra into the deep bulb and then pushed against the skin so that one simply cuts then on the protruding end of the clamp. The clamp with the catheter grasped in it comes out through the incision which is about 1 cm in length. That can be done with the patient in the dorsal position without the necessity of putting him up in lithotomy position. I don't say that perineal drainage is better than suprapubic but it has been more satisfactory in my hands. Also it is advantageous because it can be done with equal ease for several times in the same patient and without untoward results.

DR E GRANVILLE CRABTREE I have enjoyed Dr Cabot's exposition for the same reason that Dr Smith has already mentioned. These cases do have some grief connected with them. The question of whiskers in the urethra is a very definite one with the Bucknall operation. I had a family that had but three children, they were all males and they all had penoscrotal hypospadias. I did exactly the same operation on the three of them. The last one was done nine years ago. The first one has a regular paint brush effect which seems not to bother him, he won't let any one pull the hairs out. The other two were the same type of operation and have had no difficulty whatever with hair production. They were all done quite young.

DR DEMING I have noticed that Dr Cabot in his talk, has not mentioned the fact of bringing the urethra up through the glans and most of the slides, which he has exhibited, show the opening of the meatus in the frenum area. Is it necessary to split the glans penis and carry the urethra to its normal position?

I was very glad to hear Dr Cabot stress the post operative care of these cases. I have failed in some cases because I did not do the dressings myself and now when I operate on a hypospadias case I am in every day and I do the dressing myself. I dare not leave it to anyone on my staff and I find, by doing that, I can accomplish much and make every operative step a success instead of a failure. I am delighted to hear Dr Cabot stress this point with a good deal of emphasis.

As regards the cause of hypospadias, Dr Cabot made a statement that he thought it probably was due to the devil. I was wondering what he thought of Dr Young's explanation with respect to derangement of the genes.

I wish to express my appreciation to Dr Cabot for the clear and direct presentation of the subject.

DR HUGH CABOT I hope that if Doctor Smith should ever return to the use of perineal drainage, he will try constant suction. I had no luck until I tried it and since trying it, I have had no leakage. I did not succeed in keeping the patients dry with suprapubic drainage. Cecil advises that the suprapubic should be done two weeks before the other operation. I dislike making any more bites than I have to.

Doctor Barney, did you not have difficulty in getting a small enough clamp to go through these urethras with the catheter? I did not use that method because I did not have a clamp small enough to pass. I was afraid of traumatizing the urethra. You do it, I take it, before you begin your operation. You cannot do it afterwards.

DR J DELLINGER BARNEY Yes, it is a preliminary step. I have the catheter come out through a little hole in the perineum. With a small No 10 or 12 catheter and a mosquito snap, I haven't had any trouble.

DR HUGH CABOT My first patient who grew hair apparently had only urethral irritation and as he had a very capacious urethra, an endoscope could easily slip in and you could see the whiskers. The next patient I saw came in on account of a fistula with a lot of local irritation. There was no stone formation in that case around the hair, but there was the beginning of a hair ball. The last one I saw differed only in that he had six fistulae. The canal was almost all fistulae and there was a lot of local irritation which, if it goes on long enough, will lead to stone formation on the hairs.

Doctor Deming asked about the meatus. It seems generally agreed that the balanitic type of hypospadias is best treated by masterly neglect, because the results of our attempts to overcome balanitic hypospadias have been very unsatisfactory. I am satisfied if I can get a normalized meatus placed about in the position of the balanitic type of deformity. Certain it is that the minute you invade tissue of the glans with its erectile tissue and very thin covering, you take on a lot of extra trouble and bleeding. One patient who finally discouraged me was an adult who almost bled to death on two occasions where we had cut the glans. He had transfusion twice. When the smoke cleared away it had all sloughed and we were back where we started. I quit after that.

LYMPHOBLASTOMA (HODGKIN'S AND SARCOMA
TYPE) OF BONE*With a Report of Three Cases Simulating Primary Malignant
Tumor of Bone

BY JACK SPENCER, M.D.† AND RICHARD DRESSER, M.D.†

LYMPHOBLASTOMA is a primary disease of the lymphatic system usually manifesting itself clinically by enlargement of peripheral mediastinal, or abdominal lymph nodes. It should be appreciated, however, that the disease may invade any structure of the body. Numerous reports appear in the literature of involvement of the gastrointestinal tract, the central nervous system, and the genito-urinary tract.

The demonstration of bone lesions is becoming increasingly more frequent. Burnam (1926), in a review of 173 cases found only two with osseous changes (1.1 per cent). In the same year one of us (Dresser) collected ninety-five cases of lymphoblastoma at the Massachusetts General Hospital, only four of which showed bone involvement (4.4 per cent). These four cases all presented large sternal tumors which were clinically obvious. During the next five year period an additional 149 cases were studied in which particular attention had been paid to the demonstration by roentgen examination of osseous changes. In this series sixteen cases with bone involvement were discovered, an incidence of 10.7 per cent. Uehlinger (1933) reported fifty cases of Hodgkin's disease, forty-eight with postmortem examination of which seventeen (34 per cent), showed osseous changes. These changes were not all demonstrated antemortem. In a series of 172 cases reviewed by Craver and Copeland (1934) twenty-seven (15.7 per cent) presented bone involvement.

The distribution of bone lesions in order of frequency is as follows: spine, pelvis, sternum, ribs, skull, and extremities. The roentgen picture is usually that of a purely destructive process, less often a combination of bone destruction with hyperplasia and rarely an osteoplastic change without destruction (Hultén). A diagnosis based on roentgen findings alone will usually be that of malignancy either primary or metastatic, rarely osteomyelitis.

Bone infiltration generally occurs in the advanced stage of the disease after the diagnosis of lymphoblastoma has been established. The osseous changes then present no great diagnostic problem. Occasionally, however, bone is involved early in the course of the disease when

there is little or no demonstrable enlargement of the lymph nodes. The correct diagnosis can then be made only by the removal of a specimen for pathological examination. The following is a brief summary of such a case reported in an earlier communication. A man of thirty-four came under observation at the Massachusetts General Hospital presenting a large tumor mass in the posterior parietal region. About six months previously a barber had called the patient's attention to a lump on his head. Physical examination was negative except for the scalp tumor and several very small glands in the cervical region which were thought to be of no significance. Roentgen examination of the skull showed a large defect in the parietal bone. The possibility of a primary new growth was considered, and a biopsy was done which was reported as lymphoblastoma.

This case was included in the publication in 1931 of a series of twenty cases with lymphomatous involvement of bone. Since then we have collected an additional series of forty-one cases. Of the latter group three presented single lesions in the bones of the extremities which gave rise to the predominating symptoms, and which were erroneously diagnosed primary bone tumor by clinical and roentgen examination.

CASE 1. A white female aged twenty-four when first seen gave a history of increasing pain and swelling of the left knee of two years' duration beginning about the time of termination of a full-term pregnancy. Physical examination showed a hard fixed mass involving the lower end of the left femur. There was no glandular enlargement, and the spleen and liver were not palpable. Laboratory studies showed 9,000 white blood corpuscles with 73 per cent polymorphonuclears, and 80 per cent hemoglobin. A roentgenogram showed a destructive process involving the lower third of the femur with a break in the cortex and periosteal thickening of the shaft. (Figure 1 a, b). A diagnosis of primary bone tumor was made, most probably Ewing's. Amputation was done and the pathological report was lymphoblastoma sarcoma type. One year following amputation the patient developed a five centimeter gland in the corresponding groin which responded to a moderate dose of high voltage roentgen rays.

CASE 2. A white female aged thirty-nine gave a history of swelling in the left antecubital region of ten weeks' duration. Examination showed a hard fixed swelling of the lower third of the left humerus. There was no enlargement of the lymph glands and the spleen was not felt. The liver edge was just palpable. Laboratory studies showed 3,550,000 red blood corpuscles, 10,650 white blood corpuscles, hemoglobin 55 per cent. Roentgen examination showed a soft tissue mass in the lower third of the

*From the Cancer Commission of Harvard University, the Massachusetts General Hospital, the Palmer Memorial Hospital, and the Pondville Hospital (Massachusetts Department of Health).

†Spencer, Jack—Roentgenologist, Palmer Memorial Hospital.
Dresser, Richard—Roentgenologist, Collis P. Huntington Memorial Hospital and Pondville Hospital, at Norfolk. For record and address of authors see "This Week's Issue," p. 859.

arm with areas of rarefaction of the lower third of the humerus. The roentgen diagnosis was primary bone tumor. Operation exposed a soft friable mass infiltrating the lower third of the arm and apparently involving the joint. The lower third of the shaft was completely denuded of periosteum. Biop-

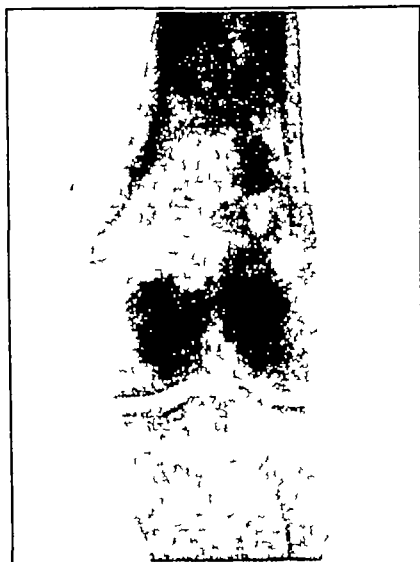


FIGURE 1a. Case 1. Irregular destructive process at the lower end of the femur with a break in the cortex and periosteal thickening.

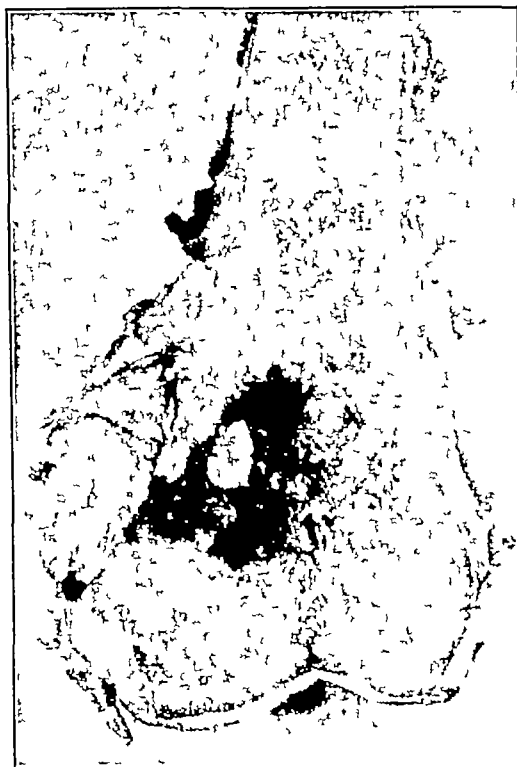


FIGURE 1b. Case 1. A central tumor with necrosis extending through the cortex. The periosteal thickening is well seen.

sy from the humerus was reported as "lymphoblastoma." Infection followed the operation making amputation of the arm necessary. The patient later developed pain in the right shoulder, and roentgen examination demonstrated osseous changes in the head of the humerus. The patient gradually failed and died a year later.

CASE 3 A white male, aged forty, on first admission gave a history of stiffness and pain in the back of the neck of one year's duration. During the past two months there had been progressive weakness in the right arm and sensory changes in the left hand. The patient was thought to have a spinal cord tumor and lipiodol injection showed a partial block at the level of the second dorsal vertebra. The spleen and liver were not enlarged and there were no palpable glands. Laboratory studies showed 3,910,000 red blood corpuscles, 9,200 white blood corpuscles, 83 per cent hemoglobin, 69 per cent polymorphonuclears, 30 per cent lymphocytes, 1 per cent mononuclears, no eosinophils. Hinton test negative, spinal fluid Wassermann positive once and when repeated at a later date negative. Laminectomy was performed and a specimen of tissue removed for study was reported as "fibrosis and chronic inflammation." The course was uneventful until the patient was seen again six months later with a history of glandular enlargement in the right side of the neck and intermittent pain in the left leg associated with twitching of the muscles of the thigh. The glands in the neck had receded spontaneously. The pain became very severe and incapacitated him for three or four days. There were no genito-urinary or gastrointestinal symptoms. Examination showed a few enlarged glands in the right side of the neck which were thought to be of no significance. A mass was found over the anterolateral aspect of the upper third of the left femur. A roentgenogram of the left femur revealed irregular patches of diminished density about the greater trochanter with thickening of the periosteum extending down to the middle of the shaft. Biopsy was done and reported as "scirrhous lymphoblastoma." This patient was given high voltage roentgen ray treatment to the bone lesion. Following radiation there was temporary decrease in the size of the mass and relief of pain. The abdominal nodes, however, became involved and the patient failed rapidly. Death occurred eight months after the discovery of the bone tumor.

DISCUSSION

Lymphoblastoma is found to infiltrate the bone marrow in a large percentage of cases which come to autopsy. One may expect to demonstrate bone lesions antemortem by roentgen examination in ten to fifteen per cent of cases. According to Uehlinger, who has reviewed a large series of autopsied cases, there is no such thing as a purely primary lymphoblastoma of the bone. There is invariably lymph gland involvement, although it cannot always be demonstrated clinically. Extension to the bone occurs in two ways: first, direct invasion from adjacent diseased nodes, secondly, a metastatic dissemination presumably via the blood stream. Osseous changes usually occur late in the course of the disease after the diagnosis has been established. Attention has been called to four cases, one previously reported, in which the bone involvement gave rise to the presenting symptoms and in which an erroneous diagnosis of primary bone tumor was made.

In case 1 the evidence was so strongly in favor of primary bone tumor that amputation of the thigh was done. In case 2, the correct diagnosis was made only by biopsy of the bone lesion of the humerus. Infection later followed, making amputation of the arm necessary. Case

It at first presented a clinical and roentgen picture of a spinal cord tumor. A pathological diagnosis of arachnoiditis was made following laminectomy and removal of a specimen. The patient later developed enlargement of the cervical glands which regressed spontaneously and were not thought to be of clinical significance. Finally a lesion in the left femur was discovered which was thought to be a malignant bone tumor. The correct diagnosis of lymphoblastoma was made by biopsy from the lesion in the femur.

Since lymphoblastoma is always a generalized disease, amputation of an involved extremity is contraindicated as a curative measure. Irradiation may be expected from irradiation in some cases, but the bone lesions do not respond as well as the glandular lesions.

It should be emphasized that, in the differential diagnosis of a bone lesion presenting an atypical roentgen picture, the possibility of lymphoblastoma should be considered even though there is no demonstrable enlargement of the lymph nodes.

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TWO UNUSUAL TRANSFUSION REACTIONS

BY PAUL A. YOUNG, M.D.*

IN 1931 Bordley of the University of Pennsylvania reviewed the literature on transfusion reactions and collected seventeen cases characterized by urinary suppression, uremia, jaundice and a high mortality. No cause for the reactions could be determined in most of the cases he reviewed.

In the past three years about 100 blood transfusions have been performed at the Free Hospital for Women and two typical 'transfusion reactions' both of which were definitely explained, have been observed.

The purpose of this report is to emphasize the mistakes which led to these nearly fatal accidents and to add the case histories to the literature upon this subject.

The first accident happened as the result of using a very dangerous technique of matching blood which was taught in one of the Boston hospitals. This faulty technique consists of placing a drop of the patient's serum on a glass slide, adding a drop of a saline suspension of the donor's cells and dropping a cover slip upon the mixture. If the two drops are large there is enough space between the slide and cover slip for the red blood cells to move about freely. On the other hand, if very small drops are used the liquid spreads out in a very thin film and the red blood cells are fixed between the two glass surfaces. In this particular case the 'cross matching' was observed for one-half hour and checked by another intern. Immediately after the transfusion accident the matching was repeated by the same technique using the original serum and suspension of cells. Again there was no sign of agglutination in an hour but with the hanging drop technique agglutina-

tion occurred within five minutes. Fortunately some of the patient's blood which was removed before the transfusion had been saved and she was found to be a Group IV (Moss). The donor was a Group II.

Eight months later another typical transfusion reaction occurred. Both the patient and the selected donor had been grouped and doubly cross-matched, i.e. the patient's cells in the donor's serum and the donor's cells in the patient's serum. Needless to say both the grouping and the cross matching were done by the hanging drop method. The patient and the donor were in Group II (Moss) and no agglutination occurred in either of the 'cross-match' tests within half an hour. However immediately after the transfusion accident all the tests were carefully repeated, with the finding that the donor's cells began to hemolyze in the patient's serum after forty minutes and were completely hemolyzed within sixty minutes.

In the first case citrated blood was pumped into the vein under pressure taking about five minutes to introduce 300 cubic centimeters. The symptoms commenced in less than a minute after the transfusion was completed, or in about six minutes after the start. In the second case whole blood by the new B.D. grooved syringe method was introduced at the rate of about 15 cc per minute, i.e. three strokes of the syringe per minute. Symptoms developed after 90 cc of blood had been given—about six minutes after the start.

Both patients were transfused again a few days after the accidents and no symptoms of any type were observed.

No similar case could be found in the literature comparable to the second accident, i.e. a

Young, Paul A.—Assistant Pathologist and Surgeon to Out-Patients, Free Hospital for Women Brookline. For record and address of author see "This Week" Issue, page 839.

transfusion reaction due to hemolysis of the donor's cells which occurred in vitro forty minutes after they were placed in the recipient's serum. Therefore it must be concluded, as the tests were repeated three times, that in this particular instance the reaction was due to the hemolysis of the donor's red blood cells in the patient's blood stream.

CASE REPORTS

CASE 1 This first case is the one to whom blood of the wrong group was given. She had a severe reaction, but made a remarkable recovery following decapsulation of the remaining kidney. She was a thirty-three year old mother of four children, who entered the hospital May 29, 1933, complaining of a draining sinus in a left kidney scar of two years' duration, and pain in the left flank, a nonproductive cough, frequent chills, fever, and rapid loss of strength and weight of three weeks' duration.

Five years before admission she began to have urinary frequency and painful micturition, both of which gradually became worse until two years before admission, when she developed, in addition, pain in the left flank, chills and fever, a pleuritic pain in the left side of the chest and a nonproductive cough. The bladder was extremely irritable. An operation was done at that time, presumably drainage of a perinephric abscess or a nephrostomy. The bladder symptoms cleared up entirely but she was extremely sick for many months and the wound continued to discharge pus up to her admission to this hospital. There was a family history of tuberculosis and the patient had been definitely exposed.

She was the typical picture of chronic sepsis, emaciated pale and dehydrated, with herpetic lesions on her lips. Her lungs and heart were normal by physical examination and x-ray. In the left upper quadrant there was a tender rounded mass about three times the size of a normal kidney, which was continuous with an indurated area beneath a scar in the left flank. There was a small sinus in the posterior part of the scar discharging thick, yellow pus.

Laboratory data: hemoglobin 55 per cent. Tallqvist, leukocyte count 9000, polymorphonuclears 90 per cent. The urine had a VST of albumin, a specific gravity of 1.020 and 10 white blood cells per high power field in a centrifuged catheter specimen. An intravenous phenolsulphonphthalein test showed good renal function with 55 per cent excretion the first hour and 10 per cent the second. Intravenous pyelogram disclosed a normal but slightly enlarged kidney on the right with good function and an enlarged kidney on the left with no function. Her temperature swung from 99.6° to 105.6° F.

The clinical diagnosis was a perinephric abscess on the left, secondary to a tuberculous kidney.

On June 3, 1933, the left kidney was removed and a perinephric abscess drained under spinal anesthesia. The kidney showed tuberculosis microscopically. Two days after the operation, because of continued fever, anemia and a dropping white blood count which was then 6000, a transfusion of 300 cc of blood was given by the citrate method. Within a minute of its conclusion she complained of sudden abdominal distress and a sensation of distention. Almost immediately she complained that she was suffocating, her face became flushed and then rapidly markedly cyanotic. She was gasping for breath. Oxygen, adrenalin and caffeine relieved her somewhat and within several hours she

was quite comfortable. At no time did she complain of lumbar pain.

The next morning her skin and sclerae were deeply jaundiced. She had not voided since just before the transfusion. Two ounces of black urine with a heavy sediment were obtained by catheterization. She had no complaints but her mental faculties were dulled and she was disoriented at times.

During the first five days following the accident she was given intravenously from 2000 to 3000 cc of 2½ to 10 per cent glucose in normal saline daily. At one time she received 300 cc of 10 per cent saline intravenously and another time 50 cc of 50 per cent glucose. Her urinary output varied from 50 to 100 cc daily. The urine was muddy brown, contained bile and had a specific gravity of 1.010 to 1.013. There was a ST of albumin constantly. At first it was loaded with red cells but they disappeared and gradually it became loaded with white blood cells. The urine at no time contained sugar, in spite of the fact that she received intravenous glucose daily.

On the third day she had a mild convulsion which lasted about fifteen minutes. She gradually developed generalized edema, which by the fifth day was so marked that her eyes were shut and the labia minora were so tense that they appeared to be on the verge of bursting. She was practically comatose.

The essential pathologic process in the kidneys following a transfusion reaction apparently is necrosis of the epithelium of the tubules plugging of the collecting tubules with coagulated protein and blood pigments and marked edema. In the hope that a better circulation of blood through the remaining kidney could be obtained the capsule of the right kidney was stripped back on the fifth day. This was done under paravertebral nerve block. The capsule was extremely tense. The kidney cortex was a pale, grayish chocolate color. As it was very friable, it was injured in several places for a depth of two to three millimeters. As far as could be determined, there was no possibility of injury to the kidney pelvis or ureter during the operation.

Within twenty-four hours after the decapsulation a profuse watery discharge began to drain from the wound. The volume increased daily for the first seven days, when it amounted to 3100 cc, after which it decreased and finally stopped entirely on the eleventh day. The patient's condition was noticeably improved forty-eight hours after the decapsulation.

Nine days after the transfusion and four days after the decapsulation she was normal mentally and the edema had entirely disappeared clinically. The urine output, i.e., from the bladder, had begun to increase for the past two days and at this time (four days after decapsulation) amounted to 200 cc in twenty-four hours, making a total of 1065 cc during the nine-day interval since the transfusion. On this day she was given 500 cc of citrated blood without any ill effects and the urine output steadily increased.

She was discharged from the hospital forty-one days after admission with both wounds practically healed. Since then, for two and a half years, she has been carefully followed and has remained in excellent health. The nonprotein nitrogen content of the blood did not return to normal until three months after discharge. Since that time her kidney function and blood chemistry have been well within normal limits.

During the acute stages of the urinary suppression the nonprotein nitrogen content of the blood reached a level of 255 mg per 100 cc of blood nine days after the reaction and then gradually receded.

to 70 mg. per cent on the day of discharge. The dye excretion test with phenolsulphophthalein intravenously was 85 per cent in two hours on admission 0 per cent for at least twelve days after the transfusion—none could be demonstrated in the drainage fluid 12 per cent in two hours seventeen days after the transfusion 27 per cent on the day of discharge and 57 per cent three months after discharge, when her nonprotein nitrogen had returned to normal also. The blood pressure remained between 110-120/80 all during the illness.

By far the most interesting feature of this case was the fact that during the first eleven days following the decapsulation 12100 cc. of fluid were drained from the wound. What amount actually drained was impossible to determine accurately, because much was lost. During this same interval 1800 cc. of urine was collected from the bladder. It was speculated at the time that the drainage fluid might possibly be a mixture of glomerular filtrate and urine from the collecting tubules escaping through the traumatized cortex, or serum and edema fluid from the wound. However this could not be definitely determined as specimens of drainage fluid and urine collected during the same intervals were practically identical except in NaCl content.* From the analyses it appeared that both fluids had gone through the same process. The drainage fluid was much lighter in color and upon standing developed a small pellicle. Otherwise no distinguishing point could be made out. It is regrettable that a biopsy was not done on the kidney at the time of decapsulation.

CASE 2. The second case is the patient who serum hemolyzed the donor's red blood cells. She was a forty-five year old mother of six children admitted February 18 1934 complaining of micturition of three months' duration. Pelvic examination was essentially negative. Her hemoglobin was 45 per cent Tallqvist, red blood count 3,250,000 and the blood smear showed normal platelets marked achromia, anisocytosis and polikilocytosis and the average size of the red blood cells was smaller than normal. A transfusion was decided upon before

operation. The patient and her husband were grouped and cross-matched. They were both in Group II (Moss) and their bloods directly compatible.

The transfusion was done by the direct method using the new B-D grooved syringe. After the patient received 90 cc. she became short of breath and complained of severe pain in the back. She became cyanotic and her skin was cold and clammy. The pulse and blood pressure remained unchanged. Two hours later her temperature was 102.6 her breathing was easier and the cyanosis less marked.

For the first forty-eight hours she had an intake of 7000 cc. and voided only 300 cc. she was jaundiced and developed pitting edema over the tibiae. On the second day her nonprotein nitrogen was 61 mg per cent and the uric acid was 7 mg per cent. The urine at first contained a large trace of albumin a few red blood cells and cellular casts. The specific gravity was fixed at 1.009. After three days the urinary output began to increase the jaundice and edema gradually disappeared and she was transfused again on the fourth day with no reaction. The albumin gradually disappeared from the urine and at discharge twenty days following the transfusion, her blood chemistry was normal there was no albumin or casts in the urine and the phenolsulphophthalein test showed 60 per cent excretion in two hours. She was followed for two months and her urine remained normal. Five days before discharge a dilatation and curettage and application of radium were done for functional flowing.

From our experience with these cases we strongly recommend the use of the hanging drop technique in matching blood and feel that it is very dangerous to say a donor is suitable to use unless the blood matching tests are observed for at least forty-five minutes to an hour.

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Dr. A. V. Bock very kindly performed these chemical analyses.

PUBLIC HEALTH

Operating on a budget of \$2,200,000 for public health activities, The Rockefeller Foundation in 1934 engaged in field research on yellow fever malaria hookworm disease, tuberculosis undulant fever yaws, and diphtheria conducted yellow fever surveys and control campaigns carried out projects in malaria control supported numerous demonstrations of complete public health programs gave aid to the organization or maintenance of essential services of state and national health departments and continued its contribution for the training of public health personnel through aid to schools and institutes of hygiene and public health as well as by support of a fellowship program.

As a general result of technical methods developed in the laboratory it has become evident that

there are two endemic areas of yellow fever in the world. The boundaries of these areas have been approximately established. One of them occurs in Africa and extends from Senegal in West Africa to the upper reaches of the Nile. The other occurs in South America, and occupies practically the whole of the Amazon Valley reaching for short distances into other watersheds.

It has come to be recognized that yellow fever may exist not only in a mild and almost unrecognizable form but also in forms not associated with its recognized carrier the *Stegomyia* mosquito. The disease is transmitted and perpetuated in certain endemic areas by vectors different from the single one (*Stegomyia* mosquito) encountered in Habana Panama and epidemic cities in general.—*Information Service of The Rockefeller Foundation*

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 22181

PRESENTATION OF CASE

A fifty-three year old white American carpenter was admitted complaining of pain in the left foot.

Twenty years before entry the patient had frostbite of both legs. Following this he noted that when exposed to cold his feet were usually more prone to discomfort than his hands. One and a half years prior to admission he noted that his left foot became much colder than his right during the winter. For about three years he had some soreness in the arch of his left foot after walking. This was relieved only by rest. After two years, similar discomfort initiated by walking occurred in the region of the left ankle. Three months later he began to develop cramps in his left calf after walking about 300 yards and this progressed to the point where he was unable to walk more than 100 yards without resting. During this time he also noticed that the skin of his left foot was much cooler than the right. Two weeks before entering the hospital a reddened area appeared between the left fourth and fifth toes. This region became ulcerated, acutely painful and there was some swelling of the foot. A small tender lump appeared in the left groin shortly afterward.

The patient smoked about one package of cigarettes daily. Up to three years ago he had smoked a pipe incessantly.

Five years before admission he sustained a head injury. Since that time he had dizzy sensations when reclining on his left side and the vision in his left eye was markedly impaired.

Physical examination showed a well-developed and nourished man in no discomfort. The left pupil was slightly larger than the right and did not react to light or distance. The heart and lungs were negative. The blood pressure was 145/88. The left lobe of the prostate was slightly enlarged, irregular, rather firm, but not tender. The left foot was cool and pale except for a faint bluish area measuring 2 by 5 centimeters which extended back from the dorsum of the fourth and fifth toes. Between the two toes was an ulcerated crack which was markedly tender. Dorsalis pedis and posterior

tibial pulsations were not felt and the popliteal was quite weak on this side. On the right side the dorsalis pedis was present but the posterior tibial was weak. Upon elevating the left foot it blanched in one minute and when lowered a flush appeared only after two minutes. There was a scaly, silvery skin lesion on the dorsum of both hands over areas measuring 2 by 4 centimeters each.

The temperature, pulse and respirations were normal.

Examination of the urine was negative. The hemoglobin was 90 per cent. A blood sugar was 111 milligrams per cent.

X-ray examination of the left foot showed no evidence of variation from the normal. The right leg and foot showed no evidence of calcification of the vessels. There was a small bony projection from the lateral and anterior surface of the middle shaft of the right tibia which was interpreted as an osteochondroma.

On the second hospital day a low left thigh amputation was performed.

DIFFERENTIAL DIAGNOSIS

DR. LELAND S. MCKITTRICK: Three years ago this fifty-three year old American carpenter began to have pain in the arch of his left foot after walking. He was unrelieved by arch supports, the pain was then felt in the ankle, and later in the calf of the leg, always after effort, and always relieved by rest. An ulceration then appeared between the toes. He was admitted to this hospital. The examination showed the absence of a palpable pulsation in the vessels to the foot and a diminished pulsation in the popliteal artery. His foot blanched on elevation and there was more or less rubor when it was dependent. There was nothing in the history or physical examination to suggest involvement of the vessels to any of the other extremities.

This is a characteristic picture of a man with progressive obliterative arterial disease. This, to my mind, limits the differential diagnosis to a very few lesions, namely, thromboangitis obliterans, arteriosclerotic gangrene, and diabetic gangrene. The latter is, for practical purposes, excluded by the absence of sugar in the urine and a blood sugar of 111 milligrams per 100 cubic centimeters. It would seem to me that the diagnosis rests between early gangrene, due to thromboangitis obliterans or that due to an arteriosclerotic obliteration.

Thromboangitis obliterans may occur in any race. It is almost entirely limited to men. The age of onset of symptoms is usually under forty, occasionally between forty and forty-five, and only rarely fifty or over. We do occasionally see it, however, in men beyond fifty. The symptoms are usually of long duration, more frequently over three years than under. The disease usually starts in one extremity, frequently

involves a second and occasionally all four X rays are usually negative for any evidence of calcification of the arteries. Only rarely does the disease show such definite progression as in this case. Thus has been one of definite progression from onset to admission to the hospital ending with amputation through the lower third of the thigh. This procedure is rarely necessary in thromboangitis obliterans in fact only about 3 per cent of the cases in this hospital have had amputation done at this level. The great majority of cases left the hospital either without amputation of any kind or with the loss of one or more toes. Failing the latter a Gritti Stokes amputation is usually done. In most instances there is evidence of involvement of at least one other extremity before so much involvement of one.

The average of patients with arteriosclerotic gangrene is sixty five years. On the other hand we do see a group of patients in the sixth decade who have gangrene secondary to an arteriosclerotic process. The duration of symptoms may be as long as three years but is usually under two years, and frequently under one. The disease in many instances runs a progressive course, ending in amputation through the lower third of the thigh and in only a small percentage of cases is amputation of a digit successful. X ray usually shows evidence of calcification but there is the occasional case where the x ray is negative.

From the above resume of the two diseases it is obvious that it is impossible for me to make a definite diagnosis in this particular case. This man is older than the usual patient we see with thromboangitis obliterans. His story is somewhat shorter than we usually find, and his disease is distinctly more progressive than in many instances. On the other hand, there is nothing either in the history or physical findings not entirely consistent with the occasional patient whom we see with thromboangitis obliterans. As for arteriosclerosis, he is well below the usual age at which this disease is found, but on the other hand, he is not too young. Although calcification of the vessels can usually be demonstrated by x ray, its absence in this case does not exclude arteriosclerosis. However, because of the fact that this man's symptoms began at the age of fifty because they have been definitely progressive from the beginning with intermittent claudication then early gangrene, admission to the hospital and amputation through the lower third of the thigh, without evidence of involvement of any of his other extremities I favor the diagnosis of arteriosclerosis.

Dr. HENRY H. FAXON. There is one point that may be worth making although it really paraphrases what Dr. McKittrick has already said. Namely the diagnosis in this case preoperatively was of more than pedantic interest

because in the cases of Buerger's disease we are often free to go ahead with a local procedure on the foot even when the dorsalis pedis artery cannot be felt. Whereas in the arteriosclerotic group, with absence of peripheral pulsations if we do any surgery we are usually forced to do a radical operation.

The rest of the case has been covered with only one addition, namely the infection between the toes in all probability gained entry through a fissure in the skin caused by epidermophytosis which is so often the case.

DR. SOMA WEISS. I would like to bring out one point. This patient is reported to have suffered from frostbite twenty years ago. Gruher and other German authors have pointed out the interesting fact that the histologic picture of the vessels in frostbite is exactly or almost exactly identical with thromboangitis obliterans. You find the same intimal changes and the same cellular reaction described in thromboangitis. I should like to ask Dr. McKittrick if there is any study in the literature on which one could estimate the ultimate results of frostbite. It is perfectly possible that frostbite is not an indifferent episode in predisposing the patient to vascular complications.

Dr. McKITTRICK. I do not know. I have not seen any but I have not covered the literature with that in mind. It is quite possible it may be there, but I saw no reference to it.

PREOPERATIVE DIAGNOSIS

Thromboangitis obliterans left leg

DR. LELAND S. MCKITTRICK'S DIAGNOSIS

Arteriosclerotic gangrene

PATHOLOGIC DIAGNOSIS

Thromboangitis obliterans

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY. A great deal of the confusion in this group of cases rests at the pathologists' door in that we are not reliable enough in our own differential diagnoses, even after amputation has been performed and we have had a chance to study the vessels to give the clinicians the help that they need. There is a considerable group of cases in about this age group the late forties and early fifties, where I find it almost impossible to decide whether we are dealing with thromboangitis obliterans or not. Those cases often show very significant amounts of arteriosclerosis and the histologic picture of Buerger's disease is not to my mind sufficiently diagnostic so that I am able to recognize it with certainty if arteriosclerosis is also there. This case, however, happens to be one in which we were not presented with that difficulty. There is no evidence of

arteriosclerosis whatever, and the findings are entirely consistent with uncomplicated thrombo-angitis

This is the posterior tibial artery with an elastic tissue stain. You can see the internal elastic lamina which is practically unreduplicated. The lumen of the vessel is completely filled by an old organized thrombus and that thrombus contains a large number of canalizing vessels. The media shows no trace of calcification. We have perhaps thirty sections from various vessels in this leg and neither atheroma nor medial calcification could be demonstrated in any of them. That lesion on the screen is perfectly characteristic of a healed stage of Buerger's disease.

I have selected another vessel for comparison. This is the anterior tibial artery and again you see the lumen filled with thrombus, one rather large and numerous small canalizing vessels, and, moreover, what also is very characteristic of Buerger's disease, involvement of the venae comites. The veins show fibrous thickening of the intima and the adventitia of all the vessels is distinctly thicker than normal, matting them all together. In order to find any acute disease we have to go higher up in the vascular tree. This is the upper end of the popliteal artery, filled with fresh thrombus, much of which, however, has dropped out of the section, but along the upper margin you can see it is being actively organized and one canalizing vessel has already developed. In one respect the case differs from the average in that the media of the vessel shows an unusually marked inflammatory infiltration. Large numbers of new blood vessels are penetrating it and they are surrounded by lymphocytes and particularly by monocytes in considerable numbers. We really have a panarteritis here, not merely an endarterial process.

The relationship to frostbite is always an interesting one to discuss and is well illustrated by this case. A very large proportion of cases of Buerger's disease do give a history of frostbite and a good many people, particularly the Germans, suggest an etiologic relationship. It has in general always seemed to me more reasonable that the patients get their frostbite because they already have an impaired circulation from Buerger's disease. In a case of this sort, however, where the frostbite occurred twenty years before his vascular symptoms showed any sign of progression, such a theory seems improbable. The case could certainly be cited as evidence for the converse point of view which has recently received support from the experimental work of Leriche and Fontaine*. They believe that a local thrombotic process can reflexly provoke extensive vascular spasm and even secondary arteritides in distant vessels.

DR FELIX DEUTSCH During the war in Austria we had a great deal of experience with just this sequence of events. I am inclined to believe that people who develop frostbite are fundamentally endowed with very unusual vascular systems to start with.

DR MALLORY That is possible.

CASE 22182

PRESENTATION OF CASE

A seventy-five year old American machine shopworker was admitted complaining of lower abdominal pain.

For about one year before entry the patient had had occasional abdominal distention. During this time he had transient attacks of nausea lasting for only a fraction of a minute and there was also increasing constipation although no details were noted. About three and a half weeks before entry he began to have a gnawing angry pain just below the umbilicus which radiated to the right flank and into the left subcostal region. The pain was persistent and relieved only by medication prescribed by a local physician. At about the same time the constipation became more pronounced and he resorted to cathartics. As a result his stools became loose and watery. Several were questionably tarry in appearance. The appetite was poor and there was no nausea. On the day before entry the patient vomited once and once again just before coming to the hospital. There had been a weight loss of about twelve pounds during the current illness.

For several years the patient had occasional sharp pain radiating across the chest which his physician had called acute indigestion. Nine years before entry a doctor had told him he had diabetes, but he had never had any treatment. Forty-two years ago he was operated upon for empyema and sixteen years later for an umbilical hernia.

Physical examination showed a well-developed and nourished elderly man. The lungs were clear and the heart was normal. The blood pressure was 150/90. The peripheral arteries were thickened. The abdomen was soft and there was slight tenderness in the epigastrium. Peristalsis was active. A rectal examination showed tarry stools.

The temperature, pulse, and respirations were normal.

Examination of the urine showed a specific gravity of 1.020. There was a trace of albumin and a green precipitate with Benedict's reagent. No diacetic acid was found. The sediment contained many white blood cells, some of which were clumped. The blood showed a red cell count of 4,200,000, with a hemoglobin of 80 per cent. The white cell count was 5,000. A phe-

*Leriche R and Fontaine R. Presse Med 43: 1953 (Dec 4) 1915

nolsulphonephthalein test showed 20 per cent excretion of dye in two hours. A nonprotein nitrogen of the blood was 67 milligrams. Gastric contents were coffee colored and gave a one plus reaction to the guaiac test. Free acid was 60 units and the total acid 90.

An x-ray examination showed a large stomach, high in position, which filled without evidence of defect. No barium could be forced through the pylorus. Deep stomach peristalsis was visible and after half an hour a small amount of barium had trickled through the pylorus. There was a 15 centimeter area of ulceration about one centimeter beyond the completely filled portion of the stomach. The duodenum was incompletely filled.

Constant gastric drainage and intravenous glucose infusions were instituted with marked improvement in the patient's symptoms. On the fifth hospital day an abdominal operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. RICHARD H. WALLACE: The gnawing pain in the region of the umbilicus in a younger person should certainly suggest something in a Meckel's diverticulum. In a man over seventy I think it is extremely unlikely that he would have lived to that ripe old age without having some trouble before that from a Meckel's diverticulum. Gnawing pain in that region suggests most strongly a lesion in the region of the pylorus or duodenum.

His pain apparently had no relation to meals and was not relieved by food or alkalis.

The stools were questionably tarry in appearance. We have a suggestion of bleeding in the upper gastrointestinal tract. We have no suggestion in the history of cramp-like or intermittent pain to suggest obstruction either in the small or large bowel. There has been a weight loss of about twelve pounds during the current illness. I believe that means loss of appetite and inadequate intake of food.

We might wonder with pain in the region of the umbilicus if he might have some recurrence of his hernia, but I believe that is extremely unlikely after sixteen years, and the type of pain is not suggestive of anything we might blame on a hernia.

The abdomen was soft and there was slight tenderness in the epigastrium. Again we have indication of trouble in the region of the stomach.

'A rectal examination showed tarry stools.' This presents more evidence of bleeding in the upper gastrointestinal tract.

We have some evidence of concentrated urine. There is no mention of any urinary symptoms. The rectal examination does not mention any abnormality of the prostate. A man of seventy-five might well have some urinary infection

which probably has nothing to do with his chief complaint.

We have reason to believe that there is some gastrointestinal bleeding. There is evidence of very little anemia. Perhaps that is not a true picture in the light of the possible dehydration.

There is evidence of some impairment in the function of his kidneys. I believe it is quite likely that dehydration plays a considerable part in the high nonprotein nitrogen.

'Free acid was 60 units and the total acid was 90.' I interpret that as being rather high normal for the stomach.

DR. AUBREY O. HAMPTON: This patient was apparently examined in the horizontal position. No films or fluoroscopy were made in the usual upright position. The stomach is unusually high. It runs across transversely. Here is the diaphragm. It is the type of stomach with which the roentgenologists have considerable difficulty ruling in or out disease, but I take it from the fluoroscopic note that the stomach was normal. This I think is the ulcer that was described and it would be quite impossible for me to tell whether it was in the duodenum or pyloric valve. This appears to be the first portion of the duodenum here. They said it did not fill so I have to assume that that is not the duodenum although it looks like it. If that happens to be the duodenal cap and thus another ulcer, this ulcer is in the region of the ampulla of Vater.

DR. WALLACE: It is impossible to tell the relation of course.

DR. HAMPTON: I cannot be sure but I should say that the fluoroscopic note would be more accurate than my opinion here.

DR. WALLACE: The report is a little vague, probably because of the impossibility of telling about that.

DR. HAMPTON: They apparently did not see the duodenum at all during the fluoroscopic examination and this film was taken later.

DR. WALLACE: Even so in exploring a case of this sort with the lesion in one's hand it is extremely difficult to tell on which side of the pylorus it may be.

Now we have a seventy-five year old man complaining of gnawing pain in the region of the umbilicus, with a loss of twelve pounds of weight and an unknown lesion in the region of the pylorus. One of his major complaints was abdominal distention and constipation. Constipation is a fairly common symptom in malignant lesions of the stomach. We have had two or three cases that were sent into the hospital with a diagnosis of carcinoma of the colon and proved to have been carcinoma of the stomach. We have persistent gnawing pain relieved only by medication. It is much more suggestive of malignant disease than benign ulcer. The vomiting is of no help one way or the other. Loss of weight is, I believe, merely due to poor ap-

petite and impairment of food intake. The past history has no bearing on the present situation, I believe. The urinary and blood findings, as far as the chief complaint is concerned, are merely evidence of dehydration. The free acid of 60 units is offhand more in favor of ulcer. It is interesting to note how many cases of known malignancy of the stomach have free acid. Dr. Parsons two or three years ago reported a series from this hospital of 230 cases and of that group twenty-eight per cent had free acid in the stomach and it is especially interesting that of all the patients with free acid in the stomach over eighty-five per cent were right at the pylorus. I do not believe that that rules out carcinoma of the stomach.

DR HAMPTON: I think if you take the fluoroscopic note you would have to assume that the patient had a duodenal ulcer. As I see those films there is one other thing that is suggestive. This shadow here. Dr. Holmes, what do you think about it? Does that appeal to you as a lesion?

DR GEORGE W. HOLMES: I think the lesion is in the duodenum and outside the stomach and that there is an ulcer present but whether it is benign simple ulcer or carcinoma, I do not know. I think it is outside the stomach.

DR HAMPTON: If this is a lesion, carcinoma of the pancreas has to be considered.

DR WALLACE: In spite of the x-ray evidence and in spite of the high acid I believe the most likely diagnosis is carcinoma of the stomach but I think it is quite possible that it is a benign ulcer. I should say that my first choice was carcinoma of the stomach.

DR TRACY B. MALLORY: Any comment?

DR WILLIAM B. BREED: It is either malignant or nonmalignant, is it not? Leaving the x-ray out, it seems to me that there is no real evidence that this is a malignant lesion. I am willing, in a sporting way, to take the other side and say that this is an obstructing bleeding ulcer in the duodenum. It happens more often than the textbooks tell us that older people have obstructing, bleeding, benign ulcer with a short history of symptoms.

DR ROBERT S. PALMER: I should think that clinically it would be just the opposite of what Dr. Breed said. He is an old fellow with one year's history of indigestion and a twelve pound loss in weight. It seems to me that obstructing lesion would have to be carcinoma of the stomach.

DR EARLE M. CHAPMAN: The kidneys may enter into this picture. Here is a man who has vomited twice and two days after entry the nonprotein nitrogen is 67 and he put out twenty per cent of the dye in two hours, which

is one-third of the amount that he ought to put out. These findings are compatible with mild uremia. He is an old man and his blood pressure is 150/90, and a certain amount of vascular Bright's disease may have been present, leading to uremia and death.

DR BREED: That brings up another question whether he was observed long enough before operation was undertaken.

DR HOLMES: If we can believe the x-ray findings and the films, the lesion is in the duodenum and not in the stomach.

DR TRACY B. MALLORY: Dr. Kranes, did you see the patient?

DR ALFRED KRANES: I did not see him until the day before he died. He was moribund at that time. The blood pressure had dropped and he was in shock. As far as the diagnosis of the lesion goes, I would agree with Dr. Breed that it was probably benign.

CLINICAL DIAGNOSES

Carcinoma of the stomach
Bronchopneumonia

DR RICHARD H. WALLACE'S DIAGNOSIS

Carcinoma of the stomach

ANATOMIC DIAGNOSES

Duodenal ulcers
Operative incision. Posterior gastroenterostomy
Bronchopneumonia
Pulmonary edema, bilateral
Arteriosclerosis, aortic, coronary and renal, marked
Cardiac hypertrophy
Nephritis, chronic vascular
Pleuritis, chronic fibrous, bilateral
Prostatic hyperplasia, lateral and median lobes
Prostatic calculi
Double ureter, bilateral
Operative scar. Empyema incision, left

PATHOLOGIC DISCUSSION

DR MALLORY: I do not believe I can tell you what the house service really thought about it. In one place the diagnosis was put down as carcinoma of the stomach and in another as ulcer of the duodenum. On the death certificate it was cancer, the preoperative diagnosis was duodenal ulcer and the postoperative diagnosis was duodenal ulcer. I suspect there was a division of opinion on the wards.

He was operated on by Dr. Arthur W. Allen, who found an indurated area definitely beyond the pylorus and did a posterior gastro-

enterostomy, following which the patient very rapidly went into collapse and died in about thirty six hours.

The autopsy showed two ulcers of the duodenum and a negative stomach. Bearing out Dr. Chapman's idea, he had very atrophic kidneys, weighing only 160 grams, which showed a fairly marked degree of vascular nephritis. He also had a severe grade of sclerosis of all his coronary branches and patchy fibrosis throughout the myocardium without any definite infarcts.

that I think a little uremia and a good deal of myocardial insufficiency and some postoperative shock probably all contributed to his death.

DR. HAMPTON: Where was the second ulcer? Was it low?

DR. MALLORY: No, both were within a centimeter of the pyloric ring. One was a centimeter and the other a centimeter and a half in size, each with undermined shaggy edges, with a great deal of fibrosis at their bases. There was no perforation.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$8.52 per year
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Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass

CANCER RESEARCH

FIFTEEN years ago laboratory research in cancer had reached a point where it was known that cancer could be caused at any time, (1) by repeated applications of tar to the skin of the mouse (2) by transplantation of cancer cells from one animal to another of the same species, (3) by breeding special lines of mice that inherit a tendency to special cancer, and (4) by inoculating fowl with cell free filtrates of the Rous sarcoma. Clinically, of course, other irritants and conditions were known factors in cancer such, for example, as the overuse of tobacco, repeated sunburns and radium and x-ray. The lines of research developing from the four experimental facts given above have developed an amazing and interesting group of data, but for the most part these lines have tended to keep themselves distinct from each other. The studies

of tar have culminated in brilliant researches begun in London and continued elsewhere and have led to the isolation of many pure chemicals such as dibenzanthracene, that are carcinogenic. The transplantation experiments have made progress, but it has not been so striking. The heredity experiments, especially those of Little and his co-workers, have put this experimental tool on a relatively firm footing. The filtrable virus experiments have been very difficult to understand or explain when compared with the other lines of cancer research.

Now there comes a report from the London Cancer Research group headed by Kennaway and confirmed in Philadelphia that pulls together three of these lines of research into an extraordinary synthesis that opens up great hopes for the future. These workers, in brief, have found that a cancer may be initiated by dibenzanthracene. It may then be transplanted serially through ten different animals thereby diluting the original irritant injected to a point certainly greater than one to one billion, of its original concentration and well below any level that could be identified chemically. At this point they then produce an ultrafiltered extract of the tumor and find that this extract has the power of initiating the same kind of cancer when injected into a new host. This brilliant experiment means that we must postulate that at some time in the course of the growth of cancer a new product is formed by the cancer which is of a size smaller than the size of the smallest visible bacteria and infinitely smaller than the size of a cancer cell, and which may or may not be a living virus which has the property of reproducing in a new host the cancer from which it was derived. This specific reproduction of a special kind of cancer puts it in a different class from the class of substances chemically isolated which produce cancer, but in the same class as the substance transmitting the Rous sarcoma of fowls. The irritant substances, such as the dibenzanthracene mentioned above, produce any kind of cancer of special cell type according to the cells on which they act. They may be either sarcomas, carcinomas, or leukemias according to circumstances.

The development of these lines of research to the point where knowledge is available that is useful in the prevention of human cancer has not yet been reached to an important degree, but with these experimental tools this knowledge may develop almost before we realize it. One would not have to be particularly sanguine to say that actually now the promised land in this field of endeavor is in sight and we have only a few more rivers to cross.

A LIFE TABLE FOR THE TOTAL UNITED STATES

For the first time in the history of our country, according to the March statistical bulletin of the Metropolitan Life Insurance Company, it has become possible to present a life table based on the actual mortality statistics for all of the 48 States of the Union, Texas the last State to be admitted to the Death Registration Area having qualified in 1933. An expectation of life at birth of 61.26 years is shown by this table for the total population both sexes combined. The actual division of this expectation gives to white males 60.86 and to white females 64.40 years.

In 1901, the first year for which an official life table for any considerable part of the United States was constructed, the expectation was only 49.24 years, in fact, the expectation of life at birth in 1901 was less than the expectation of life at the age of 17 in 1933. Putting these changes in another way, we find that according to mortality conditions prevailing in 1901 one quarter of the children born would have died before the age of 25, in 1933 it would take 52 years for this quarter to have died. In 1901 one half of the children born would have died by age 58, and three quarters by age 71, in 1933 these corresponding ages had increased to 68 and 78 years respectively.

Comparing our present figures with other countries in 1933, we find that English males had a birth life expectancy of 58.7 years and German males of 59.8 years, as against our own white male's expectancy of 60.86 years. The corresponding figures for English German and American females are 62.6, 62.6, and 64.40 years respectively. Italy, in 1930-1932 had expectations of life at birth of 53.8 years for males and 56.0 years for females. The life tables of only Norway, Sweden, Denmark and Holland of European countries are as favorable as ours, while New Zealand still exceeds us with an expectation in 1931 of 65.04 years for males and 67.88 years for females.

THE COMPENSATION OF CITY PHYSICIANS

In the letter of Dr. Bagnall which appears on page 899 of this issue an important subject is presented. It is certainly undignified for physicians to have to agree to the maintenance of medical service under the control of municipalities at the rates set forth in this letter.

The weight of professional opinion should be brought to bear on this subject to the end that justice may be accorded the doctors who are filling these positions.

All interested persons should immediately

give such facts as may be pertinent in this matter to Dr. Bagnall in order to help in promoting the necessary reforms.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

KICKHAM C. J. E. A.B., M.D. Harvard University Medical School 1927. Assistant Urologist, Carney Hospital. Assistant Visiting Urologist, Pondville Cancer Hospital at Norfolk. As sociate Consulting Urologist, Quincy Hospital. Address 12 Bay State Road, Boston, Mass. Associated with him is

WELCH NORMAN A. M.D. Tufts College Medical School 1926. Visiting Physician, Carney Hospital. Junior Visiting Physician Boston City Hospital, Fifth Service. Instructor in Medicine, Tufts College Medical School and Boston University School of Medicine. Address 520 Commonwealth Avenue Boston, Mass. Their subject is Metastatic Abscess of the Prostate. Page 867.

CHUTE, RICHARD A.B. M.D. Harvard University Medical School 1927. F.A.C.S. Assistant Urologist Massachusetts General Hospital. His subject is A Warning About Acidification Therapy in Cases of Renal Infection Due to the Proteus Bacillus. Page 869. Address 352 Marlborough Street, Boston, Mass.

CABOT HUGH A.B. M.D. Harvard University Medical School 1898. F.A.C.S. Consulting Surgeon, Mayo Clinic. His subject is The Treatment of Hypospadias in Theory and Practice. Page 871. Address Mayo Clinic, Rochester, Minnesota.

SPENCER, JACK M.D. University of Virginia Department of Medicine 1931. Roentgenologist, Palmer Memorial Hospital. Assistant Roentgenologist, Collis P. Huntington Memorial Hospital. Research Fellow in Medicine Harvard University Medical School. Address 695 Huntington Avenue, Boston, Mass. Associated with him is

DRESSER, RICHARD Ph.B., M.D. Johns Hopkins University School of Medicine 1921. Roentgenologist, Collis P. Huntington Memorial Hospital and Pondville Hospital at Norfolk. Visiting Roentgenologist, Massachusetts General Hospital. Address 695 Huntington Avenue, Boston, Mass. Their subject is Lymphoblastoma (Hodgkin's and Sarcoma Type) of Bone with a Report of Three Cases Simulating Primary Malignant Tumor of Bone. Page 877.

YOUNG, PAUL A. M.D. Harvard University Medical School 1931. Assistant Pathologist and Surgeon to Out Patients, Free Hospital for Women, Brookline. His subject is Two Unusual Transfusion Reactions. Page 879. Address 101 Bay State Road Boston, Mass.

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BREECH DELIVERY I

Since it is practically impossible to condense the important features of breech delivery into the space allowed for one presentation in this column, the present discussion will be divided into two parts: the first concerned with the principles underlying the management of breech labor, and the second describing the technic of extraction.

Delivery of the infant by the breech results in about four per cent of all labors and in approximately three per cent of labors at term. This mechanism is notorious for the high stillbirth and neonatal death rates which are associated with it, and calls for the best possible judgment and skill if the birth of a living and uninjured infant is to be attained. The best results can be secured only with the realization that breech delivery is a major obstetrical procedure, and that the inexperienced physician should call a well-trained consultant for the purpose. At the Boston Lying-in Hospital a series of 711 uncomplicated breech deliveries of mature babies has resulted in a crude mortality of 9.5 per cent, which, when corrected by exclusion of macerated and grossly malformed infants, can be reduced only to 6.9 per cent.

Several reasons suggest themselves as contributing to a high risk to the fetus:

- 1 The inherent mechanism of breech birth. It must be remembered that this is composed of three subsidiary mechanisms: those of the breech (or hips), of the shoulders, and of the aftercoming head, respectively. Passage of the breech through the pelvis and over the perineum does not indicate that the shoulders will necessarily follow normally; delivery of the shoulders does not necessarily forecast normal expulsion of the head.

- 2 Prolapse of the umbilical cord, either evident or concealed, is five times as common in breech as in cephalic delivery.

- 3 There is a definite tendency for the placenta to separate prematurely during the second stage of labor after the breech, body, and shoulders, constituting the main bulk of the fetal mass, have passed through the cervix, leaving the aftercoming head inside the uterus.

- 4 The infant may be fatally traumatized by unskilled or improperly timed efforts at extraction.

Any policy or technic of breech delivery, to be successful, must be based upon the following principles:

- 1 Adequate and accurate antepartum examination.

- 2 Essential hospitalization of the patient for delivery, either by bringing her to a hospital, or by bringing full hospital facilities to her at home.

- 3 Constant personal supervision of the patient throughout labor.

- 4 The presence, at delivery, of a competent anesthetist, preferably a physician with obstetric training.

- 5 Ability of the obstetrician to perform successfully the operation of breech extraction when the indication arises.

These principles may be reasonably translated into the following rules:

- 1 The conformation of the maternal pelvis must be thoroughly studied by external and internal mensuration according to the usual clinical standards. Even moderate contraction of the pelvis in a primigravida is much more serious to the infant when it presents by the breech than when it presents by the vertex, as in the former case a test of labor to determine a moot point of cephalopelvic disproportion is obviously out of the question. X-ray measurement of the fetal head, when available, combined with clinical measurement of the pelvis, under an anesthetic when necessary, is of great value in the borderline case, and may indicate clearly the advisability of delivery by abdominal cesarean section.

- 2 The patient should be delivered in a hospital, whenever possible, since such an environment makes possible a rapid change in policy should emergency arise.

- 3 The obstetrician should be in constant personal attendance on the patient from the time active dilatation of the cervix starts until delivery has been accomplished.

- 4 A competent anesthetist-assistant should be immediately available during this time, and should be in actual attendance during the entire second stage.

- 5 The fetal heart rate should be recorded at least every fifteen minutes during the first stage with membranes unruptured, immediately after rupture of the membranes, every five minutes after rupture, and after each pain during the second stage.

- 6 The obstetrician should scrub and maintain surgical asepsis from the time the breech passes through the os until delivery is complete. From this moment on, should there be any delay in expulsion at any time, or

*A series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

should the fetal heart vary in rate outside the normal limits of 120 to 160 beats per minute he should extract the fetus at once under full surgical anesthesia.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 3

Berkshire

Thursday May 7 at 4 30 P.M., at the House of Mercy Hospital Pittsfield Subject Lung Diseases (Surgical) — (a) Empyema (b) The Value of Surgery in Chronic Lung Disease Tuberculosis, Lung Abscess etc. Instructor J W Strieder Melvin H. Walker Jr., Chairman.

Bristol North

Wednesday May 6 at 7 30 P.M. at the Morton Hospital, Taunton Subject Pediatrics (Surgical) — Abdominal Disease in Childhood Instructor J W Chamberlain Arthur R. Crandell Chairman.

Bristol South (New Bedford Section)

Friday May 8 at 4 00 P.M. at the St. Luke's Hospital New Bedford. Subject Diseases of the Liver — Surgical Problems in Diagnosis of Acute Disease of Gall Bladder and Liver Instructor H M. Clute Harold E. Perry Chairman

Franklin

Wednesday May 6 at 8 00 P.M. at the Franklin County Public Hospital Greenfield Subject Syphilis — Its Complications and Treatment Instructor A. W. Cheever Halbert G. Stetson Chairman

Middlesex North

Friday May 8 at 7 00 P.M., at the Lowell General Hospital, Lowell. Subject Immunology—Latest Developments in Immunization Smallpox, Typhoid, Measles, Scarlet Fever, Diphtheria, Whooping Cough and Infantile Paralysis Instructor G W Anderson Leonard C. Dursthoff Chairman.

Norfolk

Friday May 8 at 8 30 P.M. at the Norwood Hospital Norwood Subject Pediatrics (Medical) — The Neonatal State Instructor S H. Clifford H. B. C. Riemer Chairman.

Worcester (Milford Section)

Wednesday May 6 at 8 30 P.M. at the Milford Hospital, Milford. Subject Diseases of the Liver — Surgical Problems in Diagnosis of Acute Disease of Gall Bladder and Liver Instructor E. L. Young Jr. Joseph I. Ashkins Sub-Chairman

APPLICATION FOR MEMBERSHIP IN THE ESSEX SOUTH DISTRICT MEDICAL SOCIETY

New England Journal of Medicine,

I am sending the name of a candidate for admission to the Massachusetts Medical Society with the names of the five sponsors according to the resolution adopted at the last Council meeting

The application and letters have been sent to Dr Fitz

Applicant — William Patten McHugh M.D., 43 Margin Street, Peabody

Sponsors—Dr George W. Ewing 95 Main Street, Peabody Dr Harris S. Pomeroy Peabody Dr John F. Walsh 16 Chestnut Street, Peabody Dr S. Chase Tucker Peabody Dr John F. Bradley 40 Washington Street, Peabody

April 25 1936 R. E. STONE, M.D. Secretary

MISCELLANY

SOLOMON EVEREST 1760-1832

BY ARTHUR H. WARD, M.D.

Assistant Physician Boston Dispensary Herre Department

Most of the biographies of the early American physicians concern their contribution to the knowledge and advancement of their calling with but passing comment on their other interests. The following biography is that of a man who probably contributed nothing to the then known lore of medicine although the available records show that he was a conscientious and skillful physician a power for good in his little community and an active participant in town state and medical society affairs. Such a man was Solomon Everest, who practiced in the quiet little town of Canton, Connecticut located about fifteen miles west of Hartford.

He was born in Salisbury in the northwest corner of Connecticut on April 11 1760. Little can be learned concerning his father and mother other than their names. Of English stock his immediate forbears came to Saybrook and then moved up in to the state settling in Salisbury. His father David Everest was married to Margaret Ferris of Sheffield by the Rev. Jonathan Hulbart on July 11 1754. Of this union there were four children Solomon being the youngest. Eight days after the youngster's birth his mother died and after waiting a decent length of time his father married again, this time to a Lois Jackson by whom he had ten children.

Probably as soon as Solomon was old enough and most probably to relieve the burden at home, where there were so many mouths to feed he journeyed the twenty miles to Winchester where he became apprenticed to Dr. Josiah Everitt and learned the rudiments of his future calling. Also while there he wooed and won the youngest sister of his preceptor Amella, to whom he was married May 15 1782.

Soon after their marriage Dr. Everest and his bride moved to that part of Farmington which is now Avon where he began his medical practice but

in 1796 he transferred his activities to Canton, where he remained until his death in 1822. Abiel Brown's General History of the Early Settlers of West Simsbury (now Canton) states, "As a physician and surgeon he had but few equals and educated a number of young men who became eminent in their profession. The public placed so much confidence in his professional skill, it was rare that further aid was solicited, even in extreme cases, under his management."

His name appears as one of the original members of the Hartford County Medical Society. Becoming a member of the Connecticut State Medical Society in 1793, a year after its inception, he took an active part in its proceedings, and was given the degree of M.D. by the Society in 1814. He was one of the leading citizens of the town, the incorporation of which was due largely to his effort. He was a member of the convention that formed the Constitution of the State of Connecticut in 1818, in that convention his name is found as voting for and against many of the amendments offered to the proposed constitution, and in the final vote for the constitution as amended he cast his vote in the negative because of his opposition to that section providing that the General Assembly be held alternately in Hartford and New Haven. He was deeply religious but without enthusiasm and austerity, strictly orthodox in the sentiments of the denomination to which he belonged, and for twenty years officiated as a deacon of the First Congregational Church of Canton.

The chief interest in writing this biography, however, lies not in what he did during his life, but rather in the influence he had after his death. He died on April 3, 1822, and when his will was read, it was found he had bequeathed one-half of his estate amounting to \$30,000 in the following manner: of four equal parts, two went to the American Board of Congregational Foreign Missions, one part to the Missionary Society of Connecticut, and one part constituted a trust fund, the income of which was to be used "for the purchase of Bibles, religious tracts, etc., for distribution, for the support of the Domestic Missions in this State, or for the education of indigent, pious youth for the gospel ministry, to any and all of the above purposes, as shall be thought most expedient by a Committee which the General Association of the State of Connecticut shall from time to time appoint for that purpose." The executor took seven years in settling the estate, and at that time turned over \$4,000 to the Committee of the Association. This became known as the Everest Fund. In 1843 his widow died, and her last will and testament was couched in the same identical language, and added \$3,500 to the Fund. The trustees of the Everest Fund early realized the need of educating needy young men for the ministry, so that during the last century the foresight of a comparatively unknown physician has enabled many men to enter the ministry and carry the Christian religion to all corners of the earth to China, India, Bohemia (now Czechoslovakia) and the north- and south-west

portions of the United States. One who received aid from this fund later became President of Oberlin College, another became the much beloved Professor of Mental and Moral Philosophy at Amherst, while still another, an American-born Italian, became prominent in carrying on the religious education of the numerous Italians in Connecticut, thus enabling them to become better American citizens. These are but a few of the more than four hundred who have received a helping hand from a man who realized the necessity of educating young men for the purpose of carrying his ideals to others.

LYNN CANCER CLINIC*

BY WILLIAM T. HOPKINS, M.D.
Visiting Surgeon, Lynn Hospital

The Lynn Cancer Clinic is one of the state-aided, diagnostic, cancer clinics, which seeks to offer opportunity for competent diagnosis and advice concerning cancer to all who may desire it, irrespective of their financial condition. The clinic is conducted in cooperation with the State Department of Public Health, under the management of a committee of five local physicians, appointed by the Lynn Medical Fraternity. The funds for operating the clinic are chiefly derived from legislative appropriation to the Department of Health of the Commonwealth. The Lynn Community Fund Association usually makes an annual allotment to the clinic. Occasional small contributions are made by grateful patients.

The chief expenditures are for salaries to the social service worker and clerk, for expense of follow-up visits, occasional special diagnostic service, and for office supplies.

The Lynn Hospital furnishes, without charge, a meeting place for the clinic with equipment for examinations, including the services of nurses, also, upon request of the clinic, free x-ray diagnostic service for those unable to pay.

The professional staff of the clinic consists of eighteen doctors assigned to regular terms of service and, upon call, the entire staff of specialists at the Lynn Hospital, all giving their services without compensation.

The clinic has been in continuous operation since April, 1927, and meets each Friday morning at ten o'clock at Lynn Hospital. The group system has been in effect for the past year. By this plan, three doctors see each patient before a diagnosis is recorded. Anyone may come to the clinic as a patient and no charge for consultation has ever been made in this clinic up to the present. It is most desirable that patients come upon the recommendation of the family doctor, either accompanied by the doctor, or with a letter from him containing a brief history of the case. If the doctor accompanies the patient, he is invited to join the consultation upon his patient. If a person is found to be afflicted with cancer, the family doctor is so notified at once by letter and the patient is sent back to his care.

*D. Livered at a meeting of Lynn Cancer Cooperative Committee at Lynn V. M. C. A. Hall February 21, 1936.

The social service worker follows up all cases of cancer attempting to assure adequate treatment at the earliest possible date and by follow up of forts keeps in touch with the patient thereafter

The committee realizes the magnitude, and the seriousness of the cancer problem the responsibility for dealing with which rests by no means solely upon the medical profession but on account of the great and increasing prevalence of the disorder is a matter which concerns the entire community

The hopeful feature of the situation lies in the fact that the traditional opinion, that all cancers are hopelessly incurable, is a mistaken one. Of the truth of this statement, I hope to be able to convince you from a brief account of the experience of this clinic.

By microscopic examination of a bit of tissue a competent pathologist can tell not only whether the specimen is cancer but also the kind and grade of malignancy. This is useful from the standpoint of prognosis and in deciding how extensive an operation must be undertaken.

In order to determine how many cancers appear to be cured it is necessary first to be certain how many are, in fact, cancers. To be as certain as possible upon this point the clinical diagnosis of cancer by three of the clinic staff doctors is reinforced by the report of the pathologist upon the specimen removed. Reports for this clinic usually are made by the Cancer Commission of Harvard University and are checked against the clinical diagnosis with which they must agree for the final record. The average duration of life of a cancer patient, after the appearance of symptoms is about two years if untreated or inadequately treated.

From the date of opening of the clinic to January 1 1936 the clinic has examined 2,841 patients. Of these 629 have been found to have cancer. As of January 1 1936 the clinic is able to show 109 cancer patients living five years or more after treatment and free from evidence of the disease. These are sometimes referred to as five-year cures. This period being chosen because freedom from recurrence for this length of time usually means permanent freedom from recurrence. It seems to us that these figures speak for themselves. It should furthermore be realized that all of these 109 five-year cures come from cases visiting the clinic prior to January 1 1931 and in all probability many seen since that date and included in the total of 629 are also on their way to become five-year and we hope permanent cures.

The one point upon which we are utterly dissatisfied is the long period of delay by the patient after discovery of symptoms, before consulting a physician. This should be counted in days whereas it may now be reckoned in terms of months. Practically all our cures are of cases seen early in their course. After the disease has established secondary deposits of cancer cells, the situation is less hopeful. Patients are coming to the clinic not much

earlier in the course of the disease than was the case eight or nine years ago.

The clinic wishes gratefully to acknowledge the splendid coöperation of the Lynn Hospital which has made possible such success as the clinic has achieved and especial emphasis should be placed upon the public spirit and unfailing courtesy of the press which always publishes our bulletin as news. A considerable proportion of the clinic cases has come to us from newspaper publicity and it cannot fail to be a source of satisfaction to the publishers to be made aware that their generosity in this regard has resulted in the saving of some lives.

No attempt has been made to estimate the percentage of cancers which may be regarded as curable but it seems to have been demonstrated that not all cancers are inevitably fatal.

This in brief, is the evidence which the Lynn Cancer Clinic is able to lay before you.

"OUR COMMON DRINKING CUPS"

BY CHARLES F. BOTSFORD, M.D.
Retired Health Officer Hartford Conn.

Many years ago public sentiment recognized the danger of the transference of disease through what was called the common drinking cup and laws were passed requiring the use of bubbler fountains or single service containers in certain public places. The repeal of the Eighteenth Amendment and the accompanying increase in places of public entertainment have forcibly brought to our attention the fact that in many of our public eating and drinking places utensils and especially glasses receive so slight an amount of cleansing between services that they are as important a means of spreading those diseases in which the germs are taken into the body through the mouth as was the old fashioned drinking cup.

Some of our social customs greatly contribute to this condition. Custom requires that beer be served in a wet glass and the bartender usually takes a glass just returned to the counter rinses it in water which may have been changed only three times a day fills it with beer again and starts it on its way. The mucus from the mouth is so tenacious that a rinse in warm or even fairly hot water even containing soap or other cleansing agent, has almost no effect upon it, and whatever germs have been left by previous users are passed on to those who follow. A wet glass may look quite clean, but the same glass dried presents a different appearance frequently showing not only finger prints of previous users but a gray rim of mucus around the edge. Nothing short of the application of considerable force by a brush or similar means and the use of really hot water and soap or still better one of the modern cleansers, will remove this deposit. The emphasis of state and local health regulations has been on the equipment and general cleanliness of eating and drinking places in the belief perhaps mistaken that proper equipment always produces the desired result, possibly also because it is easier

to check on equipment than on performance. Thus, the standard regulations stress the protection of food and drink from dust and flies, proper refrigeration, a safe water supply, convenient toilets, and in most cases facilities for heating water, and the equipment necessary for washing utensils in the traditional household way. The inspector can check all these things and the general appearance of cleanliness on his rounds, and if it scores well, the place is considered satisfactory. The requirement of a standard minimum of equipment has done much in a general way to increase the safety of places selling food and drink. We no longer have frequent epidemics of typhoid due to a poor water supply or carried to the food by flies, and outbreaks of food poisoning from the use of spoiled materials are now rare.

The use of laboratory methods to check the efficiency of dishwashing from the standpoint of the removal of the really dangerous germs on the dishes has only recently been applied to utensils in places of public entertainment, although it has been used in the milk industry for some years, and standards of reasonable cleanliness for milk bottles have been established. The examination of more than five hundred glasses from taverns, soda fountains and restaurants by the laboratory methods used for milk utensils shows that only 8 per cent of glasses from taverns, 22 per cent from soda fountains, and 35 per cent from restaurants met the standards of cleanliness established for milk bottles. Included in this group were those restaurants using machine washing. Of these 61 per cent were satisfactory. Of course, this does not mean that all the germs found are harmful. Fortunately, most of them are not. This is simply a method of accurately testing dishwashing efficiency, and when a few eating places uniformly wash their utensils so clean that no germs can be cultivated from 95 per cent of them it shows that results considerably better than the standard are at present not attainable. Moreover, other tests made show that the kinds of germs found vary with the time of year, and are similar to those found in the throats of sick people in the community at that particular time, so that the conclusion is inescapable that these utensils might be an active means of spreading these diseases.

We believe that the public drinking place is so closely tied up with our social life that it cannot and should not be done away with, so that the question remains, what can be done to make it as safe as possible?

One solution would be the use of paper or similar single service utensils, but paper is a poor substitute for glass or china, and few of us would wish to use it, except in a special emergency. The alternative seems to be the general recognition of the fact that because of their use by so many people, and because many places which appear very clean, have very poorly washed dishes, methods of cleansing of a much more thorough nature than those in use in an ordinary household must be developed.

Public health authorities must, with the help of the laboratory, work out practical means of dishwashing which will be efficient, and the public must be educated to demand their use. Each official inspection will then include the taking of a sample glass and spoon or fork for laboratory analysis. At present it appears that those places using machine dishwashing are much safer than those washing in other ways.

DR. LAHEY ADDRESSES THE PHILADELPHIA COUNTY MEDICAL SOCIETY

Dr. Frank H. Lahey gave the Sixth Annual J. Chalmers Da Costa Foundation Oration before the Philadelphia County Medical Society at the Bellevue Stratford Hotel, Philadelphia, on Wednesday evening, April 22. Dr. Lahey's subject was The Management of Biliary Tract Disease.

FIVE-YEAR RESIDENT INFANT MORTALITY RATE IN BOSTON

1930-1934

MARGARET H. TRACY, *Executive Secretary*
BOSTON HEALTH LEAGUE

The tables appended show the resident births and infant deaths from 1930 through 1934 in the city of Boston and the five-year average infant mortality rate. The resident infant mortality rate for the city each year during this period is as follows:

1930	66.6
1931	59.4
1932	57.5
1933	58.9
1934	53.3

The greatest decline in the total city resident rate occurred in 1931. The decline in 1932 was offset by the rise in 1933, but in 1934 there was again an appreciable decrease which is especially encouraging in view of the fact that there was an increase in the infant mortality rate for the country as a whole. "Practically the entire region lying east of the Mississippi River was adversely affected. Of the twenty-six states comprising this area, twenty-one recorded higher infant mortality figures in 1934 than in 1933. Only five eastern states, Massachusetts, New York, Rhode Island, Vermont and West Virginia, succeeded in maintaining or improving their records of the previous year. Of these, Massachusetts made the best showing, having reduced its 1933 infant mortality by nearly 5 per cent in 1934."* Boston reduced its infant mortality rate by 9 per cent, a much greater reduction than that for the state as a whole.

The provisional infant mortality rate for Boston, issued by the City Health Department January 1, 1936 for 1935 is 50.7, which again shows a decline. In view of continued unemployment and the large proportion of families receiving relief, physicians

and official and voluntary agencies giving prenatal and obstetrical care are to be commended.

Examination of the five-year average infant mortality rate by Health and Welfare Areas indicates that East Boston Charlestown South End South Boston and Roxbury are the five areas where the rate is above that for the city as a whole. In general, these areas are congested, have low rentals and a high proportion of families on relief, but these economic factors alone do not account for the higher rates. Economically the West End, which has had an exceptionally low rate for the five years and the

North End, where the rate is nearly equal to the city rate for this period closely parallel the five health and welfare areas where the rates are higher. The amount and quality of prenatal care, the quality of delivery and the care of the new born infant in the areas having a high infant mortality rate might well be studied to determine what might be done to lower the infant mortality rates in these areas further. Thus the city rate might be still further reduced.

Metropolitan Life Insurance Company Statistical Bulletin,
September 1935.

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931 1932-1933-1934

A FIVE YEAR AVERAGE BY HEALTH AND WELFARE AREAS

	Births						Deaths							
	1930	1931	1932	1933	1934	Total	1930	1931	1932	1933	1934	Total	5-Year Average Infant Mortality Rate	
Total	13 894	12 975	13 092	12 179	11 793	63 847	926	772	753	717	629	3 797	59.5	
East Boston														
A-1	109	92	87	78	65	631	6	4	3	5	5	23	36.5	
A-2	79	87	73	83	70	34	1	6	5	6	5	23	53.7	
A-3	179	136	168	158	142	83	9	9	9	6	0	39	49.8	
A-4	119	99	111	92	116	5	7	5	6	6	5	29	54.0	
A-5	162	150	163	139	131	745	13	10	7	8	8	51	68.5	
A-6	139	148	117	114	106	64	15	13	8	9	6	61	81.7	
B-1	98	80	93	61	63	395	5	6	3	4	4	22	55.7	
B-2	93	83	92	88	76	437	13	6	6	4	6	35	81.0	
B-3	59	71	66	78	68	347	4	9	5	1	5	24	70.2	
B-4	85	86	74	75	67	381	4	5	3	3	1	16	41.3	
B-5	188	196	183	160	142	869	21	13	15	16	5	70	80.6	
Total	1 310	1 228	1 227	1 126	1 046	6 117	103	88	70	68	56	383	62.4	
Charlestown														
C-1	47	33	32	40	41	193	5	7	3	6	2	23	119.2	
C-2	77	53	82	68	70	350	9	5	8	4	6	32	91.4	
C-3	94	83	84	89	80	430	13	9	6	5	4	37	86.0	
D-1	34	21	25	27	23	130	2	—	—	7	3	12	92.3	
D-2	27	38	23	23	29	18	3	1	—	3	3	8	62.5	
D-3	58	53	70	38	58	277	3	8	3	2	1	17	61.4	
D-4	60	60	67	55	57	299	4	5	6	1	5	21	70.2	
E-1	93	76	89	80	68	406	4	7	6	10	4	31	76.4	
E-2	53	47	44	52	45	241	3	10	3	2	3	30	83.0	
Total	543	454	515	471	471	2,454	45	52	34	39	31	201	81.9	
North End														
F-1	105	103	101	101	88	498	14	10	5	7	4	40	80.3	
F-2	117	111	112	95	92	577	9	4	4	4	6	27	51.2	
F-3	26	28	20	18	22	114	2	3	1	1	3	10	87.7	
F-4	143	127	128	115	98	616	10	12	3	4	3	32	51.9	
F-5	81	71	99	74	51	376	5	7	4	4	1	21	55.0	
F-6	23	16	8	8	5	60	—	1	—	1	—	2	33.3	
Total	495	461	468	411	356	2 191	40	37	17	21	17	132	60.2	

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931-1932 1933-1934

A FIVE YEAR AVERAGE BY HEALTH AND WELFARE AREAS

(Continued)

	Births						Deaths						To- tal Average Infant Mortality Rate
	1930	1931	1932	1933	1934	Total	1930	1931	1932	1933	1934		
West End													
H-1	138	160	128	119	124	669	7	8	10	10	5	40	59.8
H-2	48	52	65	51	49	265	3	—	3	4	2	12	45.3
H-3	35	30	31	33	34	163	2	1	1	3	1	8	49.0
H-4	88	92	98	84	64	426	4	3	8	4	3	22	51.6
K-1	66	65	60	58	67	316	1	—	1	3	1	6	19.0
K-2	33	41	32	33	30	169	2	1	1	—	1	5	29.6
Total	408	440	414	378	368	2,008	19	13	24	24	13	93	46.3
Back Bay													
K-3	15	15	9	10	12	61	—	—	3	—	2	5	82.0
K-4	110	96	96	110	115	527	4	9	4	5	3	25	47.4
K-5	9	21	15	14	12	71	—	—	—	—	1	1	14.1
I-3	12	25	25	18	17	97	2	2	3	—	2	9	92.8
J-4	33	38	54	18	43	186	3	4	5	—	—	12	64.5
J-5	72	64	70	72	81	359	4	5	5	2	3	19	52.9
S-1	78	78	79	62	79	376	9	7	2	7	6	31	82.4
Total	329	337	348	304	359	1,677	22	27	22	14	17	102	60.8
South End													
G-1	33	28	35	44	33	173	1	2	1	—	1	5	28.3
G-2	53	39	50	32	44	218	4	2	1	2	6	15	68.8
G-3	6	6	7	4	5	28	—	—	—	—	1	1	35.7
G-4	10	8	8	10	8	44	—	—	2	—	—	2	45.5
I-1	64	39	49	49	60	261	8	2	2	2	2	16	61.3
I-2	110	97	94	100	84	485	12	8	4	5	6	35	72.2
I-3	76	67	76	78	59	356	7	3	2	8	8	28	78.7
I-4	70	61	60	71	71	333	3	8	6	4	7	28	84.1
J-1	53	51	46	41	41	232	2	3	2	1	3	11	47.4
J-2	28	35	24	34	26	147	3	2	1	1	—	7	47.6
L-1	45	56	62	42	53	258	1	1	3	5	4	14	54.3
L-2	78	81	63	70	60	352	10	8	6	6	6	36	102.3
L-3	61	58	67	63	89	338	10	6	10	12	8	46	136.1
L-4	38	35	49	38	37	197	3	2	—	2	3	10	50.8
L-5	36	44	42	55	42	219	4	6	4	3	1	18	82.2
L-6	47	53	49	48	56	253	4	3	1	7	3	18	71.1
Q-1	49	39	50	34	40	212	4	2	1	3	3	13	61.3
Total	857	797	831	813	808	4,106	76	58	46	61	62	303	73.8
South Boston													
M-1	43	56	52	48	44	243	5	3	8	1	7	24	98.8
M-2	73	65	76	76	75	365	13	7	5	4	5	34	93.2
M-3	41	52	47	60	40	240	5	2	12	1	6	26	108.3
M-4	47	40	36	50	36	209	4	3	1	5	4	17	81.3
N-1	171	157	137	156	138	759	13	12	19	8	10	62	81.7
N-2	102	98	83	77	71	431	6	3	—	4	7	20	46.4
N-3	99	69	80	61	79	388	4	3	6	2	6	21	51.1

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931 1932 1933-1934

A FIVE YEAR AVERAGE BY HEALTH AND WELFARE AREAS

(Continued)

	Births					Total	Deaths					To- tal Average Infant Mortality Rate	5-Year Average Infant Mortality Rate
	1930	1931	1932	1933	1934		1930	1931	1932	1933	1934		
A-4	120	92	83	107	119	51	7	3	1	6	13	30	57.6
O-1	170	151	159	145	153	78	22	12	13	8	11	60	84.8
O-2	71	97	73	88	90	419	7	7	6	6	7	33	73.8
O-3	83	87	81	86	75	417	9	9	5	8	9	40	97.1
O-4	32	29	30	34	28	100	1	3	1	2	3	10	62.9
P-1	124	93	108	93	90	10	9	9	6	8	5	37	72.8
Total	1176	1086	1051	1081	1038	54	105	76	83	63	93	490	77.3

Roxbury

Q-2	149	103	106	106	84	34	14	10	5	14	5	48	86.8
Q-3	88	72	77	61	71	71	7	3	10	1	5	26	70.5
Q-4	97	75	95	76	77	110	4	6	5	6	6	27	64.3
R-1	147	146	131	132	122	178	4	7	13	17	10	50	73.7
R-2	80	68	84	84	75	111	6	13	5	6	8	38	96.7
R-3	81	76	74	76	98	41	2	9	5	6	10	32	79.0
S-2	51	60	50	39	51	111	4	3	7	5	5	24	95.6
S-3	123	97	110	119	100	50	16	7	6	7	6	42	76.5
S-4	79	80	79	68	74	110	6	4	7	6	6	29	76.3
S-5	90	92	85	88	67	4	5	3	4	—	3	15	35.5
S-6	84	73	65	47	56	3	3	12	3	4	3	25	76.9
U-1	119	104	136	119	103	551	9	3	6	12	6	36	62.0
U-2	101	129	117	105	99	551	8	5	8	10	5	36	65.3
U-3	116	98	87	86	89	476	4	6	8	9	3	30	63.0
U-4	143	137	124	119	128	651	10	6	12	7	8	43	66.1
U-5	185	144	143	137	152	761	11	6	9	7	4	37	48.6
U-6	204	214	197	181	173	969	8	4	7	8	4	31	32.0
V-1	94	90	84	87	88	443	8	5	5	4	—	22	49.7
V-2	129	112	112	117	113	583	11	6	11	5	3	36	65.2
Total	2160	1975	1956	1847	1890	9758	140	118	185	134	100	627	64.3

Dorchester North

P-2	110	94	99	89	84	476	10	7	4	4	4	29	60.9
P-3	65	68	70	66	77	346	7	4	6	6	3	26	72.3
P-4	88	71	91	78	69	395	4	3	9	3	5	24	60.8
P-5	100	78	78	77	80	413	9	4	7	3	1	34	58.1
P-6	69	77	60	74	78	358	9	6	2	4	4	24	67.0
T-1	91	84	101	80	93	448	9	4	5	3	3	24	53.6
T-2	168	116	125	124	118	651	8	11	8	6	5	38	58.8
T-3	164	137	143	141	108	693	21	11	8	10	10	60	86.6
T-4	174	171	181	146	131	803	13	7	8	15	9	51	64.8
T-5	173	231	197	162	135	898	8	7	17	8	6	46	51.2
T-6	104	101	87	85	87	464	8	6	7	3	3	27	58.1
T-7	178	101	171	181	160	891	7	9	5	6	3	30	33.7
T-8	177	160	136	160	124	757	10	7	3	10	4	34	44.9
T-9	111	79	99	87	92	468	8	3	5	5	1	22	41.0
T-10	76	41	60	47	49	273	3	2	3	2	1	11	40.3
X-1	199	158	194	148	154	853	11	13	10	6	6	40	53.9
Q-5	161	182	144	136	135	753	8	4	16	10	7	45	59.4
Total	2206	2049	2036	1881	1773	9946	153	107	123	104	74	661	56.4

RESIDENT INFANT MORTALITY FOR BOSTON 1930-1931-1932-1933 1934

A FIVE YEAR AVERAGE BY HEALTH AND WELFARE AREAS

(Continued)

Births							Deaths					To tal Average Infant Mortality Rate	
1930	1931	1932	1933	1934	Total	1930	1931	1932	1933	1934			
Dorchester South													
X-2	219	197	192	172	184	964	12	9	9	5	6	41	42.5
X 3	185	192	187	199	183	946	18	12	12	13	7	62	65.5
X-4	229	236	220	187	201	1,073	9	13	11	12	13	58	54.1
X 5	322	313	311	256	237	1 439	19	11	12	11	13	66	45.9
X 6	319	329	322	308	261	1,539	11	16	14	11	16	68	44.2
Total	1,274	1,267	1,232	1,122	1,066	5,961	69	61	58	52	55	295	49.5
Jamaica Plain													
V 3	78	67	98	79	67	389	4	6	5	7	3	25	64.3
V-4	102	86	88	74	80	430	4	2	5	4	1	16	37.2
V 5	148	121	129	108	134	640	8	5	9	8	11	41	63.1
V 6	161	125	145	147	130	708	8	2	8	7	9	34	48.0
W 1	215	208	192	198	188	1,001	10	11	10	7	5	43	43.0
W 2	133	125	135	105	98	596	5	6	4	3	6	24	40.3
Total	837	732	787	711	697	3,764	39	32	41	36	35	183	48.6
Hyde Park													
Z 1	289	293	307	273	289	1,451	11	19	16	14	15	75	51.7
Z 2	165	143	135	141	112	696	6	5	7	5	3	26	37.4
Total	454	436	442	414	401	2,147	17	24	23	19	18	101	47.0
West Roxbury													
W 3	185	179	180	135	176	855	7	4	10	5	8	34	39.3
W-4	187	187	191	184	175	924	11	13	13	9	8	54	53.4
W 5	147	134	143	141	129	694	10	4	7	6	2	29	41.8
W 6	279	269	303	295	215	1,361	11	12	13	10	10	56	41.1
Total	798	769	817	755	695	3,834	39	33	43	30	28	173	45.1
Allston Brighton													
Y 1	128	112	119	109	96	564	17	10	1	5	3	36	63.8
Y 2	121	101	113	111	107	553	6	6	6	15	4	37	66.9
Y 3	277	238	245	225	262	1,247	9	9	11	14	7	50	40.1
Y 4	169	156	149	120	115	709	9	10	3	7	3	32	45.1
Y 5	350	337	341	300	312	1,640	18	13	13	11	13	68	41.5
Total	1,045	944	967	865	892	4,713	59	48	34	52	30	223	47.3
B 6	2	—	1	—	2	5							

NOTE B-6 includes all islands in Boston Harbor

Since January 1 1932 the City Health Department has supplied the Boston Health League with births and deaths by Census Tracts

CORRESPONDENCE

CITY PHYSICIANS COMPENSATION

April 16 1936

Editor *New England Journal of Medicine*

The matter of City Physicians compensation has received some consideration by the Haverhill City Committee of the Essex North District Medical Society. It was found that the gross yield in Haverhill to City Physicians is 14¢ per visit the other cities in this district vary from 6½¢ to 46¢ per visit. The mayor of Haverhill in preparing his annual budget asserted that the costs were too high and must be pared down. The physicians on the staff of the Haverhill Municipal Hospital contributed more than \$80 000 worth of service last year.

The principle of continuing City Physicians on this basis has been disapproved by the Massachusetts Medical Society and by the Commissioner of Public Health of Massachusetts. I should like to stimulate through your columns the interest of City Physicians throughout the state in studying the scope and compensation of their work with the object of obtaining figures which might be helpful, and finding a satisfactory solution for the evils inherent in this branch of medical care. I should be glad to hear from any City Physicians who are interested.

Very truly yours

281 Main Street, E. S. BARNALL, M.D.
Groveland Mass.

THE TREATMENT OF SYPHILIS WITH ARTIFICIAL FEVER

The Commonwealth of Massachusetts
Department of Public Health
State House Boston

April 22 1936

Editor *New England Journal of Medicine*,

The State Departments of Mental Diseases and Public Health have installed two kettering Hypertherm units at the Boston Psychopathic Hospital for the treatment of syphilis with artificial fever. The Boston Dispensary has delegated a nurse to operate one of the units. These two machines have been in operation a year for the treatment of selected cases.

It is now possible to offer the service of these machines to the medical profession of this State so far as treatment days are available. Physicians having patients who may benefit from fever therapy are invited to confer with Dr. Harry C. Solomon, Director of Therapeutic Research at the Boston Psychopathic Hospital who will also represent the Boston Dispensary in the admission of patients to be treated in one of the units.

A considerable number of treatment days are available for the treatment not only of neurosyphilis but for other forms of the disease such as interstitial keratitis, optic nerve involvement, other eye conditions due to syphilis, gummatous syphilitic neuritis, or any clinically active systemic syphilis except cardiovascular.

All patients referred for fever therapy must be accompanied by full records of history, diagnosis, serology, treatment, complications, reactions, and the result of a spinal fluid examination. If a lumbar puncture has not been done, the patient must agree to one before treatment is begun.

The physician who refers the case may be asked to report the condition of the patient and any subsequent treatment at intervals during the following five years or will be expected to permit the representatives of the Psychopathic Hospital or Boston Dispensary to acquire such information as may be necessary from the patient and the patient's record.

Yours truly

HENRY D. CHADWICK, M.D.,
Commissioner of Public Health

WILFRED OVERHOLSER, M.D.,
Commissioner of Mental Diseases

ROUND TRIP TO KANSAS CITY
BY AEROPLANEEditor *New England Journal of Medicine*

The round trip fare to and from Kansas City via the Transcontinental and Western Air Inc. is \$142.55. However, by buying \$500 worth of scrip the trip is reduced another fifteen per cent. This scrip need not be used by one person but may be used by several persons. In other words, if several persons desiring to travel by air (and save 48 hours) would get together the trip would cost them around \$11.00. This amount is only slightly more than a round trip by rail. I myself, wish to go by air and there must be others who plan to do so likewise. Would it not be possible for you to verify the above facts, perhaps make it generally known and enable us to benefit by that extra fifteen per cent?

EARL R. LEITCHER, M.D.

472 Commonwealth Avenue Boston

April 20 1936

PRO DOMO SUA

Editor *New England Journal of Medicine*

My attention has been called to the 1935 *Year Book of General Surgery* in which Professor Graham after a relatively lengthy quotation from my paper "Is Total Thyroidectomy Rational as a Method of Treatment?" has made the following remark in parentheses (According to the 1934 *A. M. J. Directory* the author is an ophthalmologist. It is to be feared such comments will not clarify the situation materially. "Shoemaker stick to your last" is obviously as appropriate today as when first uttered by Apelles over 2,000 years ago.)

I have been overcome by the honor of being quoted by so eminent a surgeon. My best dreams could not reach so far. However, the remark in the parentheses has spoiled the broth. Time and again I am reminded that I am an ophthalmologist, and that the subject of Total Thyroidectomy is none of my business.

There was a time when a jeweler prescribed glasses (not a shoemaker) and a barber posed as a surgeon and a dentist. But that time has gone by. Now

we all get medical education, and we are intelligent enough to be able without using inappropriate sayings and comparisons to accept or reject arguments dealing with a scientific problem

I regret that Professor Graham did not have time, space, or willingness to quote those parts of my paper which were based on the work of the great surgeon Kocher. Had he done so, he might not have said that "such comments will not clarify the situation materially."

The subject of Total Thyroidectomy is not a technical surgical problem. It is of interest to the cardiologist, surgeon, general practitioner, neurologist, psychiatrist, physiologist, pathologist, endocrinologist and, *horribile dictu'* even to the ophthalmologist. It is known that the thyroid and the pituitary, if diseased, sometimes may affect the eye.

If Professor Graham read the last paper of Clark, Means and Sprague² and my letter,³ he could see that time has proved, strange as it may seem, the contentions of the ophthalmologist to be correct. One thing is clear to me: *The bright perspectives of three years ago have dwindled to a selection of a very small group, and the Almighty alone knows how to select this group.* Clark, Means and Sprague are reluctant to say that they know.

Consequently, the number of wrongly selected cardiac patients, if the procedure is continued, will swell the number of unfortunate victims. The Peter Bent Brigham Hospital (a pioneer in this field) has performed only three operations during the last year.⁴ The Massachusetts General Hospital has performed no total thyroidectomies during the past six months.⁵ It is significant.

REFERENCES

- 1 Canad M A J 31:502 (Nov.) 1934
- 2 New Eng J Med. 214:277 (Feb. 13) 1936
- 3 New Eng J Med 214:552 (March 12) 1936
- 4 See 2 P 294
- 5 See 2 P 293

O R LOURIE, M D

485 Commonwealth Avenue,
Boston, Mass

RECENT DEATHS

LINES—ERNEST HOWARD LINES, M.D., the retired chief medical director of the New York Life Insurance Company, died April 17, 1936, at the home of his daughter, Mrs. Sargent H. Wellman, of Topsfield.

Dr. Lines was born in East Otto, New York, in 1859, and was a graduate of the College of Physicians and Surgeons of New York.

During the war, he served with the American Ambulance Field Service and later, becoming interested in the education of the wounded French soldiers, was director of the Quai de Billy School conducted by the Union des Colonies Etrangères and received the decoration as Chevalier of the Legion d'Honneur.

BALLOU—AMBROSE ROCHE BALLOU, M.D., of 280 Neponset Avenue, Dorchester, Massachusetts, died suddenly December 4, 1935, aged fifty-four.

Dr. Ballou was born in Quincy, Massachusetts, and acquired his medical education at the Baltimore

Medical College, graduating therefrom in 1905. He settled in Dorchester where he practiced up to the time of his death. His memberships included the Massachusetts Medical Society which he joined in 1907.

His widow, Mrs. Katherine G. Ballou, a daughter, Alice Noel Ballou, and three brothers, John R. and Arthur C., both of Quincy, and the Rev. Marcian L. Ballou, of Kearney, Nebraska, survive him.

GALE—GEORGE WASHINGTON GALE, M.D., of 68 Lincoln Avenue, Saugus, Massachusetts, died April 21, 1936. Dr. Gale was born in Exeter, N.H., ninety-nine years ago. He was active in the practice of medicine until two years ago.

After graduating from Phillips Exeter Academy in 1850, and the Berkshire Medical College in 1861, Dr. Gale served as a Civil War surgeon with a naval assignment. After his discharge from war service, he practiced in Saugus and Lynn until he retired two years ago.

Dr. Gale had held membership in the General E. W. Hinks Post 95, G. A. R., acting as its secretary. He was also a member of the Massachusetts Medical Society and the Masonic order. In April 1930, a bronze medallion was presented, by the New England Medical Center, to Dr. Gale as the second oldest family physician in New England.

RUSSELL—EDWARD M. RUSSELL, M.D., aged sixty-eight, a retired ear and nose specialist of 38 Berkeley Street, Springfield, Massachusetts, died in that city, April 20, 1936, after a short illness.

He was born in Springfield, graduated from Holy Cross College in 1890 and from McGill University Faculty of Medicine in 1901. Dr. Russell is survived by two brothers, Dr. Simon J. Russell, and Mr. Thomas S. Russell, both of Springfield, two nieces and five nephews.

OBITUARY

A TRIBUTE TO DR. FRANCIS GEORGE CURTIS

Dr. Francis George Curtis died in Ashfield, Mass., on April 7, 1936, in his seventy-ninth year, having practiced medicine in Newton for nearly fifty years.

His father, George William Curtis, was an extraordinarily brilliant man. At an early age he was a member of the famous Brook Farm Colony at West Roxbury; he was the Editor of *Harper's Weekly* and for many years the Editor of the "Easy Chair" of Harper's Magazine; he was one of the early Abolitionists, one of the Founders of the Republican Party, wrote several noteworthy books, and was considered one of the best orators of his day.

His mother, Anna Shaw, was a sister of Robert Gould Shaw, whose monument by St. Gaudens is opposite our State House.

Curtis attended St. Paul's School at Concord, N.H., graduated from Harvard with the class of 1879, and took his medical degree at the College of Physicians and Surgeons (Columbia) in 1883. In 1887 he settled in Newton and at one time acted as Superintendent

tendent of the Newton Hospital. In 1894 he was appointed Chairman of the Newton Board of Health a position he held for forty two years. In this work Dr Curtis made a national reputation. His single-handed fight to compel milk dealers to furnish clean milk to Newton thus markedly reducing the infant mortality his common sense innovations concerning fumigation and his insistence that children were safer in school, during epidemics than playing on the streets or congregating in playgrounds were a few of the outstanding accomplishments of his work which gained him the name of being one of the most progressive health officers in the country.

In the Newton Medical Club Dr Curtis had a host of friends and was always an enthusiastic attendant at its summer outings.

We, the members of the Newton Medical Club wish to record our appreciation of Dr Curtis as a man, as a physician and as a friend and take this means to convey our deep sympathy to his widow and children.

EDWARD A. ANDREWS M.D.
ALVAH C. CUMMINGS M.D.
EDWARD MELLUS M.D.
Committee

Resolution adopted by Newton Medical Club April 13 1936

NOTICES

BOSTON DISPENSARY

25 Bennet Street, Boston

Medical Conference Program

9-10 A.M., May 1936

Friday May 1—Certain Aspects of the Thyroid Dr David Rapport.
Saturday May 2—Hospital Case Presentation. Dr S J Thannhauser
Tuesday May 5—Injury and Disease of the Epiphyses. Dr John D Adams
Wednesday May 6 — Erythroblastic Anemia. Dr James Baty
Thursday May 7 — Endocrine Clinic Dr Charles Lawrence
Friday May 8—The Early Diagnosis of Brain Tumors Dr Gilbert Horrax.
Saturday May 9—Hospital Case Presentation Dr S J Thannhauser
Tuesday May 12—Clinical Preventive Medicine Dr Robert W Buck
Wednesday May 13—Hospital Case Presentation Dr S J Thannhauser
Thursday May 14—Effect of Protamine Insulinate on the Blood Sugar Case Presentation Dr Harry Blotner
Friday May 15—Thyroid and Psyche Dr James H Means.
Saturday May 16—Hospital Case Presentation Dr S J Thannhauser

Tuesday May 19 — Clinical Diagnosis of Jaundice Dr Howard M. Clute.
Wednesday May 20—Hospital Case Presentation Dr S J Thannhauser
Thursday May 21 — Social Service Case Presentation Miss Edith Canterbury
Friday May 22 — Newer Aspects of Diabetes Dr Reginald Fitz
Saturday May 23—Hospital Case Presentation Dr S J Thannhauser
Tuesday May 26—The Effect of Endocrine Disease on the Cardiovascular System Dr H C Gordinier
Wednesday May 27—Hospital Case Presentation. Dr S J Thannhauser
Thursday May 28—Blood Clinic Presentation Dr Isadore Olaf.
Friday May 29 — Observations on the Circulation During Pregnancy Dr C Sidney Burwell.

BOSTON UNIVERSITY SCHOOL OF MEDICINE SURGICAL CLINIC BOSTON CITY HOSPITAL

Dr Philemon E. Truesdale Surgeon in Chief of the Truesdale Clinic in Fall River will talk to the students on Friday May 15 12:1 in the Cheever amphitheatre

The discussion will be opened by Dr William R Morrison, Clinical Professor of Surgery
Physicians and medical students are invited

ASSIGNMENT OF SURGEON FERGUSON BY THE U S P H S

Acting Assistant Surgeon Charles Ferguson has been directed to proceed from Ellis Island N Y to Boston Mass to attend the American Urological Association from May 18-22, 1936 and return April 13 1936

BOSTON PHYSICIANS REPRESENTED AT THE MEETING OF THE AMERICAN HEART ASSOCIATION

Among the contributors to the program of the American Heart Association at the meeting in Kansas City Missouri May 1., the names of Boston physicians appear as presenting papers as follows:
Dr Soma Weiss and Dr George P. Robb on Cardiac Asthma (Paroxysmal Dyspnea) and Failure of the Pulmonary Circulation. Dr Howard B. Sprague on "The Differential Diagnosis of Congestive Heart Failure and Constrictive Pericarditis (Pick's Disease)." Dr James C. White on "The Control of Sympathetomized Blood Vessels by Sympathomimetic Hormones and Its Relation to the Surgical Treatment of Raynaud's Disease" and Dr R. H. Smithwick on "Modified Dorsal Sympathectomy for Raynaud's Disease (Vascular Spasm) of the Upper Extremity"

REPORTS AND NOTICES OF MEETINGS

ROBERT B BRIGHAM HOSPITAL CLINIC

A clinic on Still's Disease was held March 18 at the hospital. Four patients were shown. The first, an eleven year old boy, developed polyarthritis at the age of six, and practically every joint was involved. The second patient was a sixteen year old girl whose illness started three years ago with slight symptoms in the ankles and wrists. She had lost thirty five pounds but had regained fifteen. The third patient was an eleven year old girl whose illness started at the age of four. A synovectomy was performed on the left knee in 1931, while the right knee was treated with x ray. It was shown that the knee treated with x ray was much the better of the two. This girl had made remarkable recovery from a process which involved practically every joint in her body. The fourth patient was a thirteen year old girl whose symptoms started at the age of ten. She has had a persistent swelling of the right hand. During the six months she has been in the hospital there has been no advance in the arthritic process.

Still in 1897 described an arthritis affecting children characterized by enlargement of the spleen and lymph nodes. The disease is not common. Probably less than one per cent of all patients with arthritis may be said to have this form of the disease. From our present knowledge of arthritis it is best to consider this process a rheumatoid arthritis occurring in childhood. It is not essential to have enlargement of the spleen and lymph glands to make the diagnosis. In the four cases mentioned above two had palpable lymph nodes, and none had enlargement of the spleen. The increase in size of the spleen is probably an early manifestation of involvement.

The cause of Still's disease being unknown, the treatment is based essentially upon restoring the functional level of the body to the highest possible degree through adequate supervised rest, proper diet, protection for the joints to prevent deformity and graded exercises supplemented by physiotherapy and hydrotherapy. A Hubbard Tank has recently been installed in this hospital, and it is felt that under water exercises are of great value in bringing about improvement.

At the close of the clinic the histories of several patients were reviewed who had been restored to usefulness and independence after having been severely crippled by this type of arthritis. Patience and persistence with careful supervision over a period of years make it possible to achieve satisfactory results in the majority of cases.

NORFOLK DISTRICT MEDICAL SOCIETY

The second Conference of the Insurance Company Executives, Hospital Executives, and Physicians was held at the Boston Medical Library, on January 17 1936 at 12 00 M. The following were present

Mr William P Cavanaugh, of the National Bureau Casualty & Surety Underwriters, of New York, representing the Bureau group, who came here expressly for the purpose of attending this Conference, Mr P W Linscott, of the Employers' Liability Assurance Corp, Ltd, representing the Non Bureau group. Mr Charles E Wilde, of the Liberty Mutual Insurance Company, representing the Mutual group, Dr Henry M Pollock, Supt. Mass Memorial Hospitals representing the Hospital Executives Association group, Dr Charles E Mongan, President Massachusetts Medical Society, Dr A S Begg, Secretary, Massachusetts Medical Society, Dr Charles C Lund, representing the Suffolk District Medical Society and Dr Henry M Landesman, representing the Norfolk District Medical Society.

The chairman made the following introductory remarks:

"Gentlemen

"We are now here in a small but representative group to formulate an agreeable and workable plan for the benefit of the Insurance Companies, Hospitals, and Physicians without harm to the Patient, and the Lawyer.

"From a careful study of the situation I cannot see why it is not the best policy for all concerned to work harmoniously. You gentlemen from the insurance companies seem to have agreed that there have been unnecessary abuses perpetrated by patients or lawyers, and sometimes both. As far as you were concerned, you really had no hand in it. From my knowledge of the situation, the bills of the physician and/or hospital were always taken into consideration as part of your settlements.

"We here present know exactly what the situations have been. There is really no need of going through it all over again.

"There is but one thing for us to do, and that is to agree on a plan. If the plan which I presented at our last conference does not exactly cover the situation, let us, if we can, create one which will.

"Now, I believe, we are ready for action."

Dr Pollock opened the discussion. He was of the opinion that according to an old law, the hospitals and physicians are actually protected in the payment of their bills, by the "Uniform Policy Law".

THE UNIFORM POLICY

It is understood that all policies were made uniform in 1935.

I Coverage 'A' provides—"To pay on behalf of the insured all sums which the insured shall become obligated to pay by reason of the liability imposed upon him by law for damages to others for bodily injury, including death at any time resulting therefrom, or for consequential damages consisting of expenses, incurred by a husband, wife, parent, or guardian for medical, nursing hospital, or surgical service in connection with or on account of such bodily injury or death."

Dr Pollock continued. Assume that the physician or hospital should bill the insured for services rendered say sending the bill by registered mail with a return receipt to the insured with a copy thereof to the insurance company and should look to the insured rather than to the patient for payment, would not the insured under Chapter 146 of the Acts of 1925 be liable for the professional or hospital service rendered and would not the insurance company before effecting a settlement see that reasonable bills so rendered were paid?

"Would not the insurance company under its contract with the insurer be liable for such bill?

Mr Wilde, Mr Cavanaugh, and Mr Linscott from the insurance group discussed the above "Uniform Policy" but there was a question of doubt whether this would hold.

Mr Cavanaugh stated that they have a lien in New York City. The medical societies have made an agreement with the insurance companies and are protected in their bills.

Mr Wilde and Mr Linscott felt that on account of the nonexistence of a compulsory insurance law in New York such an agreement could not work in Massachusetts.

The insurance company representatives Mr Linscott, Mr Cavanaugh and Mr Wilde, were convinced that an injustice is being done to physicians and hospitals and this could be remedied without the alternative of having a new law passed, which at times would work out to great disadvantage and incur an unnecessary expense to the insurance companies. They were willing and anxious to get the situation straightened out as soon as possible.

The chairman had hoped that the plan which he had introduced at the previous meeting based on the objections discussed by all concerned and which the insurance companies felt, covered the situation satisfactorily would be adopted but Dr Begg thought it might be better for the insurance companies to present a plan. Then the medical men and hospital executives could take that up and make any suggestions which they felt were necessary.

Mr Linscott said that there were many physicians who caused much trouble by building up cases with lawyers especially where there were no witnesses, and where there actually were no injuries. Such cases cost the insurance companies a great deal of money. Besides, it was absolutely fraudulent. He said that insurance companies had a list of the doctors who were doing such work and he wanted to know whether such doctors could be punished by the medical societies.

Dr Begg informed him that each county society has a Grievance Committee and the Massachusetts Medical Society has a Committee on Ethics and Discipline that when anyone was found guilty by this Committee the case would be referred to the Massachusetts Board of Registration in Medicine which has the power to suspend or revoke the license of physicians who are found guilty.

A question was asked by one of the physicians as to whether insurance companies could be punished if they did certain things which were not ethical. Mr Linscott replied that a committee would be formed by the different insurance companies to take care of such matters.

The chairman inquired of Mr Linscott whether he had a plan he wished to present at this conference, and he said he thought the plan presented by the chairman was a pretty good one.

Mr Cavanaugh who had just arrived from New York to attend this conference wanted a little more time to acquaint himself with the situation in Massachusetts. He had no definite plan at this time.

The chairman then asked Mr Wilde of the Mutual group whether he had a plan. Mr Wilde said as this was the first meeting that he had attended and as he was taking the place of Mr Cronin also of the Liberty Mutual Insurance Co. who could have spoken for the entire Mutual group that he was unable to do so at this time. He spoke however officially for the Liberty Mutual Insurance Company "that we can agree on a gentlemen's agreement, but the Liberty Mutual stands ready to oppose all lien bills. He was not sure about the Cavanaugh lien which is in vogue in New York City. He thought that it probably would not do here in Massachusetts.

He is convinced that the insurance companies are very willing to cooperate with and protect the physicians and hospitals so far as possible and to pay bills direct to them. Of course certain conditions must be fulfilled by the physicians and hospitals:

- 1 Cooperation of physicians and hospitals in giving insurance companies correct information.
- 2 Cooperation of physicians and hospitals for an arrangement for an early examination of patient.
- 3 Reasonable bills should be presented.
- 4 Physicians should not recommend lawyers when patients are anxious and want to settle cases themselves.
- 5 Physicians should discourage and refuse to accept fake cases.
- 6 Physicians should not interfere in the settlement of cases.

Insurance companies would not be able to take care of the following:

- 1 In cases where there is no liability.
- 2 In cases where there is a question of liability and the settlement is made for a small sum for the purpose of getting rid of a nuisance case. The insurance company can notify physicians and hospitals of such settlements in advance.

He suggested getting an affidavit from the patient authorizing the insurance company and the lawyer to pay the physician and hospital direct when the case is settled.

Dr Lund asked the insurance company representative what the percentage of troublesome cases was, that as far as he knew in his years of practice, he has never had any trouble in collecting his bills.

Mr Linscott replied that there were many, but they came from certain sections of the city. He cited the case of one of his employees, a young lady, whose car bumped or was bumped slightly by another car, no one being hurt. Yet later on, one of the dishonest lawyers sued for seven passengers in the other car. The insurance company had to pay a nuisance value for the seven.

It was agreed by the insurance company representatives, the hospital representatives, and the medical representatives that they are anxious to cooperate and come to a gentlemen's agreement, that a little more time should be taken, and that the insurance companies present a plan to be discussed by the medical and hospital group. Then a final meeting should be held for the agreement.

The chairman agreed to withdraw his House Bill 1045 which covers the lien similar to House Bill 1109 as introduced by him last year, except that it contains reservations to cover the objections of the insurance companies to the bill.

The meeting was adjourned until the insurance companies present a definite plan to be ready within a week.

H M LANDESMAN, M D, *Chairman*

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The March meeting of the New England Ophthalmological Society was held at the Massachusetts Eye and Ear Infirmary on March 17, 1936. The first cases were presented by Dr Trygve Gundersen on Corneal Dystrophy. Two cases were shown in which there was a definite corneal haziness of unknown origin, insidious onset, and undetermined classification. It probably represents a hereditary trait and is more closely associated with nodular keratitis than with any other type of corneal dystrophy.

Dr William P Beetham presented a case of sarcoma of the iris. There are two types of this condition: the pigmented and the unpigmented. Of the 100 reported cases about one-fourth are of the non-pigmented type. Some of them start from pigmented nevi; all are considered to be of low grade malignancy. In these cases, the pupil is slightly irregular and dilates poorly in the region of the neoplasm. The use of the slitlamp helps considerably in the diagnosis. Iridectomy may be safely performed if the tumor is small and well localized and if there is good vision in the affected eye. Cases which do not conform to these requirements must have the eye enucleated.

Dr J Heebert Waite spoke on Choroideremia and presented several cases which were at first thought to represent examples of this condition. Each gave a history of gradual onset of night blindness some

years before. Each presented a telescopic field of vision and the fundus showed normal discs and vascular trees with an absence of most of the visible choroid. Each of the three cases shown belonged to the same family. All were markedly myopic, all had vitreous opacities and annular scotomata. Choroideremia is a congenital absence of the choroid and there are about fourteen cases in the literature. Slides of cases of retinitis pigmentosa were shown and the pathology demonstrated. In the latter condition after the epithelium loses its normal pigmentation, a layer of glial tissue is laid down which completely covers the choroid. In the youngest case shown by Dr Waite, there were many areas where the choroid was not entirely covered and, on the basis of this case, he believes that all of the cases are probably retinitis pigmentosa rather than choroideremia as at first suggested.

Dr Harry B Friedgood spoke on "Experimental Exophthalmos." The anatomy of the smooth musculature of the orbit in both animals and man was discussed in detail. In animals there is a cone of smooth muscle surrounding the eyeball with its apex at the base of the orbit. In this cone there is a good deal of elastic tissue. In man there is usually only a small remnant of this cone of smooth muscle. In experimental work it has been shown that this smooth muscle is supplied by sympathetic fibres. Several investigators have shown experimentally that exophthalmos is directly due to the sympathetic stimulation leading to chronic hyperactivity of this smooth muscle cone. A motion picture was shown to demonstrate the effect of stimulation of the sympathetic fibres leading to this muscle, in the case of rabbits. Most investigators who have tried this method of producing exophthalmos in human beings have failed.

Dr Cannon in 1914 succeeded in suturing the phrenic nerve to the peripheral end of the cut cervical sympathetic and thus produced a frequent stimulation of the smooth muscle of the orbit. This caused an exophthalmos to develop. Although it has been very difficult to repeat this experiment because of the technical difficulties involved, it has been done in Dr Cannon's laboratory. Extracts of the anterior pituitary will also produce exophthalmos in guinea pigs when injected over a fairly long period of time. Recently the feeding of a certain species of cabbage has produced this same effect, and it has been found that the chemical compound acetylnitride is the substance in this food responsible for the reaction. The last phenomenon takes place only in immature Dutch rabbits and is inhibited by feeding green vegetables or by cutting the cervical sympathetic or by administering iodine.

After the injection of alkaline extracts of the anterior pituitary body, exophthalmos occurs and the typical changes that take place in the thyroid body in hyperthyroidism may be demonstrated. Certain cases have been observed both experimentally and clinically where patients or animals develop exophthalmos when there is no thyroid present. In animals this may be produced at times by anterior

pituitary extracts after the thyroid has been removed surgically. Dr. Friedgood closed his paper with a plea for more experimental data on this important subject.

Dr. Cannon discussed the paper and emphasized the muscle as being the preëminent factor in causing exophthalmos. He pointed out that stimulation of the cervical sympathetic also causes activity of the anterior pituitary body and of the adrenals.

NEW ENGLAND HEART ASSOCIATION

A clinical meeting of the New England Heart Association was held at the Boston Lying in Hospital on March 23 1936. Dr. Burton E. Hamilton presided.

The first paper on the program was presented by Dr. Arthur T. Hertig who spoke on angiogenesis in the early human placenta. Microscopic sections from some of the earliest known human embryos were demonstrated illustrating the development of venous lacunae in the chorionic villi prior to the formation of continuous blood channels.

Dr. A. Hirschelmer presented a series of lantern slides from photographs of the skin of pregnant women taken with infrared light. These photographs brought out to a striking degree the engorgement of the superficial veins in pregnancy. Marked changes were observed between pregnancy and the puerperium in the superficial vessels of the abdomen and to a lesser extent of the legs. Dr. Hirschelmer also reported observations on changes in the blood volume during pregnancy. Determinations with the Gregerson-Gibson-Stead method showed that the total blood and plasma volumes tend to increase during gestation, reaching a maximum about the ninth lunar month, and returning to the average normal level postpartum.

Dr. Mandel E. Cohen spoke on the velocity of blood flow in normal and abnormal pregnant women. Arm to carotid and crude pulmonary circulation times were studied in a group of normal pregnant women and in pregnant women with heart disease. The values all ranged within the limits of normal nonpregnant individuals. The curve however of the average value for each month of pregnancy showed in both the cardiacs and the normals decrease in circulation time to the fifth month of pregnancy, an increase in the tenth month, a decrease immediately postpartum and then a gradual return to normal. In general, the cardiac values were greater than the normals. The curve of the mean circulation times was seen to correlate in general with that of viscosity and hemoglobin in these patients and to correspond to the cardiac output curve of other observers. No correlation was found between circulation time and pulse vital capacity, venous pressure, arterial pressure or costal angle. The circulation time tests were of no clinical value.

Venous pressure determinations done by the direct method of Moritz and von Tabora were reported on a series of eighty-five pregnant women (thirty-one normals, twenty-one compensated car-

diacs, fourteen decompensated cardiacs and nineteen "toxemics") by Dr. K. J. Thomson. With but one exception, a hypertensive cardiac with toxemia, and congestive heart failure, all of the venous pressure readings were below the upper limit of normal, i.e., 12.0 cm. of water. There was no essential change in venous pressure as pregnancy progressed and none after delivery. The average venous pressure for the normals, the compensated cardiacs and the decompensated cardiacs was in the vicinity of 7.0 cm. of water. The data on the "toxic" group were considered insufficient to warrant conclusions, but from the studies thus far there appeared to be no essential difference between them and the normals. Venous pressure determinations had proved to be not of practical value in the management of the pregnant cardiacs studied.

Dr. Thomson also reported a study of the vital capacity on seventy-six pregnant women (thirty-seven normals, thirty compensated cardiacs and nine decompensated cardiacs). In normal pregnant women the vital capacity is not decreased as pregnancy progresses and probably actually increases or remains essentially unchanged. In thirty of the thirty-seven normal cases studied, the vital capacity was the same or higher antepartum than postpartum. The same changes, though usually less marked, were observed in the group of compensated cardiacs but the average values in them were below those in the normal group. The average vital capacity in the normal group falls within the normal nonpregnant range, the average in the compensated cardiacs falls below the normal nonpregnant range. Three cases are presented who developed cardiac decompensation while being followed at monthly intervals with vital capacity determinations. These patients showed a drop in vital capacity before the onset of clinical heart failure of 20-25 per cent as contrasted with the maximum drop in a normal pregnant woman of 8 per cent and in a compensated cardiac of 7 per cent. The changes in vital capacity in cardiac decompensation in pregnancy are identical with those observed in nonpregnant cardiacs who decompensate. It is concluded that accurate vital capacity determinations made at frequent intervals during pregnancy on the pregnant cardiac may serve as a guide in predicting and diagnosing early heart failure before it is apparent clinically.

The papers of Drs. Cohen and Thomson were the subject of interesting discussion by Dr. C. Sidney Burwell and Dr. Soma Weiss.

Dr. Harold M. Teel presented a series of cases in which severe nonconvulsive toxemia of pregnancy was complicated with sudden seizures of dyspnea accompanied by acute pulmonary edema. The attacks closely resembled severe cardiac asthma. Past histories, follow-up studies and an autopsy indicated that these seizures in some instances complicated simple acute preëclampsia, without antecedent hypertension, valvular heart disease or chronic nephritis. The suggestion is made that the mechanism of acute pulmonary edema in eclampsia may be similar to that in these cases of preëclampsia.

Because of lack of time, two papers on the program were read only by title. These were "Observations on Lead V of the Electrocardiogram in Pregnancy" by Dr. K. J. Thomson and "Causes of Death of Cardiacs in Pregnancy" by Dr. Burton E. Hamilton.

FAULKNER HOSPITAL CLINICAL MEETING

The regular monthly clinical meeting was held at the Faulkner Hospital on Thursday afternoon, April 2.

Of the two cases which were presented for clinical pathological discussion, one was that of a woman, forty-nine years of age, who had used alcohol freely for some years and who had had two cesarian sections and one uterine suspension. The clinical picture was typical of intestinal obstruction and as so often happens, the condition was aggravated by increased amounts of cathartics having been taken by the patient without seeking medical advice. At the autopsy, there was evidence of alcoholic cirrhosis of the liver in the early stages and an intestinal obstruction caused by an adhesive band from the uterus complicated by a volvulus. At the time of the operation general peritonitis was present.

The other case was that of a boy, fifteen years of age, who died of sepsis associated with a streptococcus infection of the larynx and pharynx. The autopsy showed that the death was due to toxins and not to mechanical obstruction, which was feared at one time. For comparison with this specimen of the larynx showing a marked edema and infiltration, there was shown again the specimen of the larynx from the case of laryngeal diphtheria which was reported the preceding month making a very instructive pair of specimens.

Following the presentation of these two cases, Dr. Henry C. Marble showed the final result on two cases which he had presented at one of the meetings two years ago. The first was a boy who had an acute infection in the hip which had been drained. The interesting feature in the case was the marked ability of the young man to adapt himself to a hip joint which was absolutely fixed.

The other case was that of a boy who had had a skin graft from the abdominal wall to the palm of his hand. Although the palm of his hand is now covered with skin which has hair follicles in it the result is very satisfactory. The interesting point is the fact that sensation is present in this large skin graft. Just how the nerves regenerate is one of the interesting features of this type of grafting.

Dr. Marble then presented a case in which he had reconstructed the cut tendons of the hand which had become infected with marked retraction of the ends of the severed tendons.

Finally Dr. Marble emphasized the importance of having patients come to a hospital preferably forty-eight hours before an operation. The Faulkner Hospital has tried to stimulate its surgeons to follow this procedure with only moderate success with some. Dr. Marble feels that the length of stay in

the hospital is not increased by this procedure, and that complications are markedly diminished. He said that the insurance companies in his experience were glad to cooperate in this procedure so far as paying the bills of the patients is concerned.

Dr. Frederic J. Cotton then presented a series of cases in which ankles had been reconstructed following fractures which had healed with marked deformity. If a cartilage persists on the surface of the astragalus a new ankle joint can be produced which is exceedingly satisfactory.

He showed some cases in which the diagnosis of subacromial bursitis had been made, but in which he thought the pain on certain motions was probably due to the prominent greater tuberosity of the humerus. In several of these cases he had removed the prominent greater tuberosity subperiosteally with favorable results so far. The cases have not gone over a long enough period for him to speak positively about the final results.

He then showed x-ray pictures and described the operation of nailing the fragments together in a fractured hip. Apparently this operation does not produce shock. It saves time for the patient and allows motion in bed, and therefore, is a distinct improvement in the handling of fractured hips which, in elderly people, are so apt to result in a fatality from the prolonged and forced rest in bed.

He then, with Dr. Gordon M. Morrison, showed a series of x-rays of foreign bodies in the knees, usually spoken of as osteochondritis dissecans. They called attention to the fact that just what produces this condition is not always known, but they feel sure that one type is due to trauma, and another type is due to an overgrowth of bone around the edge of the cartilage which eventually breaks off and becomes a foreign body. Usually this can be removed by approaching the joint from the front, but they showed one case in which it had become necessary to approach the joint posteriorly. This had been done and the foreign body had been removed by this route successfully.

NEW ENGLAND SOCIETY OF PSYCHIATRY

The annual meeting of the New England Society of Psychiatry was held at the Gardner State Hospital on April 22, 1936. About 175 members of the representative New England States were present. Following a luncheon, served through the courtesy of the hospital, the business meeting was called to order by the president, Dr. Horace G. Ripley, of Vermont. The following physicians were elected to active membership: Maudie M. Burns, M.D., of Middletown, Conn.; Drs. Edwin M. Cole and Merrill Moore of Boston, Mass.; Dr. Salvador Jacobs of Danvers, Mass.; Dr. William J. Johnson, of Wientham, Mass.; Dr. Fernand Longpré of Northampton, Mass.; and Dr. Hosea W. McAdoo of Arlington Heights, Mass.

Officers for the coming year were nominated as follows: President, Dr. Winfred Overholser, Commissioner of Massachusetts Department of Mental

Diseases, Boston Mass. vice-president Dr Chester Waterman, Superintendent Connecticut State Hospital Norwich, Conn. secretary treasurer Dr Harlan L. Paine Superintendent of Grafton State Hospital North Grafton Mass. (retired) councilors Dr Arthur P. Noyes Superintendent of the State Hospital for Mental Diseases Howard Rhode Island and Dr Roderick B. Dexter Superintendent of the Foxboro State Hospital Foxboro Mass.

Announcement of the winners of annual awards for the best papers embodying research in psychiatry completed during the year 1935 was made and awarded as follows: Dr Benjamin Cohen for his paper "Repression and Communicability in Catatonic Stupor" (Staff Grafton State Hospital); Tamara Dembo and Eugenia Hanfmann of Worcester State Hospital for their paper entitled "The Patient's Psychological Situation upon Admission to a Mental Hospital"; and Dr Benjamin Simon Worcester State Hospital and Philip Solomon Boston Psychopathic Hospital for their paper "Multiple Sclerosis".

Dr Abraham Myerson of Boston Mass. was the principal speaker and his subject was "The Nervous System".

HARLAN L. PAINE, M.D., Secretary

SUFFOLK DISTRICT MEDICAL SOCIETY

The Suffolk District Medical Society met March 18 1936, at the Boston Medical Library with Dr C. Wesselschoet presiding. Dr David B. Dill presented the first paper of the evening on the topic "The Laboratory Study of Fatigue." He pointed out that no exact definition of "fatigue" could be given. It involves some sort of upset of equilibrium and physical exertion does not necessarily precede its onset, for as is well known, fatigue may occur when an individual is sitting quietly in a comfortable chair or lying in bed. The rate of onset of fatigue is quite variable as is illustrated by its relatively slow development in the participants of a Marathon as compared with its rapid appearance in men competing in a quarter mile race. One of the changes involved in fatigue is the mobilization and utilization of fuel: first the readily available carbohydrate and subsequently fat. Little is known about the processes involved in the utilization of fat for energy purposes, although it is recognized that the ability of females to do so is much less than that of males: the former developing ketosis after a short period of starvation much more easily than the latter. There is also a great species difference in the ability to utilize fats for energy as is exemplified in dogs, in which animals it has been demonstrated that there is no evidence of acidosis in spite of a loss of 10 per cent of the body weight during prolonged exertion.

In extremely severe exertion the fat cannot be mobilized quickly enough to supply the needed energy and after the exhaustion of available carbohydrate extreme fatigue ensues. It has been shown that administration of glucose by mouth to dogs

performing severe physical exercise practically doubles the length of time that they are able to work before the onset of extreme fatigue. Dr Dill has confirmed these findings in human beings finding that the energy derived from carbohydrate falls progressively during prolonged exertion and that administration of carbohydrate food enables individuals to work longer without fatigue. Injections of adrenalin also served to provide more available glucose for the body's use and caused better utilization of carbohydrates. Following this effect there was no compensatory drop in the respiratory quotient indicating that the secretory activity of the adrenals is of marked importance in the body's resistance of fatigue.

During exercise there is an accumulation of lactic acid in the blood stream but the amount of this substance present in the blood is not an indication of the degree of the body's fatigue. It has been found that recovery from fatigue occurs in two phases: the first, of short duration during which there is only slight decrease in the blood lactic acid, and the second, of long duration with a slow disappearance of lactic acid. Partial recovery from a brief period of anaerobic activity may occur in as short a time as five or six minutes and the individual may again be able to perform work, although elevated levels of lactic acid may persist in the blood for an hour or longer. It is known that the immediate energy for muscular activity comes from the breakdown of phosphocreatin and that this product can be re-synthesized by use of the energy liberated in the formation of lactic acid, from muscle glycogen. It is probable that the first phase of recovery consists in the rebuilding of phosphocreatin at the expense of the formation of more lactic acid and that the second phase represents the more gradual rebuilding of lactic acid into glycogen. It is probable that the physical fitness of an individual is indicated by the rate of accumulation of lactic acid in the blood stream.

After strenuous exercise the acidity of the blood as measured by its pH is markedly increased but due to the rapid elimination of the excess carbonic acid through the lungs this acidity quickly returns to normal after cessation of the exertion.

The acceleration of the heart rate as a result of exercise is much more marked in individuals in poor physical condition than it is in those in good condition. It has also been found that the heart rate is accelerated to a greater degree when a certain amount of work is done in a hot environmental temperature than in a cold atmosphere. Prevention of evaporation or perspiration from the skin causes an extreme acceleration of heart rate in response to bodily activity and causes fatigue to develop much more rapidly than occurs if free evaporation of bodily moisture is allowed.

Dr Arlie V. Bock spoke on "The Clinical Aspects of Fatigue." He emphasized the fact that certain individuals fall into fatigue because of the lack of a rational basis of living. Some of their symptoms of fatigue may be accounted for by an irritable

BOOK REVIEWS

Lactobacillus Acidophilus and Its Therapeutic Application Leo F Rettger, Maurice N Levy, Louis Weinstein and James E Weiss 203 pp New Haven Yale University Press \$2.50

In his book, Rettger and his collaborators present a fairly complete monograph on the subject. For the average medical reader there is little of practical interest that could not have been said in a very few pages. The first chapters of the book are of interest only to the bacteriologist and are controversial in nature regarding the identity of the acidophilus organisms.

In subsequent chapters, therapy is considered in relation to simple constipation, constipation and biliary tract disease, "mucous colitis", and idiopathic ulcerative colitis. These four groups of disturbances are discussed in more or less detail with a small number of illustrative case histories. So far as the discussion of constipation is concerned, it is an excellent one but it is very curious that no mention is made of one of the most important causes of constipation, namely, failure to establish a bowel habit in otherwise normal patients. The results obtained in this group of patients with simple constipation would seem to be satisfactory in many instances and the patients were followed over a sufficient number of months, in some instances as many as twelve to eighteen months, so that the conclusions seem justified. In the consideration of the treatment of constipation in patients with biliary tract disease one finds it difficult to accept the conclusions that the biliary tract symptoms have been relieved by the use of acidophilus cultures. Such symptoms are so frequently difficult of determination and the case histories offer so little evidence of proof in this matter that it hardly seems justifiable to draw conclusions from the few case histories given. So-called mucous colitis is well discussed. A few case reports are given suggesting very strongly that adequate acidophilus therapy may be of benefit in this group. The authors obviously have an adequate conception of the condition inasmuch as they also insist upon proper treatment of the individual who has the irritable colon. The treatment of a few cases of idiopathic ulcerative colitis is discussed and here again there seems to be some benefit from prolonged acidophilus therapy. One can agree heartily with the authors, however, that it is unwise to accept without question the permanency of favorable results from this form of treatment in view of the characteristic tendency of the disease to have relapses and remissions.

One important point that the authors make is that, when acidophilus therapy is to be attempted, the cultures should be of such a standard that they are viable and the organisms are sufficiently concentrated to produce results. In addition, they insist upon the necessity of prolonged treatment before expecting anything like lasting results.

For practitioners the book is altogether too tech-

nical for general interest and for the average reader it could have been made much shorter by avoiding many controversial points. The clinical results are of interest but do not cover a sufficient number of cases to be absolutely convincing. The book should be of interest to those who are particularly concerned in this phase of therapy and it is evident that the authors have attempted an honest and thorough study of the value of this particular form of treatment.

Emotions and Bodily Changes. A survey of literature on psychosomatic interrelationships 1910-1933 H Flanders Dunbar 595 pp New York Columbia University Press \$5.00

As the title suggests this extensive survey of nearly six hundred pages deals with the vast and rapidly growing bibliography upon the interrelationship of mind and body. It is well conceived and well executed, and also well indexed as to subjects and authors.

This book adds weighty and important evidence that the old argument over somatic or psychic must be replaced by the present day attitude, *how much* somatic and *how much* psychic, as the constant interrelationship between the two cannot be denied.

Puerperal Gynecology J L Bubis 199 pp Baltimore William Wood & Company \$3.50

In this book Dr Bubis advocates delayed or immediate repair of old as well as of new birth injuries after delivery. There can be no question of the advantage and advisability of repairing fresh injuries. There can also be no question as to the desirability of having these repairs performed by an obstetrician who is at the same time a trained gynecologic surgeon. When it comes to the radical advocacy of extensive repairs of old lesions, such as operations for cystocele, amputation of the cervix, hemorrhoidectomy, etc., one may well hesitate to follow him. Bubis's argument in favor of his procedure is chiefly an economic one. That being the case it is imperative that he be able to show that the procedures which he employs are free from risk. His figures, which for the most part are from statistics collected prior to 1930, do not seem to substantiate this claim. Out of 1353 cases, whose records are classified in considerable detail, forty six per cent showed some complication, sixteen per cent were admittedly due to the gynoplastic repairs and ten per cent were not so caused, the balance, or nineteen per cent showed "postoperative reactions," a term which is not accurately defined. There were four deaths, at least two of which could be directly attributed to the operative interference. It does not seem to the reviewer that the author's case has been proved. Adding the morbidity of the obstetric work to the morbidity of secondary repairs to be done at a sufficient interval of time postpartum, the total would be far lower than that reported.

The New England Journal of Medicine

VOLUME 214

MAY 7 1936

NUMBER 19

WHAT WE HAVE LEARNED FROM THE TOAD CONCERNING HYPOPHYSAL FUNCTIONS*

BY BERNARDO A. HOUSSEY, M.D. §

THERE are three reasons which justify the dedication of my first lecture to such a humble living creature as the toad (1) because more than twenty five years ago my first publication in *Physiology* was on the pituitary of amphibians, (2) because the toad is the species in which the largest number of functions related to the pituitary has been found and studied, and (3) because hormonal actions are not species specific, but have a fundamental similarity throughout the vertebrate series.

To these reasons others may be added which justify the use of this animal, as I can well appreciate after experimenting on more than 15 000 toads of the species *Bufo arenarum* Hensell. Such are, its abundance and cheapness, its resistance to trauma, the facility of operative techniques, the great number and clarity of the symptoms of pituitary insufficiency, the rapidity and intensity of the reaction to implantation of any of the lobes of the pituitary and the possibility of making experiments and obtaining proofs more easily and in larger numbers than with any other animal. For these reasons we have preferred to employ the toad rather than the frog, *Leptodactylus ocellatus* (L.) Gir common to our country, which we studied in 1910 1916 and in 1924 but which is much less resistant ‡

Let us remember that the amphibian pituitary consists of four parts ^{17 18 40 42} (Figs. 1 and 2)

- (1) The principal lobe (distal chromophile or *pars glandularis*) which corresponds to the anterior lobe of the mammalian pituitary but which lies posteriorly in amphibians
- (2) Intermediate part (proximal or chromophobe, *pars intermedia*)
- (3) Neural part (nervous or neurohypophysis, *pars nervosa*)
- (4) Tuberal part (*pars tuberalis*) which however we have not been able to identify in *Bufo arenarum* Hensell

§Dunham Lecture of Liverpool November 23 1925 at the Henry Ford Medical School.

In the first works we published we called this toad *Bufo marinus* but since 1929 we have corrected this zoological error. We have observed with only slight differences symptoms generally analogous in *Leptodactylus ocellatus* (L.) Gir (Houssey and Ungar '34) *Bufo marinus* *Bufo paracnemid* *Bufo dorsalis* *Craetaphys ornata* *Hyla* sp. etc.

§Houssey Bernardo A.—Professor of Physiology Faculty of Medical Sciences, University of Buenos Aires 1915. For record and address of author see "This Week's Issue" page 246

The intermediate and neural parts are closely united forming a lobe which is equivalent to the posterior lobe in mammals, although here it is anterior and may be called the *intermediateur*

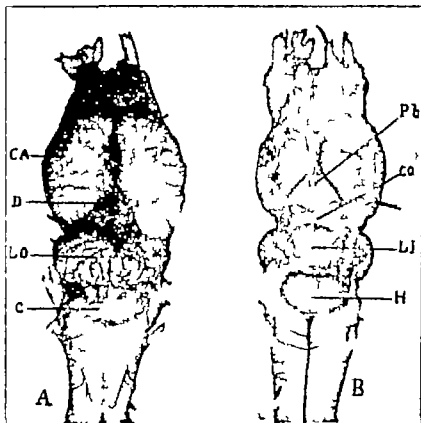


FIG 1 Brain of *Bufo arenarum* (Hensell)

A—Dorsal view: CA Anterior cerebrum (Hemispheres)
D Dienecephalon (thalamus plus)
Lo Optic lobes
C Cerebellum

B—Ventral view: Pb Basalis of Lamina terminalis
Co Optic chiasm
Lj Lobus infundibularis
H Principal lobe of the infundibular region

lobe The principal lobe can readily be extirpated whole, if afterwards the neuro-intermediate part is extirpated the hypophysectomy is total. The pituitary is situated caudo ventral to the infundibular lobe of the brain. The latter is a prolongation of the hypothalamus behind the optic chiasm and may be designated as the *infundibulotuberal region*

The functions of the pituitary and of the tuberal region are studied by producing lesions or by implantations. The following techniques were systematically applied to the study of each function (1) Trans-sphenoidal extirpation of the principal lobe only or of the entire pituitary ^{16 17 18} (2) Puncture with a needle or cauterization of the infundibulotuberal region

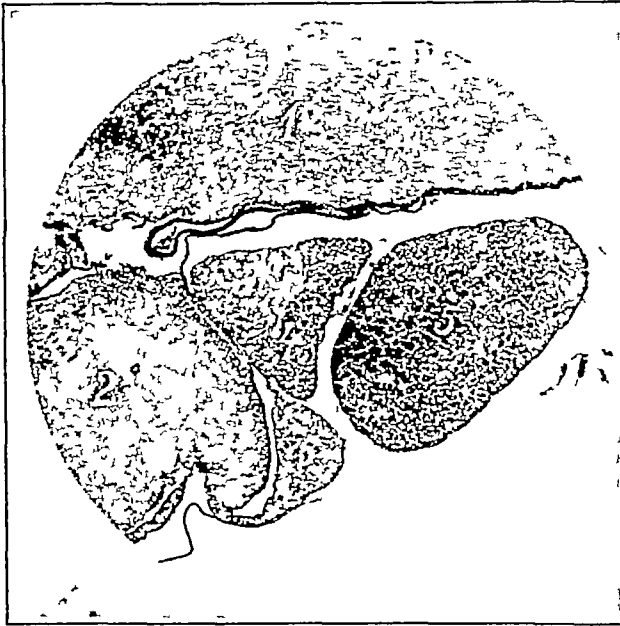
either posterior or anterior to the optic chiasm*. For cauterization a hot needle or the galvanocautery was used (3) Subcutaneous implantation of the entire toad pituitary, or of the principal and neuro-intermediate lobes separately

*The supra optic nucleus is situated deeply in front of the chiasm. It is fairly large and sends fibres to the pituitary (Greving 1928 Scharrer 1934 Carrillo, unpublished)

(4) Injection, separately, of extracts of the same lobes or of extracts of the anterior, neural or intermediate parts of mammalian or other vertebrate pituitaries

The symptoms which can be observed in the toad are referable to the following systems and processes: the skin, the genitalia, the circulatory system, the endocrine system, the neuromuscular system, gaseous exchange, nitrogen, carbohydrate and water metabolism, sensitivity to poisons, rate of mortality, etc. These have all been studied in our Institute and the results published in more than eighty papers*

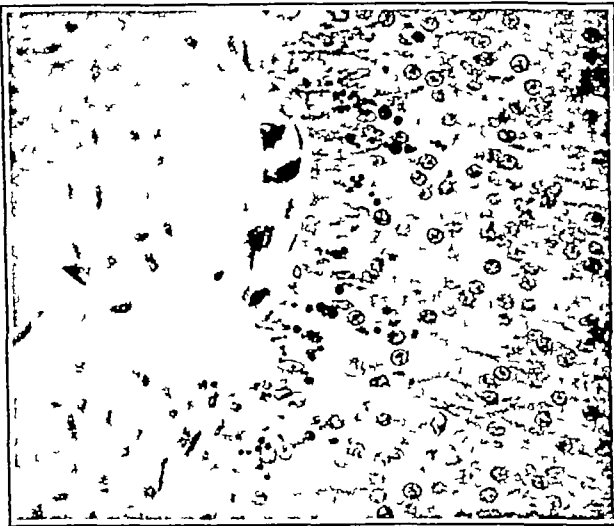
*For previously published summaries of this work see references 25 35 37



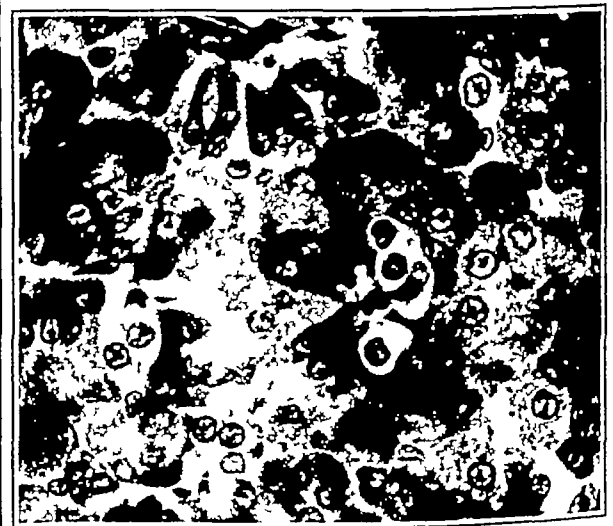
A



B



C



D

FIG. 2. A. Microphotograph of the mid sagittal section through the hypophysis of the frog *Leptodactylus ocellatus* (L.). 1. Base of the brain. 2 and 6. Lobus infundibularis. 3. Pars nervosa. 4. Pars intermedia. 5. Pars principalis.
B. Microphotograph of a section through the pars neuro-intermedia of the hypophysis of a toad 70 days after extirpation of the principal lobe.
C. Microphotograph at high magnification of a section through the pars nervosa (left) and pars intermedia (right) of the hypophysis of a toad to show colloid droplets.
D. Microphotograph of a section showing the chromophilic and chromophobic cells in the pars principalis of the hypophysis of the toad.

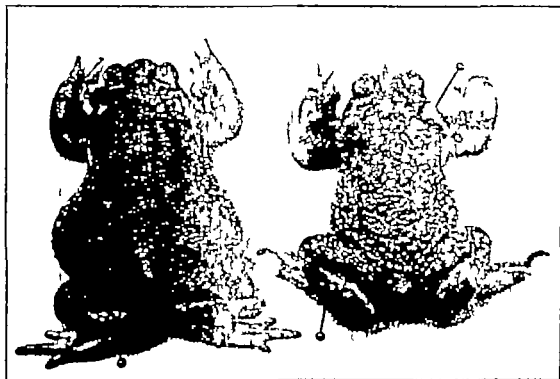
The syndromes which have so far been described may be classified in four large groups according to their etiology (1) pituitary insufficiency, (2) pituitary hyperactivity, (3) infundibulotuberal syndromes, (4) infundibulohypophyseal syndromes.

PITUITARY INSUFFICIENCY

Insufficiency of the intermedioneural lobe

These symptoms become manifest within a few minutes or hours after total hypophysectomy. They do not occur if only the principal lobe is extirpated or with lesions of the Lobus infundibularis of the brain. The implantation or in-

33 per cent. It is rare and transient after tubular lesions. It can be arrested by injection of toad neuro-intermediate lobe or mammalian posterior lobe. The polyuria is of renal origin as it is not observed in toads unless they are immersed in water. Absorption of water by the skin⁷⁷ is performed at the same rate in nephrectomized toads and in those with ureters tied, whether they be hypophysectomized or normal controls. The recent experiments of Pasqualini have induced the writer to abandon the belief that the polyuria is a tubular symptom. (c) *Fall in arterial pressure*⁷⁸ If the whole gland is removed this is rapid, intense and pro-



A

FIG. 3.

B

Unretouched photographs of toads. A. Injected with bovine posterior lobe, showing the dark color due to the expansion of melanophores. B. Hypophysectomized, showing the typical cutaneous pallor.

jection of either lobe will correct the disorders, but the neuro-intermediate lobe is the most active. The symptoms are

(a) *Cutaneous pallor*^{78, 79} due to contraction of the melanophores and expansion of the xanthophores. (Fig. 3) This pallor disappears on injection of extracts of the toad's intermedioneural lobe, or of extracts of the neural or of the intermediate parts of the mammalian pituitary. Of the last two the second is the more active. Extracts of the anterior lobe of the mammal, or of the principal lobe of the toad can produce darkening but are much less active and in the case of the toad extract seven times less potent than the neuro-intermediate lobe extract.⁸⁰

(b) *Polyuria*^{78, 79} This is intense and persistent in 70 per cent of toads after total hypophysectomy. After removal of the principal lobe alone it is less frequent, occurring in only

progressive. The fall begins within a few hours after operation and continues progressively from 30 mm of mercury to 24 mm. in a week and 17 mm in a month. Extirpation of the principal lobe alone does not cause this hypotension, although a slight fall of blood pressure appears later on when asthenia develops. There is no fall of blood pressure with lesions limited to the infundibulotuberal region. The injection of neuro-intermediate or of glandular lobe causes the blood pressure to rise the glandular lobe being less active.^{77, 78, 79} Although the total amount of blood is almost the same in hypophysectomized toads as in the normal controls less can be obtained by bleeding the former because it remains in the blood vessels. The circulating blood has fewer red blood corpuscles (Varela and Sellares, 1934, Parodi unpublished), and there is leucopenia with a decrease of the polymorphonuclear cells and of the monocytes (Varela and Sellares 1934).

(d) *Dilatation of the capillaries*^{78, 79} This can

⁷⁷ Alken has shown that only the pars intermedia is active in other species of amphibia.

always be observed in the skin when the entire pituitary is extirpated but it is less constant and intense when the principal lobe alone is removed or the *Lobus infundibularis* of the brain injured

Insufficiency of the principal lobe

Following the extirpation of the principal lobe only (which corresponds to the anterior pituitary of mammals) characteristic symptoms slowly develop. These symptoms appear slightly more rapidly after removal of the whole pituitary, but they do not occur after simple lesions of the *Lobus infundibularis*. The morphogenetic and sexual symptoms are compensated only by administration of the principal lobe, the metabolic and general symptoms by both lobes, though the principal lobe is always more active

I Morphogenetic and endocrine regulatory functions

(e) Retardation and cessation of growth have been described in other amphibians by Allen (1916), Smith and others, but we have not studied this point in *Bufo arenarum* et al

(f) The thyroid epithelium shows signs of atrophy^{58 59}. It becomes flattened, the vesicles very large and the colloid homogeneous and readily stainable (see fig 11)

(g) We have not been able to confirm with certainty the atrophy of the adrenal cortex seen by Smith (1920) in tadpoles, the medullary part is not altered and its adrenalin content is not lowered⁴⁷

II Sexual and reproductive functions

(h) Testicular atrophy^{13 18 30 37 40 41}. The testes weigh less than in the controls, and there is atrophy of the seminiferous epithelium and interstitial tissue. There is no compensatory hypertrophy after subtotal castration²⁰

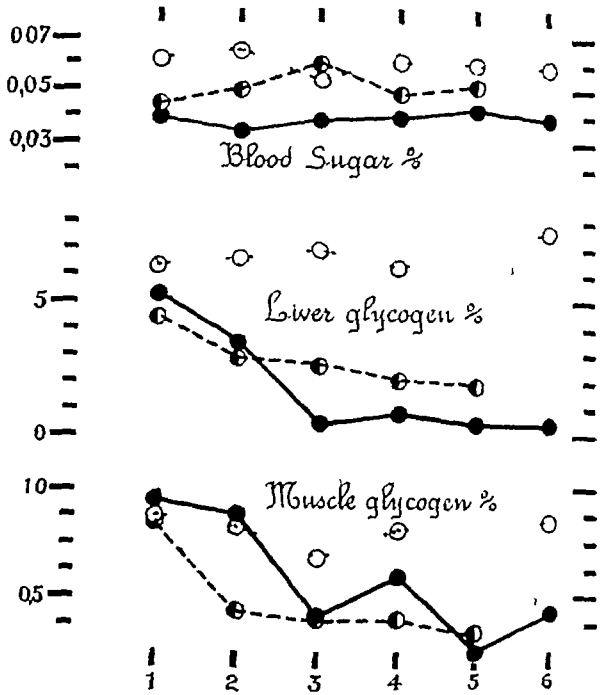


FIG 4
Chart showing the effect of removal of the principal lobe of the hypophysis (broken and solid lines) in the toad on the concentration of blood sugar liver and muscle glycogen as compared with normal controls (dotted lines)

(i) Atrophy of Bidder's organ^{41 43}, occurs both in castrated animals and in those with intact sex glands, and there is no compensatory hypertrophy in the castrates

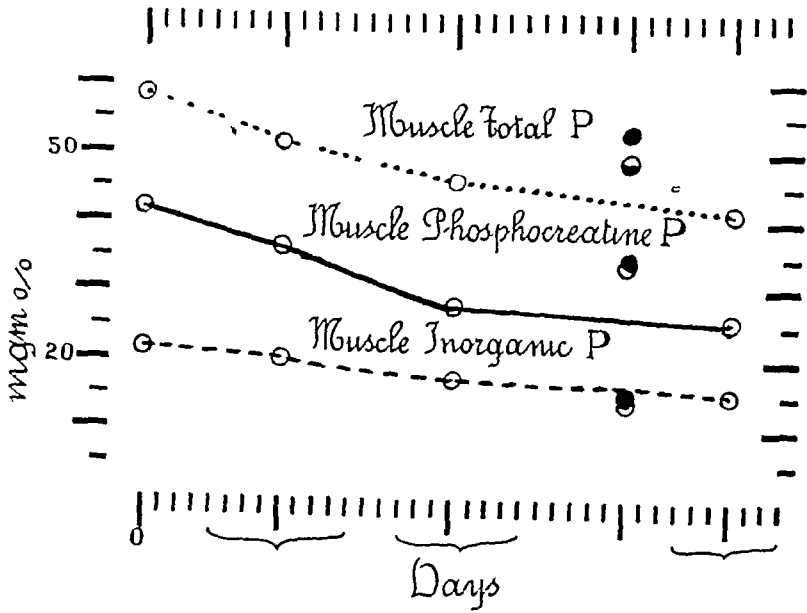


FIG 5
Chart showing decrease in the total phosphorus phosphocreatine phosphorus and inorganic phosphorus in the muscles of the toad following removal of the principal lobe of the hypophysis

(j) Ovulation* fails to occur even in the mating season and with the normal sexual stimulation, namely the sexual embrace

III Metabolic functions

(k) The consumption of oxygen does not diminish until asthenia is marked

(l) The concentration of blood sugar and the glycogen content of the liver^{27 34 48} and heart⁴⁹ are progressively lowered. Later the muscle glycogen also decreases^{27 34 48} (Fig. 4.)

(m) Phosphocreatine and glutathione in muscle^{40 42} (figs. 5 and 6) and the glutathione of

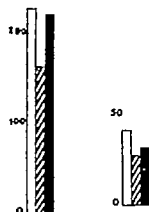
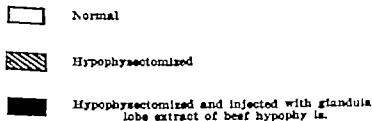


FIG. 5.

Chart showing the decrease in glutathione in the muscle of the toad following removal of the principal lobe of the hypophysis and its restitution by injection of bovine glandular (anterior) lobe



See reference 25. Further proof of this, however, is necessary.

*Data obtained by Artundo published by Houssey and Gust.

the liver are diminished. The basal lactic acid⁴¹ is normal, but during muscular activity it increases less than in the controls.

(n) The hyperglycemia following injection of adrenalin or morphine are less marked than in the controls.³²

(o) Pancreatic diabetes, which is intense in the controls, is less severe and may even fail to appear.^{5 7 8 29 30 31 45 *}

(p) Phlorhizin glycosuria is less marked and may not occur.¹¹ However, hypoglycemia and convulsions develop and there is a high mortality.

(q) Sensitivity to the hypoglycemic and toxic actions of insulin^{48 50} is marked, whereas sensitivity to other toxins is not changed.¹⁷

Orlitz⁴⁶ has observed the same phenomenon in the fish *Musculus casalis* and Houssey and Blasotti⁴⁷ in other amphibia and reptiles.



FIG. 7



FIG. 7

Figs. 7 A and B are untouched photographs showing the state of *Galeosoma hypophyseotomus* in the toad after removal of the principal lobe of the hypophysis. A. The earliest symptom: inability to remain in the normal posture when laid upon its back. B. Typical posture at a later stage.

(r) Lowered elimination of *urinary nitrogen* during fasting has been observed. It may be 30 per cent less than in the controls⁶

IV *General symptoms, probably metabolic*

(s) There is great sensitivity to slight *operations* and *traumata*, and the mortality rate is high^{2 25 29 50 72}

(t) Marked *neuromuscular asthenia* appears, which is progressive and finally fatal^{9 14 15 16 17 18 24 25 35 36 76} (Fig 7) This commences fifteen to twenty-five days after operation, the first

symptom being the inability of the toad to turn over when placed on its back. Later there is slowness of movement and progressively increasing weakness. Convulsions occur in 5 to 10 per cent of the cases. The mortality is highest during the fourth to the seventh weeks, and very few animals live as long as three to five months. When the asthenia begins there is



A



B



C



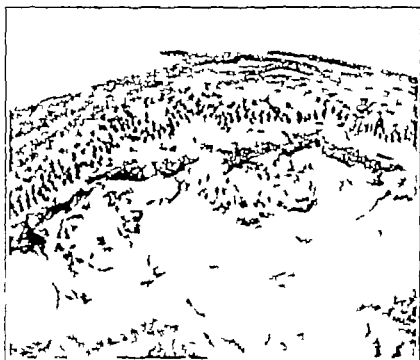
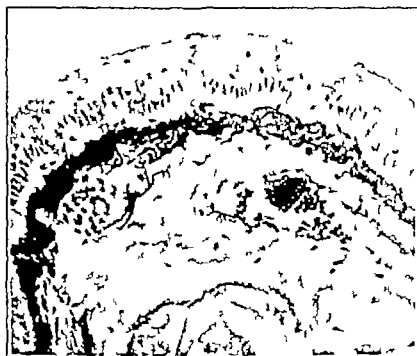
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FIG 8
Unretouched photographs showing the hyperkeratinization in hypophysectomized toads. A and B Dorsal and ventral views of normal toads (female). C and D Dorsal and ventral views of hypophysectomized toads (female).

diminished excitability of the sensory reflexes, but the chronaxie of the nerve and muscle continues unaltered.²⁰

(u) *Cutaneous hyperkeratinization* There is formation of a thick horny layer which adherent to the skin.^{2, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28} The skin becomes covered by a dark brown or bronze cuticle, due to an exaggerated production and a failure of normal desquamation of the horny layers.^{1, 2} (Figs. 8 and 9)

Symptoms j, m, n p q, appear immediately after operation, u m three to eight days and l t v and w m from fifteen to twenty five days. All these symptoms, particularly the metabolic and general ones, can be prevented or corrected by the implantation of the principal lobe of the toad or of mammalian anterior lobe.* The sexual modifications are only influenced by the toad pituitary and to a lesser extent by that of other amphibians †



A

B

FIG. 9

Microphotographs of the skin of a normal toad, A, as contrasted with that of a hypophysectomized toad B. Note the thick cuticle of the latter melanophores.

of a normal toad, A, as contrasted with that of a hypophysectomized toad B. Note the contracted state of the

(v) The *cutaneous secretions* are greatly diminished.^{1, 2}

(w) There is slowing of the *heart*, decrease of its glycogen content and rise in its chronaxie.^{10, 19} After some time in a few of the toads the cardiomodulating action of the vagus is diminished, or may even be totally suppressed.^{20, 24}

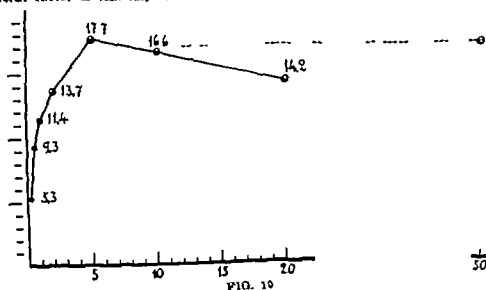
Evidence for the central origin of the asthenia is furnished by the facts that the first indications of this syndrome are alterations of the postural reflexes and reflex excitability and also that there may be convulsions. Further the motor nerve and muscle excitability is not affected until later and then only slightly. The peripheral factor is less important.^{20, 24}

PITUITARY HYPERACTIVITY

This is brought about by implantation of either lobe or by injection of toad pituitary extracts or extracts of mammalian pituitary. In general these symptoms are the opposite of those of pituitary insufficiency.

*The thyrotrophic function of the latter is doubtful and the sexual is absent in the toad.

†Although other amphibians respond to the sexual action of principle of mammalian pituitary this toad is unaffected, a fact which up to now has remained without satisfactory explanation.



Graphic representation of the increase in weight of toads injected with graded doses of dry bovine posterior lobe. Ordinate, percentage increase in weight. Abcissa, milligram of dry bovine posterior lobe injected.

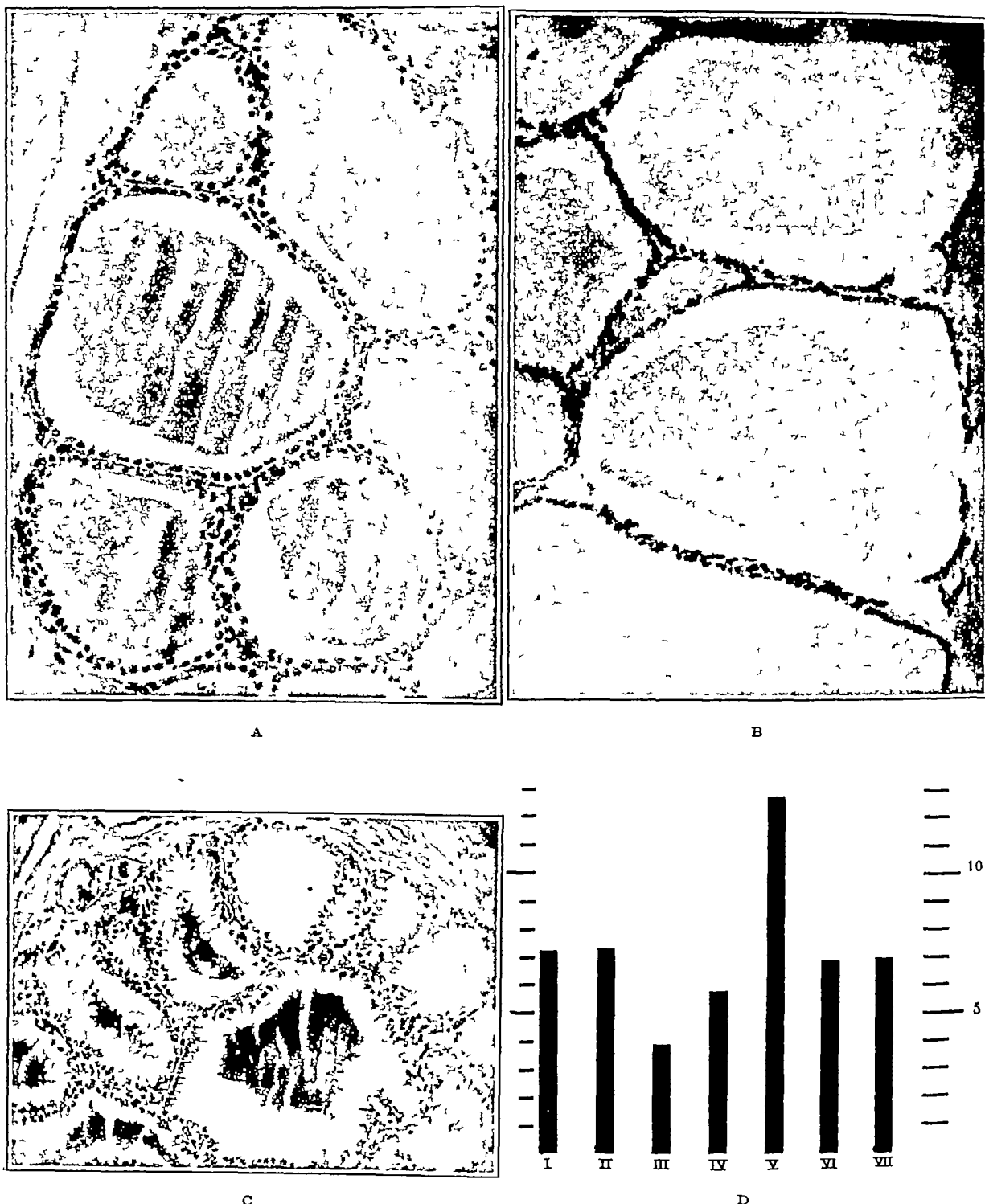
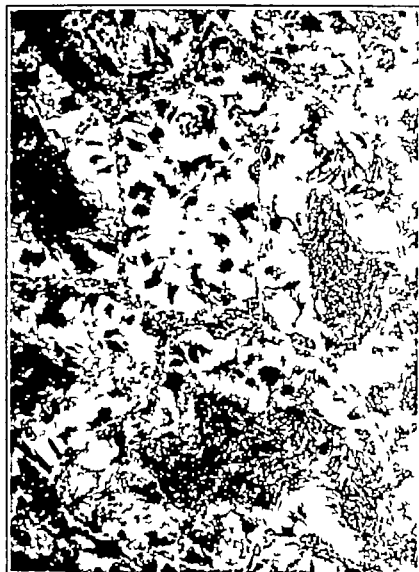
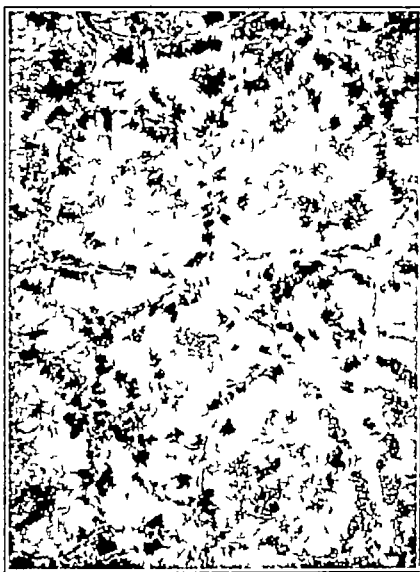


FIG 11

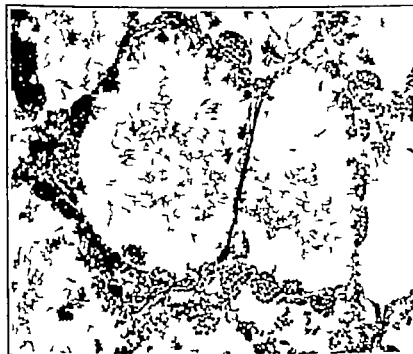
- A. Microphotograph of a section through the thyroid of a normal toad
 B. Microphotograph of a section through the thyroid of a hypophysectomized toad.
 C. Microphotograph of a section through the thyroid of a toad which had received implantation of the principal lobe of the hypophysis
 D. Graphic representation of the height of the thyroid epithelium in toads under different experimental conditions
 I. Normal II. Craniotomized. III. Hypophysectomized IV. Following cauterization of the tuber V. Following implantation of principal lobe. VI. Following implantation of neuro intermedial lobe VII. Following implantation of other organs



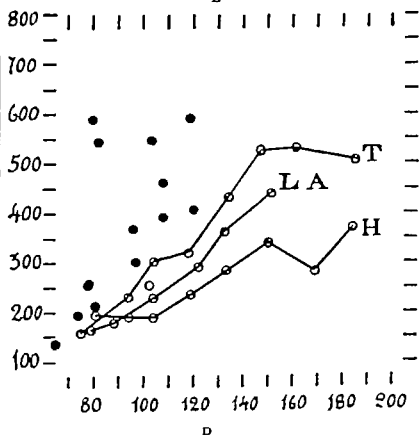
A



B



C



D

FIG. 1.

- A. Microphotograph of a section through the testis of a normal toad.
 B. Microphotograph of a section through the testis of a hypophysectomized toad.
 C. Microphotograph of a section through the testis of a toad which had received implantation of the principal lobe of the hypophysis.
 D. Graphic representation of the weight in mgms. of the principal lobe (ordinate) compared with the body weight in Gms. of toads (abscissa) under different experimental conditions.
 T. Normal.
 L A. Without principal lobe.
 H. Hypophysectomized.
 Solid dots. Implanted with principal lobe.

Hyperactivity of the neuro-intermediate lobe

This occurs with administration of the neuro-intermediate lobe of the toad or of the posterior mammalian lobe

(a) There is *darkening of the skin*^{14 15 16 20 25 35 36 37 51 52 53 54 85} due to expansion of the melanophores, the principal lobe and the anterior mammalian lobe have a similar action which lasts a long time but is less intense

(b) *Oliguria* with or without increase of weight^{50 72} With small doses varying degrees of oliguria are produced, but with large doses there is complete anuria which lasts five to six hours Increase in weight occurs in the latter cases and may be considerable (fig 10), with interstitial, peritoneal and subcutaneous edema^{5 35 36 37 67 72}

(c) The *rise in blood pressure* is marked in hypophysectomized animals with initial low blood pressure, but less so in normal animals The neuro-intermediate (or mammalian posterior lobe) is more active than the principal lobe The blood of the normal toad when injected into hypophysectomized toads causes a higher rise in blood pressure than the blood of hypophysectomized toads similarly injected (Neubach, unpublished)

(d) *Contraction of the Capillaries*¹¹ of the skin may be produced by a large dose, if the vessels were previously dilated

Hyperactivity of the principal lobe

This can be produced by implantation of the glandular lobe, which is the only one that has morphogenetic effects and effects on other endocrine glands The metabolic and a few other general symptoms can also be obtained to a certain extent, but in a less marked degree, by implantation of the neuro-intermediate lobe

1 *Morphogenesis and regulation of endocrine glands*

(e) *Acceleration of growth* has been observed in the larval form of other Anura by Allen, Smith, etc., we have not studied it in *Bufo arenarum*

(f) *Hyperplasia and hyperactivity of the thyroid*^{58 59} are revealed by the state of the epithelium (Fig 11) The cells become high columnar in type and there is vacuolization and reabsorption of the colloid

(g) *Stimulation of the adrenals* has been seen by Smith in tadpoles, but has not been confirmed in this toad

2 *Sexual and reproductive functions*

(h) *Hypertrophy of the testes*^{23 35 36 40 41} occurs in normal and hypophysectomized animals The testes increase in weight, the seminal canals are dilated by fluid containing free spermatozoa, there is hypertrophy of the seminiferous epithelium and of the interstitial tissue

(Fig 12) The sexual embrace reflex appears out of season, even when the tuber is destroyed, and in immature animals precocious puberty takes place

(i) *Hypertrophy of Bidder's organ*^{41 43} occurs in normal and hypophysectomized animals, particularly in castrates It can be definitely stated that Bidder's organ cannot be transformed into ovarian tissue unless the pituitary is present (See II, 1, Atrophy of Bidder's organ)

(j) *Ovulation and expulsion of the ova*^{32 35 36 37 40 53 66} occur in one to three days Observations were made by us (loc cit) independently of those of Wolf This phenomenon also takes place in the absence of various organs* and of the larger part of the brain (See Infundibulohypophyseal symptoms)

3 *Metabolic functions*

The metabolic functions are only slightly affected in normal animals but much more so in the hypophysectomized

(k) The *respiratory metabolism* does not change

(l) There is *rise in blood sugar and hepatic glycogen*, also in *muscular*^{27 34 48} and *cardiac*^{10 70} glycogen

(m) The *hyperglycemia produced by morphin and adrenalin* is more pronounced³³

(n) There is a marked *increase in pancreatic diabetes*^{5 28 29 30 32 42} particularly in the hypophysectomized toads and in those with infundibulotuberal lesions In this reaction the liver plays an indispensable rôle (Campos and collaborators), but certain other viscera, namely the forebrain, the midbrain, the intermediate brain and the adrenals do not In toads with intact pancreas no diabetogenic activity can be obtained, even when forty lobes are implanted³¹

(o) *Phlorhizin glycosuria* is increased¹¹

(p) The *hypoglycemic and the toxic effects of insulin* are reduced both in normal and hypophysectomized animals^{40 50}

(q) Increased *elimination of nitrogen* occurs in the hypophysectomized toads²⁷

4 *General symptoms (probably metabolic)*

These can only be produced to a slight degree in normal animals, but they are very marked in the hypophysectomized

(r) *Operations are well tolerated*^{2 23 26 50 72} by the hypophysectomized toads

(s) *Asthenia* which follows hypophysectomy is prevented or cured^{2 9 24 35 73} The animals recover or, if treated early, maintain their agility and do not die Sometimes it is possible to effect a cure even after convulsions have set in

*The gonadotropic action of the principal lobe is not modified either in thyroidectomized or castrated animals^{43 44} There is also a gonadotropic action in fishes and reptiles²²

(t) The formation of a horny cuticle¹⁰ by the hypophysectomized toads is prevented, or if already formed, this cuticle is shed. Thus the principal lobe of the pituitary may be said to regulate the shedding of the skin.

(u) Cutaneous secretion, which is scarce in the hypophysectomized toads, is restored to normality or its diminution may be prevented.

(v) It is possible to prevent or correct the bradycardia, the fall in cardiac glycogen, the decrease in cardiac chronaxie¹⁰ as well as the ineffectiveness of the vagus which follows hypophysectomy.

INFUNDIBULOTUBERAL (DIENCEPHALIC) SYMPTOMS

There is only one symptom* referable to lesions which are limited to the diencephalon. This is the sexual embrace^{26, 27} which occurs in a large number of male toads when the infundibulotuberal region is cauterized.

INFUNDIBULOHYPOPHYSIAL (DIENCEPHALOHYPOPHYSIAL) SYMPTOMS

If the *Lobus infundibularis*† is injured see

Originally we thought ovulation, polyuria and the fall of a thick horny layer were diencephalic symptoms (see infundibulohypophysial symptoms).

Anatomy and vascularization described by Houssay, L. and Sammartino.²⁸

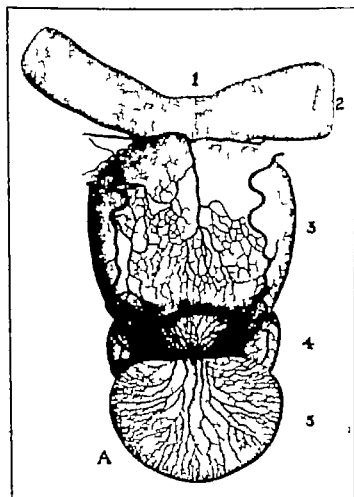


FIG. 13

Drawing and diagram of the vascular supply of the hypophysis of the toad.

- A—(1) Pars basalis of the Pars terminalis.
(2) Chiasma n. optici (optic chiasm).
(3) Lobus infundibularis.
(4) Neuro-int. medial lobe of the Hypophysis.
(5) Principal lobe of the Hypophysis.

- B—(1) Cereb. ant. carotid.
(2) Anterior brain h.
(3) Posterior brain h.
(4) Retrochiasmatic branch.
(5) Infundibular branches.
(6) Retroinfundibular communicating b. n. h. (anastomosis).
(7) Communicating branch to the vertebral artery.
(8) Vertebral artery.

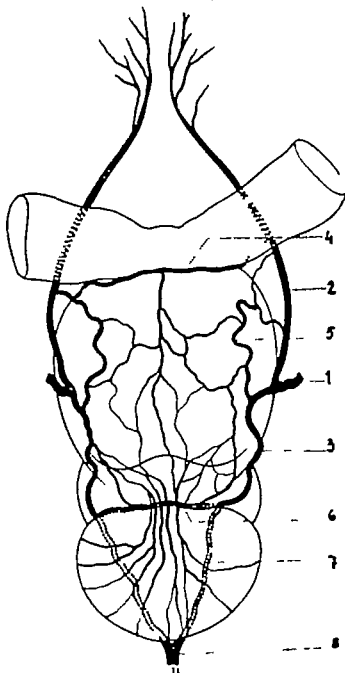
Secondary alterations occur in the pituitary. First the circulation on its ventral surface stops and later a central infarct develops in the principal lobe (Figs 13 and 14). This reaches its maximum in seven days, lasts some eleven to seven teen days and finally the lobe regenerates in twenty five to thirty five days, the chromophobe cells appearing earlier than the chromophile cells.^{27, 3, 35, 37}

As a result there is an early stage of increased reabsorption of glandular products followed by a later stage of prolonged inhibition of the pituitary functions ‡.

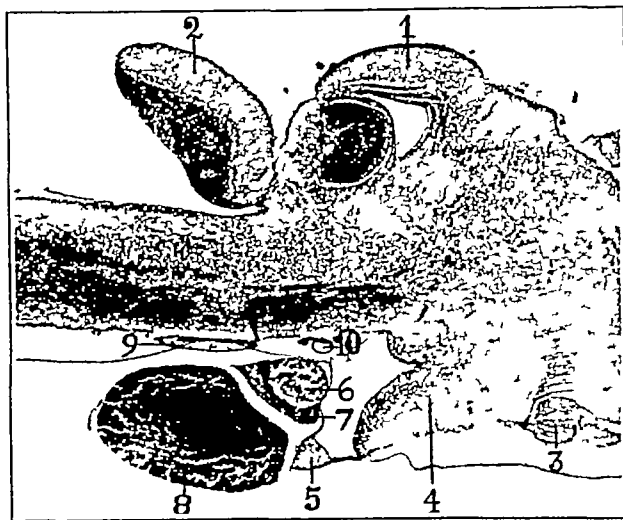
The initial increase in reabsorption is characterized by

(a) Transient darkening of the skin^{16, 28, 35, 37} lasting one to three days which does not occur if the neuro-intermediate lobe is absent.

‡The same is observed in the dog (Houssay, Davis, etc.).



(b) *Ovulation and expulsion of the ova*,^{14 15 16} which is observed in 20 to 80 per cent of the females, but not if the principal lobe is absent^{36 37}



A



B

FIG 14

Median section of the brain of *Bufo arenarum* (Hensell)
(Magnification $\times 15$)

A—Normal

- (1) Optic lobes
- (2) Cerebellum
- (3) Optic chiasm
- (4) Infundibular lobes
- (5) Their posterior extension
- (6) Pars nervosa of Hypophysis
- (7) Pars intermedia
- (8) Pars glandularis (principal or chromophile lobe)
- (9) Branch of the posterior cerebral artery that joins the basilar
- (10) Transverse retrolinfundibular artery

B—Following cauterization of the infundibular lobes and tuber cinereum

The lobus infundibularis the base of the mesencephalon and the anterior part of the crura cerebri are involved

(c) *Polyuria*^{35 36 37 38 72} which is transient and inconstant and is due to neuro-intermediate insufficiency

The functional inhibition of the principal lobe is characterized by

(d) *Thickening and adherence of the horny layer of the skin*^{1 2 14, 15 16 28 32 35 37 76} which is observed in 15 to 60 per cent of the cases and which may be corrected by administration of principal lobe extract

(e) *Inhibition of pancreatic or phlorhizum diabetes*,^{27 28 32} which is usually slightly less intense than in the hypophysectomized animals. When implanted these pituitaries have the usual diabetogenic activity, and their gonadotropic effect is only slightly diminished, but *in situ* they do not function normally

Apart from these outstanding symptoms others which are less marked can be observed. Among these may be mentioned asthemia, which is rare, occurring only in 10 to 15 per cent of the cases;²⁴ a slight flattening of the thyroid epithelium,²⁸ a slight but inconstant fall in blood sugar,⁴⁸ and a slightly irregular arterial blood pressure which may be above or below normal.^{17 39 69} The heart,⁷⁰ the testes,⁴¹ the hemoglobin content of the blood,⁷¹ and the liver glycogen^{48 49} are normal

PITUITARY HORMONES

Although the actual hormones have not been isolated, nevertheless on the basis of an analysis of the symptoms of insufficiency and hyperactivity and the effects of restitution, it can be considered probable that hormones, with actions as listed below, exist

The neuro-intermediate lobe possesses in larger proportion than does the principal lobe melanophore dilator, arteriole and capillary constrictor,^{50 72} oliguric, water metabolic^{50 72} and oxytocic* actions, and in lesser degree than does the principal lobe a regulatory action on carbohydrate metabolism.^{5 7 28 29 30 32 45†}

The principal lobe alone^{2 70} possesses gonadotropic,^{2 9 24 25 35 36 40 41 43 76} thyrotropic,^{58 59} growth stimulatory and cutaneous actions. In common with the other lobe, but to a much greater degree, it possesses a regulatory action on carbohydrate metabolism^{5 7 28 29 30 32 45†} and to a lesser degree it acts on the melanophores, the small vessels, the excretion of urine and the metabolism of water

SUMMARY

In the toad the pituitary is a most important organ, as it controls functions which are necessary for the maintenance of the life of the in-

*Houssay, Gluski and Lascano-Gonzalez^{10 44} found the activity of the principal lobe to be on an average 0.001 international units per mg and 0.042 units per lobe that of the neuro-intermediate 0.41 units per mg and 0.95 units per lobe which is the same as that found in bovine posterior pituitary lobe (Houssay, Gluski and Lahille²⁰)

†Orlans²⁸ has observed the same phenomenon in the fish *Mustelus canis* and Houssay and Blasotti²⁰ in other amphibia and reptiles

dividual and also controls sexual and reproductive activities which are necessary for the maintenance of the species. It is the central organ in the endocrine constellation, as it is necessary for the development and maintenance of the anatomical and functional integrity of the other internal secretory glands.

The neuro-intermediate lobe governs various functions

(1) It maintains the normal color of the skin (with its physiological and pharmacological changes) by preserving an adequate melanophore expansion. The secretion of this hormone is regulated reflexly, and is therefore under the control of the central nervous system.

(2) It preserves the tone of arterioles and capillaries, thus having an important influence in the maintenance of the arterial blood pressure.

(3) It regulates the water metabolism, first by its action on the kidneys and, secondly, on the skin and other tissues.

The principal lobe governs the following functions

(1) The development and maintenance of the thyroid and the gonads (including Bidder's organ). It also provides for their compensatory hypertrophy. An adrenotropic action has not been demonstrated in the adult toad.

(2) The occurrence of normal ovulation is due to a pituitary hypersecretion in the female which is reflexly stimulated by the sexual embrace.

(3) The development of the thyroid which permits the metamorphosis of the larva into the adult form.

(4) The regulation of the casting of the skin (with the formation and desquamation of the horny layer) and also the regulation of the cutaneous glandular secretions.

(5) The metabolic functions (carbohydrate metabolism, endogenous protein metabolism, etc.). These are so important, that the loss of pituitary control leads to a state of progressive asthenia causing death in three to eight weeks. The central nervous system is affected and later the heart, muscles, etc.

Injury of the tuber cinereum produces secondary lesions in the pituitary with an initial glandular reabsorption and later a more or less marked state of pituitary insufficiency.

It is evident that many of these functions of the pituitary either cannot be seen in mammals or will have less importance than in the toad. I have found many functions in the latter which only later were seen in the mammal. For this reason I have studied each function primarily in the toad and simultaneously or subsequently in the more complex animals, and so have been able to understand its significance more readily. No student of the hypophysis can ignore the val-

uable results obtained by studying its functions in the toad, and all will feel grateful to this low species for the many secrets it has revealed on such an important organ.

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A STUDY OF THE USE OF CORAMINE IN DEALING WITH THE EFFECTS OF BARBITURIC ACID DERIVATIVES*

BY PURCELL G SCHUBE, M D †

THE drugs of the barbituric acid series, since their introduction to the medical profession, have been widely used in order to induce states of unconsciousness ranging from simple sleep from which it is easy to rouse an individual to what amounts to a barbituric acid coma from which no amount of urging, chemical or physical, will produce consciousness until the effect of the drug has worn off. It is only to be expected that with such wide use of these drugs, by both skilled and unskilled persons, a certain number of bad reactions will occur. But unfortunately some of these bad reactions become worse, and individuals die.

Furthermore, since it has been possible to buy these drugs for a small sum at any drug counter, the layman becoming depressed or otherwise wishing to die, has by their use increased the number of near-deaths and deaths quite considerably. And there are sufficient reports in the existing literature relative to these fatalities to quiet any skeptic—to make him wish to have

at hand a ready and safe counteracting drug should it fall to his lot to have to treat such a case of poisoning.

It is the belief of the writer that coramine is such a counteractant, such belief being the outcome of the work presented in this paper and the work which has been conducted for so many years by European workers and recently by a very few Americans, on the effect of coramine on hypnotics, narcotics and anesthetics.

One of the first pieces of work in this respect pointed to its possible value, for in 1892 Koppen¹ while studying the then relatively new drug, coramyrin, reported that it was of value in the counteraction of narcosis. In 1924 Uhlmann² confirmed these findings, stating that coramine stimulated the centers of the medulla, respiration especially being affected, i.e., increased. In addition he found that this drug produced a rise in the blood pressure and increased the cardiac excursions. In 1925 Guth³ demonstrated increased blood flow due to coramine in patients under the influence of general anesthesia. In 1926 Ashe⁴ at this time stated that coramine improved not only the circulation of animals under depressant drugs but also the

*From the Psychiatric Clinic Boston State Hospital Boston Mass

†Schube Purcell G—Physician in Charge Psychiatric Clinic Boston State Hospital. For record and address of author see This Week's Issue page 946

respiration, concluding that it was of definite value in this respect. In 1928 Bürgi and Gordonoff⁷ found that coramine rendered the heart more resistant to the action of depressant drugs. In 1928 Schübel and Gehlen,⁸ in 1929 Helaers,⁹ in 1931 Kilban,⁸ Mörl,⁹ and Domang,¹⁰ in 1932 Kennedy,¹¹ Fischmann,¹² Glaeser,¹⁴ and Altman,¹⁴ in 1933 Kilhan,¹³ Buzzo and Bertani,¹⁴ Reese,¹⁷ and Wood,¹⁸ in 1934 Ervenich,¹⁹ Nakabe,²⁰ Schwoerer,²¹ in 1935 Gyllensviard and Buzzo and Bertani,²⁴ and in 1936 Levi and Krinsky,²⁴ and Eversole,²³ to mention a few all confirmed the value of coramine in relieving depressed respiration or unconscious states due to hypnotics, narcotics or anesthetics.

And so the reports on the value of this drug as a tool in the counteraction of the effects produced by narcotics, hypnotics and anesthetics have gradually accumulated all pointing with more or less accuracy to the positive value of coramine in cases where the respiration is depressed and unconsciousness is present and where it is advantageous to terminate the action of the depressant drug with as little delay as possible. It is the purpose of this paper to present a planned study on the actual value of coramine in the counteraction of the unconscious states produced in human beings by the administration of certain barbituric acid derivatives.

METHOD

All of the individuals in this study were males. Their ages ranged from sixteen to fifty-five years. All were mentally ill, the type of illness ranging throughout the psychotic scale. It was not felt that these individuals would produce results other than what might be expected of individuals with apparently normal personality reactions. Physically they were normal.

Each person was given the specified drug and then placed in bed. When he was asleep attempts were made to rouse him by moderate shaking. If this was unsuccessful pinpricking was resorted to. Only those individuals were used who were sufficiently under the influence of the prescribed barbiturate not to rouse from their sleep as a result of the above stimulation.

As soon as the person was definitely asleep his blood pressure, pulse, respiration and clinical state were noted and then 5 cc. of coramine was administered intravenously. The patient was watched in this manner for ten minutes and if consciousness had not been restored at the end of that time, 5 cc. of coramine was administered every ten minutes until he did rouse. The coramine was given intravenously in every instance.

The effect of the coramine on patients having received a barbituric acid derivative was examined a total of 84 times. The controls received

the barbiturate but no coramine. There was one control for each type of barbiturate used.

RESULTS

The Efficacy of Coramine in Relieving the Symptoms Produced by the Barbituric Acid Derivatives

A Sodium amytal

- 1 Twenty-four individuals each received 12 grams of sodium amytal by mouth. Of these eighteen were relieved of their symptoms by 5 cc. of coramine, four by 10 cc. and two by 15 cc.
- 2 Twelve individuals each received 7½ grams of sodium amytal intravenously. Of these eight were relieved of their symptoms by 5 cc. of coramine and four by 10 cc.

B Luminal

- 3 Twelve individuals each received 6 grams of luminal by mouth. Each was relieved of his symptoms by 5 cc. of coramine.
- 4 Twelve individuals each received 6 grams of sodium luminal intravenously. Each was relieved of his symptoms by 5 cc. of coramine.

C Sodium Oralal

- 5 Ten individuals received 9 grams of sodium oralal by mouth. Each was relieved of his symptoms by 5 cc. of coramine.

D Nembutal

- 6 Five individuals received 3 grams of nembutal by mouth. Each was relieved of his symptoms by 5 cc. of coramine.
- 7 Six individuals received 7½ grams of nembutal intravenously. Each was relieved of his symptoms by 10 cc. of coramine.
- 8 Three individuals received 15 grams of nembutal per rectum. Two were relieved of their symptoms by 15 cc. of coramine and one by 20 cc.

The Effects of the Coramine as Observed During the Study

In each individual who had received a barbituric acid derivative the primary and important factor relieved was the state of unconsciousness. In each instance this state was abolished some persons having to receive more coramine than others in order to achieve this result. The pulse rate and volume in no individual was altered appreciably by the coramine. Likewise the blood pressure was not altered appreciably regardless of whether arteriosclerosis was present or absent, and irrespective of the presence of normal low or high blood pressure. In each person the respira-

tions were increased, not only in rate but also in depth. The rate was increased from two to ten per minute. The depth was increased from just slight increases to increases which, in two cases not a part of this paper but who had taken almost 100 grains of luminal and who had received 80 and 85 cc of coramine, were profound and noisy and could be distinctly heard and counted at least thirty feet away. The skin over the face was occasionally flushed. No sweating was observed. In twenty-one cases the administration of coramine in 5 and 10 cc doses was definitely followed by hiccoughs which lasted from five to fifteen minutes. In five cases after 10 cc of coramine there was vomiting which was projectile, lasting a few minutes and then subsiding. In no individual was there any alteration in the emotional or intellectual state as evidenced either by questioning or by observation of physical activity.

The After-Effects of Coramine

Other than the relief of the symptoms produced by the administration of barbituric acid derivatives, no after-effects of any type were noted.

Controls

For each barbituric acid derivative one control individual was used. He was given the same dosage of the barbiturate as the individuals receiving, in addition, the coramine. In every instance the control individuals remained unconscious for hours longer than the persons receiving coramine, who were unconscious a matter of minutes.

DISCUSSION

With the barbituric acid derivatives having such widespread use by the medical profession and such careless and deliberately destructive use by the laymen, it is imperative that there be available some drug which is able to counteract the effects of these derivatives, some drug which is safe and in which the safety is wide of margin. Furthermore, inasmuch as there is occasionally a bad reaction from a very small dose of these barbiturates it is even more imperative that a counteracting drug should be available which is rapid in action. The results of this study and of the studies which have preceded it would tend to establish coramine as safe, and as a drug relatively certain to counteract rapidly the symptoms of drugs of the barbituric acid series. The fact that in this study there were encountered no failures is quite important, for it is this type of result which is desired in the use of an "antidote" for any drug whose reaction may become undesirable.

This study, of course, cannot claim results of value in instances other than those described, but from the results reported it would most certainly be inferred that coramine would be of

value in counteracting the effects of a wide range of barbiturates with a wide range of dosages. Further studies, it is hoped, will clarify this point and give greater insight into the ability of coramine to neutralize larger doses of the barbiturates in man. Moreover, from this study, it is impossible to predict the length of time which may lapse between the administration of the barbiturate and the administration of the coramine, and the latter still work effectively. It can only be said that from experience in this respect with the two cases referred to, it was learned that with exceptionally large doses of luminal, i.e., about 100 grains, a lapse of sixteen hours between the taking of the barbiturate and the administration of the coramine was too long an interval for resuscitation to take place.

The dosage of coramine could not be standardized in this study, because it appeared that there was a definite individual ability or disability of persons to exhibit the barbiturate effects, some persons being profoundly unconscious while others receiving the same dosage would be only lightly so. This, of course, affected the amount of coramine necessary to counteract the barbiturate. These same observations hold true for the type of barbiturate used. Evidently, the ability of the coramine to counteract the effects produced by the barbiturates in man depend not only upon the chemical-physical antagonism existing between the two drugs, from a medical point of view, but also upon the ability of the coramine to combat the affinity of the individual's body for the barbiturate.

The unexpected reactions obtained during the use of the coramine such as hiccoughs, vomiting and flushed skin were not felt to be alarming and could not be construed as disadvantageous to the use of the drug.

It was rather surprising, too, that some of the expected reactions to coramine did not occur, i.e., increase in pulse rate and volume, and increase in blood pressure. All of the results obtained in this respect were considered to be within normal physiological limits.

The site wherein the annulment of the barbiturate action by the coramine occurs is not known, but the bulk of the evidence existing in literature would indicate it as the central nervous system, probably the medulla and diencephalon. The mechanism of this annulment is even more obscure than the site, the mechanisms which have been described being entirely too technical for the purpose of this paper.

But, whether the site is definitely located, or the mechanisms understood, the fact remains that coramine is an interesting drug, and possesses definite possibilities in the counteraction of the effects produced by the barbituric acid derivatives. These possibilities certainly warrant further investigation, for a rapidly act-

ing drug possessing a wide margin of safety and reasonably certain in its ability to counteract the effects of the barbituric acid derivatives is an absolute necessity in any community where barbiturates are used.

SUMMARY

1 A study of the effect of coramine on individuals under the influence of barbituric acid derivatives is presented

2 The physiological reactions of these individuals to coramine are described

3 It is concluded that for the purposes of the experimental procedure herein described, coramine proved to be an excellent drug to counteract the effects produced by the barbiturates

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FREQUENCY OF ACTIVE TUBERCULOSIS IN A HOSPITAL FOR MENTAL DISEASES*

With Special Reference to Schizophrenia

BY DAVID ROTHSCCHILD, M.D.† AND MORRIS L. SHARP, M.D.†

IN modern psychiatric teaching there has been general acceptance of the view that psychic and somatic phenomena are closely interrelated aspects of the human organism. This conception lends new significance to studies of the incidence of different somatic diseases in patients suffering from mental disorders. Tuberculosis offers itself as a favorable object of such a study because of its wide distribution and the ample data available concerning its frequency in the general population.

It is commonly stated that tuberculous disease is much more prevalent in mental hospitals than in the country as a whole. Furthermore, there is a widespread belief that patients with schizophrenia are especially prone to develop active tuberculosis. If these observations are correct, the question at once arises whether the differences are merely incidental or whether they are part and parcel of some general dis-

turbance which affects somatic as well as psychic spheres of activity. The latter standpoint has been advocated by Freeman¹ and by White.² Freeman¹ believed that there was a constitutional predisposition to tuberculous disease in schizophrenic individuals. White² explained its frequent occurrence in dementia praecox on the basis of a correlation between psychologic and somatic reactions. He pointed out that the schizoid psychoses are noncompensatory or decompensating in type in the sense that the patient with dementia praecox on the whole shows little active tendency to get well or to develop a compensatory type of psychologic reaction. In other words, the patient succumbs to the stresses that bring about his psychosis and deteriorates. In harmony with this reaction at the psychologic level one finds at the somatic level a similar type of reaction to the tuberculous infection. Such persons not only are easily infected relatively speaking, but easily die of tuberculosis. Thus according to White², a person who presents the capacity for compensatory reactions will be found to present this capacity not only in his somatic reactions but

*From the Foxborough State Hospital.
Read at a meeting of the Massachusetts Psychiatric Society, December 13, 1935.
†Rothschild, David—See for Physician and Director of Nurses, Foxborough State Hospital. 84 Dr. Morris L.—Junior Assistant Physician, Foxborough State Hospital. For record and diagnoses of authors see "This Week Issue," page 916.

also in his psychologic reactions. To some European authors^{3, 4} the association of tuberculosis and schizophrenia has been striking enough to suggest that certain types of dementia praecox may be caused by the toxic effect of tuberculous infection on the central nervous system. On the other hand, Bogen, Tietz and Grace⁵ have recently denied that the incidence of clinical tuberculosis was appreciably affected by the type of psychosis.

It is evident even from this brief discussion that there is no general agreement concerning the significance of the observations dealing with tuberculosis and its frequency of occurrence in mental disorders. We therefore thought it worth while to reexamine the whole subject in the light of our own observations at a hospital for mental diseases.

RESULTS

A survey was made of the deaths from tuberculosis occurring in the Foxborough State Hospital from 1920 to 1934 inclusive. Owing to the small number of cases in many of the psychoses dealt with, separate figures were determined only in schizophrenia, which formed the largest group. The data are presented in table 1. A total of 1016 deaths from all causes occurred during this period. Tuberculosis accounted for 102 of the fatal cases, or 10 per cent of the total. This included 60 male and 42 female

patients. All but 6 members of the group were diagnosed as cases of active pulmonary tuberculosis. Two patients presented tuberculosis of the kidneys and 4 acute miliary tuberculosis.

The average death rate from tuberculosis during the whole period under review was 65 per thousand patients. The average rate was 993 per thousand for the years 1920 to 1924, 653 per thousand for the years 1925 to 1929 and 479 per thousand for the years 1930 to 1934 inclusive.

Sixty-five patients who showed active infection, or 63.7 per cent of the whole tuberculous group, were diagnosed as cases of schizophrenia. The average duration of the somatic disease was approximately six months in both the schizophrenic and the nonschizophrenic cases. The average length of time spent in the hospital before symptoms of tuberculosis were detected was 4.8 years in the former group and 5.6 years in the latter. Clinical evidence of the disease was observed on admission in 22 of the patients, 8 of whom were suffering from dementia praecox.

Since the diagnosis was in many instances based solely on clinical observations, an attempt was made to verify the accuracy of the figures by comparing them with those obtained from the postmortem examinations made during the same period. Necropsies were performed in 373 cases, of which 45, or 12.1 per cent, showed ac-

TABLE 1
DEATHS FROM ALL CAUSES AND FROM TUBERCULOSIS AT THE FOXBOROUGH STATE HOSPITAL

Year	Number of Patients	Deaths from All Causes		Deaths from Tuberculosis			Deaths in Schizophrenia				Deaths in All Other Psychoses			
							From All Causes		From Tuberculosis		From All Causes		From Tuberculosis	
		Number of Deaths	Deaths per Thousand	Number of Deaths	Deaths per Thousand	Percentage of Total Mortality	Number of Deaths	Percentage of Total Mortality	Number of Deaths	Percentage of Schizophrenic Deaths	Number of Deaths	Percentage of Total Mortality	Number of Deaths	Percentage of Non-schizophrenic Deaths
1920	604	37	61.1	9	14.9	24.32	11	29.73	4	36.36	26	70.27	5	19.23
1921	661	37	56.0	5	7.6	13.51	11	29.73	4	36.36	26	70.27	1	3.85
1922	681	43	63.1	11	16.1	25.58	13	30.23	6	46.15	30	69.77	5	16.67
1923	704	57	81.0	8	11.4	14.03	13	22.81	7	53.85	44	77.19	1	2.27
1924	875	36	41.1	2	2.3	5.55	6	16.67	1	16.67	30	83.33	1	3.33
1925	979	68	69.4	4	4.1	5.88	11	16.18	2	18.18	57	83.82	2	3.51
1926	976	80	82.0	9	9.2	11.25	15	18.75	8	53.33	65	81.25	1	1.54
1927	1080	79	73.1	10	9.2	12.66	13	16.46	8	61.54	66	83.54	2	3.03
1928	1147	65	56.7	5	4.3	7.69	12	18.46	1	8.33	53	81.54	4	7.55
1929	1173	65	55.4	7	6.0	10.77	18	27.69	6	33.33	47	72.31	1	2.13
1930	1200	71	59.2	5	4.2	7.04	7	9.86	3	42.86	64	90.14	2	3.12
1931	1310	75	57.2	7	5.3	9.33	14	18.67	6	42.86	61	81.33	1	1.64
1932	1304	79	60.6	5	3.8	6.33	16	20.25	3	18.75	63	79.75	2	3.17
1933	1385	106	76.5	5	3.6	4.72	14	13.21	1	7.14	92	86.79	4	4.35
1934	1481	118	79.7	10	6.7	8.47	19	16.10	5	26.31	99	83.90	5	5.05
Totals and Averages	15560	1016	65.3	102	6.5	10.04	193	18.99	65	33.67	823	81.01	37	4.50

tive tuberculosis. This figure is only slightly higher than that obtained for the whole group and in view of the smaller number of cases it is doubtful whether the difference is of any significance.

DISCUSSION

Our figures do not differ radically from those recorded in the recent literature and therefore probably provide a representative sample in spite of the small size of the group. Mettler and Brink⁶ found that the percentage of deaths due to tuberculosis in Ontario hospitals ranged from 9.95 to 10.66 per cent in the years 1925 to 1932. During the same period our figures fluctuated between 4.71 and 10.93 per cent. Wechsler⁷ in Switzerland stated that 6.01 per cent of the deaths occurring in a mental hospital from 1921 to 1931 were caused by tuberculosis. According to Malzberg⁸ this disease was responsible for 9.5 per cent of the deaths taking place in New York State Hospitals in

were respectively 9.93, 6.53 and 4.79 per thousand in the hospital group and 1.22, 0.996 and 0.749 per thousand in the adult population of Massachusetts.* Thus the death rate was 8.13 times greater among our mental patients than in the adult population of the state during the first five-year period, 6.56 times greater during the second period and 6.39 times greater during the final period. Higher figures were obtained by Malzberg⁸ and Freeman¹. Freeman¹ found that the mortality rate among mental patients was about ten times that of the population at large. Malzberg⁸ stated that the patient death rate from tuberculosis in New York State Hospitals during the years 1929 to 1931 inclusive was 8.28 per thousand, exceeding that of the general population in the ratio of 11.7 to 1. In spite of this difference the proportionate mortality from tuberculosis in our group was very similar to that reported by Malzberg⁸.

It is interesting to note that the patient mortality rate from all causes was also increased

TABLE 2

MORTALITY RATES OF THE HOSPITAL POPULATION AND THE ADULT POPULATION OF MASSACHUSETTS
FOR THE YEARS 1920 TO 1934

	Deaths from Tuberculosis per Thousand		Deaths from All Causes, per Thousand		Proportionate Mortality from Tuberculosis per cent	
	Foxborough State Hospital	Adult Population of Mass.	Foxborough State Hospital	Adult Population of Mass.	Foxborough State Hospital	Adult Population of Mass.
1920-1924	9.93	1.222	59.5	15.1	16.67	8.05
1925-1929	6.53	0.996	66.6	15.4	9.80	6.46
1930-1934	4.79	0.749	87.2	15.3	7.13	4.89

Data supplied by L. Milton S. Pope of the Division of Tuberculosis, Massachusetts Department of Public Health.

During the years 1929 to 1931 inclusive. Data obtained by Warren and Canavan⁹ in 802 autopsies in Massachusetts State Hospitals for Mental Diseases showed that tuberculosis accounted for 11.7 per cent of the fatalities. Freeman¹ reported that a diagnosis of active tuberculosis was made in over 17 per cent of 5600 cases in which postmortem examinations were performed. His higher results may perhaps be accounted for by the larger proportion of colored patients in his group for he found that the tuberculosis mortality rate of the colored population was two to four times that of the white population.

The observations presented here confirm the generally accepted view that tuberculous disease is commoner among patients in mental hospitals than in the outside population. Since the vast majority of our patients were twenty years of age or over, comparisons have been made with adult groups. In table 2 the data are arranged for the three five-year periods included in the present study. The average mortality rates from tuberculosis for the years 1920 to 1924, 1925 to 1929 and 1930 to 1934 inclusive

were from 3.94 to 4.39 times higher than the general mortality rate of the adult population of the state* during the periods under consideration (table 2). Malzberg⁸ found that the death rate in mental hospitals was 7.4 times greater than that of the general population, but after making corrections for differences of age the ratio of the two rates was 4.7 to 1. Even with this general increase it can be seen from table 2 that the proportionate mortality from tuberculosis is consistently higher among our patients than in the adult population of the state.¹

The majority of the deaths from tuberculosis occurred in patients with schizophrenia. It has been frequently pointed out that tuberculosis occupies first place in the list of causes of death in cases of dementia praecox. One third of our patients with this psychosis who died during the period under review presented evidence of active tuberculosis. The corresponding figures

*The figures for the adult population, which included persons twenty years of age and over, were kindly supplied by Dr. L. Milton S. Pope of the Division of Tuberculosis, Massachusetts Department of Public Health.

of Freeman¹, Malzberg⁸, Wechsler⁷ and Low¹¹ were 30.94 per cent, 28.4 per cent, 14.74 per cent and 50 per cent, respectively. In contrast to these high figures in dementia praecox, active tuberculosis was noted in only 4.5 per cent of the deaths occurring in all other types of psychosis.

At first sight these observations seem to suggest that the incidence of tuberculosis is much greater in the schizophrenic population than in patients with other psychoses. However, an analysis of our data does not wholly bear out such a conclusion. The schizophrenic group accounted for only 19 per cent of the total deaths though it constituted approximately half of the hospital population. According to Malzberg⁸, the death rate of patients with dementia praecox is less than half that of all patients with mental disease. This is largely due to the fact that many toxic and organic factors that are seldom encountered in schizophrenic psychoses are common in other types of mental disorder. When the higher general mortality in the latter psychoses is taken into consideration it becomes evident that tuberculosis is actually more frequent in them than the percentage of deaths attributed to the infection would indicate.

The data necessary for an exact comparison are not available, but an approximate idea of the relative frequency of active tuberculosis in the two contrasted groups may be obtained from the following considerations. The figures for the resident population show that 51.6 per cent of the patients in the Foxborough State Hospital¹² on September 30, 1933, were classified as cases of dementia praecox. If the hospital population remained stationary with tuberculosis equally distributed among all types of psychosis, about half of the deaths would fall within the schizophrenic group, as compared with a figure of 63.7 per cent actually obtained. Of course, the hospital population is constantly changing, but these changes tend to favor higher mortality rates from tuberculosis in dementia praecox. We refer to the well-known circumstance that patients with schizophrenia remain on an average for a considerably longer time in the hospital than most of the other patients, and thus the period during which tuberculous disease may develop is longer in such cases. That this time factor is of importance is suggested by the fact that the average period spent in hospital before symptoms of tuberculosis were detected was approximately five years, a period which is longer than the average duration of residence observed in many of the non-schizophrenic psychoses. Here we might add that the recent observations of Bogen, Tietz and Grace⁵ lend support to our standpoint, for they found that the incidence of clinical tuberculosis increased with the length of stay in the institution.

In view of the considerations discussed above it is our impression that there is no great difference between schizophrenia and the other types of psychosis with respect to the frequency of active tuberculosis in them. This conclusion is in accord with the observations of Malzberg⁸, who found that the standardized death rate from pulmonary tuberculosis among patients with dementia praecox exceeded that among all patients only in the ratio of 1.1 to 1. At the same time, it should be remembered that patients with psychoses other than schizophrenia are subject as a group to a very high mortality from all causes, so that tuberculosis is in reality not more frequent, relatively speaking, than other somatic diseases. In schizophrenia, however, tuberculosis is the leading cause of death, and in this sense we may speak of an increased susceptibility to tuberculosis in dementia praecox as compared with other psychotic conditions.

McGhie and Brink⁶ suggested that the increased frequency of tuberculosis in mental hospitals may be attributed to several factors such as the presence of undetected active cases in wards which are often overcrowded, a generally under par physical condition of many mental patients and the difficulty experienced with some patients in obtaining an adequate intake of food. Bogen, Tietz, and Grace⁵ believed that the infection developed not as a result of the mental disease, per se, or as its cause but from the conditions of confinement and exposure to infection resulting therefrom. These factors are undoubtedly of importance, but it is probable that they are more important in the nonschizophrenic group, in which numerous physical factors may impair the general health of the patients. In the schizophrenic group predisposing factors of this type are much less common. We must, therefore, look for other explanations of the increased susceptibility of schizophrenic patients to tuberculous disease. The view that dementia praecox is actually caused by the toxic effects of tuberculosis is open to many objections and has not been accepted by the great majority of workers owing to the lack of reliable evidence as to its validity.

The question now arises whether White's² theory of a correlation between psychologic and somatic reactions can account for the increased frequency of tuberculous infection in patients with dementia praecox. In this connection we would like to point out that there are great variations in the severity of the decompensating psychologic reaction observed in schizophrenic psychoses. An attempt was therefore made to determine whether there was any relation between the degree of psychologic decompensation and the occurrence of tuberculous disease. A scrutiny of the sixty-five cases of dementia praecox in which active tuberculosis was noted showed that hardly any of the patients had made even a moderately successful adjustment

to the comparatively simple environment of a state hospital. The great majority displayed profound deterioration with little ability to retain or develop any interest in the outside world. Most of them had been idle, inactive, and apathetic for years, in some cases periods of restlessness were observed from time to time. Only eleven members of the group had been engaged in any type of work during the years immediately preceding the onset of the tuberculous disease and even though the work was very simple in nature, it was usually performed irregularly and inefficiently. In contrast to this, a survey of the whole male schizophrenic population showed that slightly more than 50 per cent of the patients were regularly employed in useful occupations. We may therefore say that tuberculosis tends to occur in patients who show the least active tendency to get well mentally and who thus represent the most out-poken examples of a decompensating psychosis within the schizophrenic group.

These observations at first seem to confirm the view expressed by White.² On further consideration, however, they may be interpreted in other way. One might argue that the patients who are unable to reach a level of mental activity approaching the normal show an increased tendency to develop tuberculous disease because they are especially liable to present faulty and unhealthy habits and at the same time are closely confined for prolonged periods. Other authors refused to accept such a view but stress the importance of an underlying constitutional factor. Freeman¹ found that the mortality rate from tuberculosis in epileptics is only a fifth of the rate in schizoid individuals, in spite of the fact that the confirmed epileptic may resemble in many outward respects the patient with long-standing dementia praecox. One might also mention Luxenburger's¹³ work which showed that tuberculous disease was commoner among siblings of schizophrenic patients than in the general population.

In our opinion these two interpretations are not mutually incompatible. It is probable that the increased susceptibility of schizophrenic patients to tuberculosis is due to a combination of the two factors, unhygienic modes of life with prolonged hospitalization on the one hand, and a lowered resistance which is correlated with decompensating mental reactions on the other.

Finally we would like to point out that, regardless of the factors involved, the mortality rate from tuberculosis in the hospital population has dropped from 9.93 per thousand in the years 1920 to 1924 to 4.79 per thousand in the years 1930 to 1934, a decrease of slightly more than 50 per cent. In the adult population of the state the rate has shown a drop of 39.7 per cent during the corresponding periods (table 2). An analysis of the data in table 1 indicates that

the decrease was more pronounced in the schizophrenic group than in the other psychoses, suggesting that the improvement in the former particularly cannot be entirely accounted for by improving conditions in the population at large. The decrease in the frequency of tuberculosis among our mental patients is probably to be attributed to the greater emphasis placed on outdoor activities, physical occupation, adequate housing, and early segregation of active cases in recent years. It is interesting to note that the first two measures really belong in the field of occupational therapy, which has proved to be of definite benefit from a mental angle in patients with schizophrenia. The mortality from tuberculosis remains high, but the fact that it has already diminished considerably suggests that more intensive efforts along the lines mentioned should lead to still further improvement in the future.

SUMMARY

A survey of the deaths from tuberculosis during the years 1920 to 1934 was made at a state hospital for mental diseases.

The average mortality rate from tuberculosis during the whole period was 6.5 per thousand. The average rates for the years 1920 to 1924, 1925 to 1929 and 1930 to 1934 inclusive were respectively 9.93, 6.53 and 4.79 per thousand. These figures were respectively 8.13, 6.56 and 6.39 times greater than the death rates from tuberculosis in the adult population of Massachusetts during the corresponding five-year periods.

Although 63.7 per cent of the deaths from tuberculosis occurred in patients with schizophrenia, an analysis of the data showed that the incidence of active infection in dementia praecox did not differ greatly from that in all other psychoses considered as a group. In the latter, tuberculosis is not more frequent, relatively speaking, than other somatic disease. In contrast to this, tuberculosis is the leading cause of death in cases of dementia praecox, accounting for one third of the fatalities in that group, and in this sense one may speak of an increased susceptibility to tuberculous disease in patients with schizophrenia. This increased susceptibility is probably based on unhealthy habits, prolonged hospitalization and a lowered resistance which is correlated with decompensating types of mental reaction.

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CONGENITAL DEFECT OF THE PECTORAL MUSCLES

BY RUFUS R. LITTLE, M.D.*

A REVIEW of the literature on congenital defects of the pectoral muscles immediately impresses the reader by the apparent rarity of this condition. As observed by Bennett¹ the American literature contains very few reports of congenital defects of pectoral muscles by far the greater number of cases coming from foreign sources. In fact, only seventeen cases were found to be recorded in the literature of the United States during the past fifteen years. As the deformity caused by absence of the pectoral muscles is apparent even on casual physical examination, it is to be wondered that more cases have not been recorded, especially if one accepts the estimate of Bing (quoted by Christopher²) that congenital absence of the pectoralis major and pectoralis minor muscles together comprised 28 per cent of the total of cases of congenital absence of muscles in a series collected by him. Probably this figure is somewhat high, as pointed out by Jones³. After an extensive search of the literature, Moiley in 1923 found that about 220 cases of congenital defects of the pectoral muscles had been recorded up to that time. There have been comparatively few additions to that number. In reporting eight cases, Moiley⁴ states that five of these were seen in five months, and suggests that the condition is more common than is believed.

Several varieties of defects have been noted. It is agreed by observers that the most common abnormality found is absence of the pars sternocostalis of the pectoralis major together with absence of the pectoralis minor. One case of complete absence of the right pectoralis major muscle is recorded by Severn⁵, it being proved at autopsy that the right pectoralis minor and both left pectoral muscles were present and well developed. There appears to be no predominance of the occurrence of pectoral defects on the right or on the left side. Only one case has been reported where the condition was bilateral³. Obviously, clinical detection of absence of the pectoralis minor alone is impossible, and as no such case had been recorded from the dissecting room, Christopher² concluded that "absence of the pectoralis minor

unaccompanied by defects of the pectoralis major probably does not occur." However, Williams⁶ later reported the case of a man who was operated on for carcinoma of the breast, and at operation the pectoralis minor muscle could not be found even by the most careful dissection, the pectoralis major being normal. This is admittedly a rare finding.

Various theories have been advanced concerning the etiology of pectoral defects. The condition is definitely congenital, yet heredity is not of great influence. One instance is cited of the condition being found in three members of one family³—father and two sons, and in other cases some congenital defect has accompanied the abnormality of the pectoral muscles, yet no conclusions can be drawn from these isolated occurrences. In one instance the condition was attributed to congenital syphilis⁶. However, this case lacked confirmation even by serological tests, and little support can be given to this explanation of the defect. It has been suggested that the condition may result from pressure of the forearm or knee of the fetus in utero, causing atrophy of developing muscle plates¹, or possibly theories relating to phylogenetic retrogression may be applied to congenital absence of these muscles. Probably the most acceptable view in regard to the origin of the condition is that of Lewis⁷, who attributes it to an embryological defect. He has shown that the anlage of the pectoral muscles is situated in the lower cervical region in the early embryo. As the embryo develops, the pre-muscle mass enlarges and moves downward, becoming attached first to the clavicle, then to ribs, sternum, and abdominal fascia, at the same time becoming differentiated into major and minor muscles. Lewis believes that the defect results from failure of attachment and subsequent atrophy of the pars sternocostalis of the pectoralis major and of the pectoralis minor, or to lack of complete differentiation between the two muscles. To lend weight to these theories is the fact that in practically all reported cases of congenital defects of the pectoral muscles the presence of the clavicular portion of the pectoralis major is acknowledged, with absence of the pars sternocostalis and of the pectoralis minor.

*Little Rufus R.—Assistant Physician North Reading State Sanatorium. For record and address of author see This Week's Issue page 946.

All observers are in agreement concerning the extremely slight disability resulting from absence of the pectoral muscles. Repeatedly cited is the case of Burke* of a good left handed baseball pitcher with this abnormality on the left side. Other reports all confirm this observation the patients themselves usually being unaware of the condition. As the action of the pectoral muscles is closely associated with that of the deltoid, subclavius, and other muscles of the shoulder girdle, compensatory action of these muscles inhibits any disability that might result from defects in the former. The pectoralis major "if acting alone adducts and draws forward the arm bringing it across the front of the chest, and at the same time rotates it inward"¹⁰. This action appeared to be entirely unimpaired in the case to be described herein. The pectoralis major, the pectoralis minor, and the subclavius muscles belong to the group of auxiliary muscles of respiration and are very important agents in forced inspiration. That defects of the pectoral muscles limit forced inspiration is indicated by the findings in the case being reported in this paper, expansion of the affected side being less than that on the normal side.

The deformity caused by pectoral defects as previously stated is quite apparent. The affected side of the thorax is flattened and the ribs are plainly visible and palpable beneath the skin and subcutaneous tissue. It is said that deformities in the nipple and breast are often present, and complete absence of the breast and nipple has been reported.¹¹ There may be defects in the underlying ribs, the cartilaginous portions often being distorted or absent.

Following is the report of a case which illustrates many of the commonly recognized findings in congenital defects of pectoral muscles and in addition presents a factor that may be of some clinical significance as the patient grows older.

This case is reported from a sanatorium for tuberculosis of children, the age limits for admission being one month and seventeen years. During the nine years in which this sanatorium has been reserved exclusively for children and with over 2000 admissions during this time this is the only case of congenital absence of the pectoral muscles that has been recorded thus giving a very rough estimate of the relative frequency of this condition assuming that repeated physical examinations of the chest would have detected such an abnormality.

Case report G. P., male white aged six years. The history as obtained from the mother of this patient records a normal noninstrumental birth. The mother states that deformity of the right chest has been noticed since the birth of the patient. The child has always been active and apparently in

good health although somewhat thin. In August 1934 one eye became inflamed and the patient was taken to a hospital for treatment. There diagnoses of phlyctenular conjunctivitis and childhood type

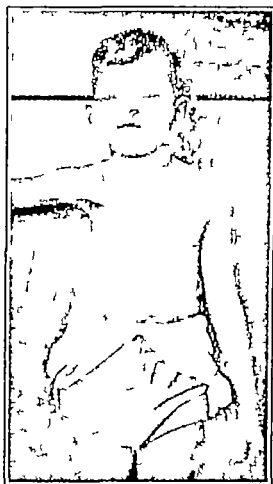


FIG. 1. Illustrates the absence of the pectoral fold.



FIG. 2. Illustrate herniation of the lung upon increased intra-thoracic pressure.

tuberculosis were made and admission to a sanatorium was recommended. Upon admission the above diagnoses were confirmed. Roentgenogram of the lungs indicated childhood type tuberculosis, the pathology being in the hilar regions with no

demonstrable parenchymal involvement Upon physical examination of the chest, deformity of the right side was immediately apparent The right pectoral fold was absent, the underlying ribs being visible and palpable directly beneath the skin. The right side of the thorax was flat and poorly developed in contrast to the left side, which was of normal appearance Measuring from midlines anteriorly and posteriorly, the circumference of the hemisphere formed by the right thorax was 4 cm less than that of the left or normal side Expansion of the right side on forced inspiration was 1 cm, while that on the normal side was 2 cm, giving a crude idea of the impairment of the action of these auxiliary muscles of respiration On palpation, deformity of the third, fourth, and fifth ribs was detected, and confirmed by roentgenograms, their sternal ends being distorted and without cartilaginous attachment to the sternum, leaving between the ends of these ribs and the sternum, a comparatively large break in the continuity of the thoracic cage Through this opening, herniation of the lung was visible upon cough or any effort that tended to increase the intrathoracic pressure The presence of the clavicular portion of the pectoralis major was demonstrated by abducting and elevating the right arm, bringing this portion into relief Absence of the pectoralis minor was demonstrated by resisted effort on the part of the patient to draw the arm and shoulder forward, downward, and inward, the skin becoming lax and a hollow forming where the pectoralis minor would be if present

As in all previously reported cases of congenital absence of pectoral muscles, the function of the arm on the affected side was unimpaired, the patient being able to use this arm in any position fully as efficiently as the opposite arm But as previously pointed out, some impairment in the function of these muscles as auxiliary muscles of respiration may be detected, although this is probably of little clinical significance

The herniation described above, approximately the size of a lemon in this six year old boy, may eventually offer a surgical problem as he grows older and engages in strenuous physical activities, or in the event of the development of adult pulmonary tuberculosis with collapse therapy indicated

Severn⁵ observed that the absence of all effects resulting from defects of the pectoral muscles tends to show that a good functional result may be expected in patients whose pectoral muscles have been removed for malignancy This observation likewise applies to diversion of the pectoral muscles in certain forms of surgical treatment of pulmonary tuberculosis

Summary A brief review of the American literature on congenital defects of the pectoral muscles is presented Added to the list of previously reported cases is the report of a case with clinical manifestations that may be of potential significance

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ACUTE, ULCERATIVE, TERMINAL ILEITIS AND COLITIS

A Case Report

BY THOMAS F CORRIDEN, M D *

This patient was admitted to the hospital on August 22, 1935 and remained there from that day until September 12 During that time she ran a temperature varying from 102° to 103° every evening

On admission she gave the following history For the past month she has had pain across the lower abdomen soon after eating Sometimes she has had to sit down and hold her hands to the abdomen because the pain was so severe It usually passed away in a short time Lately the pain has occurred more frequently and lasted longer, not altogether associated with eating For the past few days she has been nauseated, and vomited bitter-tasting yellow fluid Occasionally she has had headache There has been no diarrhea The bowels have been very constipated and the stools scanty, light yellow in color She has taken no cathartics There has been some epigastric pain at times The evening of entrance she was so nauseated and had so much pain that a doctor was finally called He referred the patient to the hospital

She has had the usual childhood diseases such as measles, mumps, whooping cough and sore throats,

but has not yet begun to menstruate Until now, she had had no abdominal pain or digestive trouble

Physical examination on admission A well-developed, rather emaciated white female aged 14 years, complaining of abdominal pain Head Eyes are equal and regular, reacting to light and accommodation There is no nystagmus, external ocular movements are negative External examination of the nose and ears negative Mouth Teeth in fair condition The tongue is moist and moderately coated, protruding in the midline without tremor The tonsils are moderately enlarged but not markedly reddened Neck There is no cervical adenopathy, no stiffness Chest Lungs, expansion is symmetrical and there are no areas of abnormal dullness and no adventitious sounds Breasts negative The heart is not enlarged, rhythm regular, rate 90 B P 98 systolic, 58 diastolic. There are no thrills, rubs, or murmurs The point of maximum impulse is in the 5th interspace within the midclavicular line The abdomen is tender and rather doughy in consistency throughout, but more marked in both lower quadrants No evidence of fluid The extremities are negative except for rather marked hypertrichosis Knee jerks, biceps, triceps, and reflexes are moderately hyperactive No pathological reflexes and no sustained clonus Rectal and pelvic examination not done

*Corriden Thomas F—Surgeon Cooley Dickinson Hospital Northampton Mass. For record and address of author see This Week's Issue page 946

On August 24 there was more marked spasm and tenderness in the right lower quadrant than elsewhere in the abdomen.

The following were the laboratory findings:

Wassermann negative.

Widal negative.

Stool: No parasites seen (Amoeba or Tapeworm).

Agglutination test for undulant fever was negative.

Blood culture—no growth in forty-eight hours. No growth in eight days.

Stool: Guaiac test shows a very faint trace of blood. Occasional pus cell seen in wet sediment. Culture: B. Coll.

On September 13 under gas oxygen and ether a midline incision extending from the umbilicus to the symphysis was made. On opening the peritoneum approximately 100 to 150 cubic centimeters of

made a very satisfactory convalescence. She was discharged from the hospital approximately fourteen days after the operation. During the course of time there was a marked improvement in the constipation of which she had complained. Beginning about four days following the operation, she began to have rather normal bowel movements and at the time she was ready to leave the hospital she had begun to put on weight and have normal bowel movements with no cathartics. The last report I had was that she had gained twenty pounds and had gone back to school.

Pathological report by Dr. Frederick Jones: Tissue received for examination consists of terminal ileum, cecum and appendix. The tissue as a whole feels edematous and doughy. The serosa is pale grayish red, glistening and smooth. The opening of the ileocecal valve is considerably smaller than normal.

	Red Blood Count	White Blood Count	Hemo- glo- bin	Color In dex	Neu- tro- phils	Eo- sino- phils	Ba- so- phils	Lym- pho- cytes	Mono- nu- clears	Red Cells
8/22	3 750 000	10,200	47%	0.6	60	—	0.5	21	16	Marked achromia
8/24		8,500			57	1	1.0	21	20	
8/29		12,500			72.5	3.5		16	8	Achromia
9/3	3 920 000	3 400	53%	0.6	68	4	0	14.9	14	
9/10	3 810 000	7 800	47.9	0.6	74	5	0	17	14	Achromia and Polychromatophilia

Urinalysis

				Specific Gravity	Albumin and Sugar	Microscopic
On admission	light amber color	slightly cloudy	and	1.011	negative	{ rare pus amorphous urates round and squamous bacteria
September 3 1936	cloudy	amber color	acid	1.011	negative	{ rare pus, round and squamous

free, straw-colored fluid was found in the abdominal cavity. Beginning about 18 centimeters from the ileocecal valve, the small bowel was markedly distended with gas. The terminal portion of the ileum was thickened and had a doughy sensation on palpation. The mesentery was markedly edematous and scattered throughout were a great many glands varying in size. Exploration of the appendix disclosed it to be normal in all respects. The proximal portion of the cecum for a distance of about 16 centimeters gave the same doughy sensation with edema and glands in the mesentery. Considering the course this patient had run it was decided to resect the area involved. The terminal 18 centimeters of the ileum and the 16 centimeters of the proximal part of the cecum were then clamped off and the ileum and cecum together with the appendix were resected. The cut ends were inverted, and a lateral anastomosis was done. The mesentery was sutured. A Penrose drain was inserted near the suture line. The abdomen was closed and sutured and the patient was sent back to bed.

Macroscopic examination: The examination showed practically the same condition as has been described upon opening the abdomen except for the fact that the lumen of the ileum had narrowed to such an extent that only a lead pencil would pass through it.

Following the operation, the patient ran a rather stormy course for the first two days but gradually quieted down. There was at no time any fecal discharge from the drainage area. At the end of four days the Penrose drain was removed and the patient

On opening the intestine the mucosa is red to grayish red in color except for small areas of deeper red which surround numerous denuded small patches of mucous membranes. These small ulcers have a dark gray center surrounded by an area of hyperemia. These necrotic areas are found in the ileum and cecum extending for a distance of 17 centimeters into the ileum and approximately 15 centimeters into the cecum.

Microscopic examination of sections from the ulcerated areas present the following picture: The mucosa shows complete necrosis and destruction. This process of necrosis extends through the muscularis mucosa and into the submucosa, but does not involve the circular or longitudinal muscle fibers.

These ulcerated areas are covered with an exudate consisting of necrotic epithelial tissue in which are found numerous polymorphonuclear cells, plasma cells and a few lymphocytes. Toward the base of the ulcers are many newly formed capillaries and young fibroplastic tissue containing numerous plasma cells, lymphocytes and an occasional eosinophil.

There is some edema in the submucosa and the solitary lymph follicles are hyperplastic. Perivascular lymphocytic infiltration is found throughout the submucosa and a few endothelial leucocytes and eosinophils are also noted. Beyond the edges of the ulcers the vessels of the mucosa are dilated and filled with erythrocytes for some distance beyond the ulcer margin.

Diagnosis: Multiple ulcers of terminal ileum and cecum of unknown etiology.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT, M D

TRACY B MALLORY, M D, *Editor*

CASE 22191

PRESENTATION OF CASE

A forty-four year old American watchmaker was admitted complaining of dyspnea and a "choked-up" feeling

Ten days before entry the patient developed malaise, weakness, and chilly sensations. He went to work on the following day but suffered from a sensation of fullness in the mid-chest associated with a desire to cough but an inability to do so. He continued to work for two days thereafter although his weakness was progressive and the peculiar sensation in his chest became worse. There was no associated pain but he rapidly became short of breath. A week before admission his chest felt filled up, he became nauseated and vomited a small amount of material which was neither blood stained nor coffee colored. At this time he fainted and remained unconscious for about five minutes. A physician saw him shortly afterward and found that he had a temperature of 103°. There were no chills or additional symptoms. The fever apparently subsided but he remained in bed up to his entrance into the hospital. During this time his dyspnea became much worse as did the "choked up" sensation in his chest. He was able to lie flat in bed but occasionally was compelled to get out of bed and sit up in a chair. Two days before entry he noticed slight involuntary movements of his right hand which lasted for a few moments and then disappeared completely. The patient stated that he had no cough although his wife said that he had had a "bad cough" and mild night sweats for about two months. The cough was nonproductive. There was a loss of about ten pounds during the three or four months preceding admission.

For two years he had suffered frequent frontal headaches and had been taking a proprietary drug two or three times daily as a precautionary measure.

Physical examination showed a well-developed and nourished man who appeared to be acutely ill. The skin was cold, moist and exhibited a pale ashen appearance with cyanosis of the fingers and lips. The pupils were constricted and reacted sluggishly to light and distance. He

had been given an opiate prior to his admission. The retinal arterioles were rather tortuous. Oral hygiene was poor and the tongue was dry and coated. The left border of cardiac dullness was 12 centimeters from the midsternal line and the right border 6 centimeters. The apex impulse was palpated about 9 centimeters to the left of the midsternal line. The heart sounds were distant and of poor quality. The rhythm became totally irregular for several minutes at a time during the period of examination. In the intervals the rhythm was perfectly regular. The neck veins were distended with the patient in the sitting position. The blood pressure was 110/80 and during inspiration no sounds were heard over the brachial artery. There were numerous moist râles and wheezing respirations audible in the lower portion of both chests posteriorly and in both axillae. The liver dullness was percussed to a point three fingerbreadths beneath the costal margin although the edge was not felt.

The temperature was 98.6°, the pulse 82. The respirations were 25.

Examination of the urine was negative. The blood showed a red cell count of 4,720,000, with a hemoglobin of 70 per cent. The white cell count was 25,200, 90 per cent polymorphonuclears. A stool specimen showed a faintly positive reaction to the guaiac test. Several sputa examinations were negative for blood and tubercle bacilli. A sedimentation rate was 69 millimeters per minute. A Hinton test was negative. Several blood cultures were negative. A tuberculin test was negative.

X-ray examination showed a large heart shadow. There was an area of consolidation at the base of the right upper lobe and another area of consolidation with hazy margins at the right apex. On the left side there was homogeneous dullness in the lower portion of the lung field. The appearance of the left main bronchus was suggestive of an enlarged left auricle.

The patient's temperature exhibited daily fluctuations between 98° and 103° and the pulse varied between 80 and 120. Shortly after his admission a pericardial tap was done and 305 cubic centimeters of bloody fluid was removed and the patient's condition was considerably improved. The fluid contained 440,000 red blood cells and 7,000 white blood cells, most of which were polymorphonuclears. Cultures of the fluid gave no growth and examination for tumor cells and tubercle bacilli were negative. The paradoxical pulse and venous engorgement previously noted promptly subsided. Several pericardial taps were done thereafter for relief of dyspnea. Between taps the patient had rather constant asthmatic breathing which was relieved along with other symptoms by paracentesis. Five days after entry he complained of pain in the left lower leg. There was tenderness of the calf

muscles on this side and pitting edema of the ankle and foot. This subsided in about one week. Six days later transient coarse friction rubs were audible over both sides of the chest and a leathery rub was heard over the apex of the heart. Shortly afterward he became irrational and on the twentieth hospital day weakness and edema of the right hand and arm were noted. This became moderately more pronounced. A lumbar puncture showed an initial pressure of 380 millimeters with the patient sitting upright. The spinal fluid sugar was 71 milligrams. Only one lymphocyte was found and examination for globulin were negative. The total protein was 17 milligrams. Another x ray showed a little more fluid in the left chest. The heart size and shape were unchanged. The area of consolidation at the base of the right upper lobe had almost disappeared, but the one at the right apex was still present. On the twenty-fourth day the patient had severe pain in the right chest and posterior chest aggravated by respiratory movements. For several days there had been a palpable and audible wheeze on this side. A thoracentesis was done at the left base and 1,200 cubic centimeters of bloody fluid was removed. This showed a specific gravity of 1.016 and contained 110,000 red blood cells and 1,600 white blood cells of which 56 per cent were lymphocytes. Smears for tubercle bacilli and other organisms were negative. The patient's discomfort continued and he had periods of dyspnea and marked dyspnea. One month after admission a firm nodule about the size of a hickory nut became palpable in the right supracardiac region. At the same time several firm pea sized nodules were felt in the subcutaneous tissue just lateral to the left nipple at the site of the previous paracentesis. He gradually failed and died one month after admission.

DIFFERENTIAL DIAGNOSIS

DR. GERALD BLAKE Will you demonstrate the x rays, Dr. Hampton?

DR. AUBREY O. HAMPTON The record is inaccurate. It mentions signs of fluid in the first film, but there is no fluid at the base in this first note, whereas it is evident in the second film. There is a rounded area of dullness here in the apex. There is pathology in the whole upper lobe, it appears to me. This lobe is small as one can see by the closely placed lung markings here and there. The heart is very large. None of the usual angles indicating the junction of the various heart chambers are visible and it very well might be due to pericardial effusion but the enlargement of the heart to the right is not so much as we would expect if it were due to fluid. We would expect cardiac enlargement plus pericardial disease.

DR. BLAKE Is that consolidation at the apex?

DR. HAMPTON Yes and it fades at the base. Then he developed fluid at the left base in about twenty days. The heart does not change. This is the left main bronchus which is pushed upward. There is a definite widening of the carina and even though that is a portable film I think we are justified in assuming that the left auricle was dilated.

This is the last film and the area at the right base has almost disappeared but the density of the right apex remains. He has a new shadow here at the left midlung field and the fluid is increased in the left pleural cavity. The changes in the midportion of the lungs may have been infarcts, I do not know why this one in the apex should remain and grow larger if it is an infarct.

DR. BLAKE From this patient's history it appears that he had a nonproductive cough and night sweats for two months previous to entrance, and that he lost ten pounds in weight during the three or four months before coming to the hospital. We may assume, therefore, that his illness began at that time. The sensation of fullness in his chest with a desire to cough and inability to do so is satisfactorily explained by the physical examination showing pericardial effusion. The finding that the effusion was bloody in character at once brings us to a consideration of the conditions which may bring this about. And in addition to the three things looked for while the patient was in the hospital—namely tuberculosis, subacute bacterial endocarditis and carcinoma—we must also consider Hodgkin's disease as a possible cause of such findings before ruling any of these in or out. I would call attention to the suggestion of uremia in this patient, particularly at the end of his illness when he showed coarse friction rubs over both chests and heart apex increased pressure in the spinal fluid disorientation, and the presence of bloody fluid in his thorax as well as his early symptoms of headache, one attack of vomiting with unconsciousness, the very slight involuntary movement of the right hand and pericardial effusion. All these could very well be explained on the basis of uremia. In spite of the fact that his one urine test was reported normal and in the absence of blood chemistry reports, I am inclined to believe that his late symptoms are best explained on a uremic basis.

We cannot however interpret the x ray lung findings on this basis nor the skin manifestations he showed before death. Subacute bacterial endocarditis has to be considered particularly if we interpret the lung manifestations as evidence of infarcts. However, the lesion at the apex of the right lung is not at all characteristic of infarct and there is a striking absence of peripheral embolic manifestations as well as

repeatedly negative blood cultures. In addition to this the nodules in the skin cannot be explained by such a diagnosis. Again with regard to tuberculosis the lesions in the lung are not characteristic, and repeated examinations failed to reveal evidences of this condition from the smears or the fluid. Nor could the skin lesions be satisfactorily explained on this basis. Hodgkin's disease must be considered as it is one of the things that may give the type of bloody pericardial fluid which was shown in this case, and may give the skin nodules which were described. The lesion at the apex of the right lung could be satisfactorily explained on the basis of Hodgkin's disease as could the skin nodules. There is, however, an absence of other manifestations of glandular enlargement either in the mediastinum or elsewhere, and a daily rise of temperature over a long period of time is not characteristic of this disease. However, I do not feel that it can be completely ruled out since the manifestations of Hodgkin's disease may be strikingly limited.

The appearance of the lesion at the right apex is fairly characteristic for carcinoma and I believe we can best explain this case on the basis of a primary carcinoma either here or in the mediastinum invading the pericardium, perhaps by direct extension, and later the left pleura and skin by metastasis. In addition to this, there was congestive failure at the start of the illness based on the pericarditis, and possibly an arteriosclerotic or rheumatic heart. There was, I believe, a terminal uremia, and some infection probably in the lung to explain the phlebitis in the left leg. My second diagnosis would be Hodgkin's disease.

DR TRACY B MALLORY: Are there any other suggestions?

DR WYMAN RICHARDSON: Did you examine the brain in this case? I was wondering whether he might not have a metastatic tumor of the brain, probably bronchiogenic carcinoma.

DR MALLORY: Dr Bock, you saw this man. Will you tell us your opinion?

DR ARLIE V BOCK: As Dr Blake said, the man on admission was in shock, showed evidence of extreme cardiac tamponade and was greatly relieved by paracentesis. The removal of bloody fluid was not of much help, so far as the character of the fluid went, in making a diagnosis. The relative brevity of the history made one think of the possibility of rheumatic pericarditis and pancarditis. He was rather old, had no supporting history, and we ruled it out on that ground. We thought of the possibility of tuberculosis of the pericardium, tuberculous pericarditis, with fluid. Nothing else in the picture seemed to fit that diagnosis. Then the final conclusion was that, in view of the rapidity with which he went downhill, he prob-

ably had a malignant process in the background, presumably from a primary lung carcinoma, and that he did have very likely, in view of the earlier symptoms, a left cerebral metastasis.

DR JOHN H TALBOTT: There are two items not mentioned which are worth noting in regard to this patient. The onset of symptoms was sudden and the duration of symptoms was short. Presumably he was well until only a few days before he came to the hospital. Secondly, the amount of fluid removed from his pericardial sac was interesting. He was admitted about the same time as was a younger man suffering from rheumatic pericarditis with effusion. The physical signs showed about the same degree of effusion in both patients. Yet the amount of fluid removed from this patient was much less than from the boy with rheumatic pericarditis. The amount of fluid removed was progressively less with each tapping, and the physical signs remained unchanged. The signs of constricting pericarditis were very impressive.

DR BOCK: I think that is an important point in view of the findings. He did not consider himself incapacitated until a very few days before admission and then his presenting story was substernal discomfort and shortness of breath.

CLINICAL DIAGNOSES

Malignancy involving the pericardium and the lung
Bronchiogenic carcinoma?
Metastasis to the brain (left cerebrum)?
Tuberculosis?

DR GERALD BLAKE'S DIAGNOSIS

Carcinoma of the lung invading the pericardium

ANATOMIC DIAGNOSES

Carcinoma of the lung with extension to the pericardium, metastases to the brain and left adrenal, and implantation on the thoracic wall
Pleuritis, acute and chronic
Pericarditis, acute and chronic
Pulmonary edema
Pulmonary atelectasis, left lower
Edema of the lower extremities

PATHOLOGIC DISCUSSION

DR MALLORY: The dramatic thing at the autopsy was the appearance of the pericardium. As soon as the sternum was removed we found this enormous, firm pericardial sac. It varied from a centimeter to over 2 centimeters in thickness and I think that perhaps accounts for the peculiarity of the x-ray shadow which Dr Hampton pointed out. A pericardial effusion, as he pointed out, usually produces more of a

shadow on the right but this man's pericardium was so thick it could not be distended by the fluid. Most of what was seen at x ray examination was actual cancerous thickening of the pericardial wall rather than effusion. The latter was at no time very great and by the time of autopsy had almost disappeared entirely and the inner and outer layers of the pericardium were almost completely fused. The question then, of course, came up as to where this tumor was primary. We found a good sized tumor nodule at the apex of the right lung. We dissected down all the major bronchi very carefully and could not find any sign of involvement. We know of course that the vast majority of tumors of the lung take origin in a bronchus and usually in a bronchus of significant size. There is no theoretical reason how ever, why it may not arise in one of the small bronchi close to the periphery of the lung and in that case it would be impossible to prove it in gross. That is what we believe was the case here. In a very careful search of the rest of the body we were able to find tumor in only two other places. There was a metastatic lesion in the brain, as was predicted, and there was also a small metastasis in the adrenal. The cancer could not have been primary in the brain and it is very improbable, it seems to me that it was primary in the adrenal. That has all the characteristics of metastasis. Our experience here is that adrenal metastases are practically the commonest secondary deposits from primary cancers of the lung.

Dr. J. H. MEANS. Dr. Mallory, there was a lesion in the x ray that looked exactly like a small infarct and apparently disappeared. Was there any explanation for that?

Dr. MALLORY. We found one cluster of smaller nodules of tumor in that right lung which we believe were extensions from the primary one, and there was on the edge of the tumor mass an area of infarction in the lung. I also found on microscopic section an organized thrombus, so he may have had an infarct that was healed.

CASE 22192

PRESENTATION OF CASE

A sixty six year old native male was admitted complaining of inability to pass urine.

Except for occasional nocturia the patient had been well until one year before entry. At that time he began to pass blood with his urine. Occasionally he voided some clots which caused him considerable pain. During this period he noted that he was unable to void while lying on his back but only when on his hands and knees. After two weeks he passed a stone which measured about a quarter of an inch in diameter.

Thereafter the hematuria ceased but the patient developed nocturia of five or six times. There was no increase of diurnal urinary frequency or associated dysuria until ten days before admission.

At this time he noted considerable difficulty in initiating micturition and three days later was unable to void at all. He was attended by a local physician who inserted a catheter three times daily for the succeeding week. The patient passed considerable blood and some clots through the catheter. On the night before entry spontaneous urination became possible but the hematuria continued. For the week preceding his entry the patient had nonradiating pain in his right upper quadrant. The character of this pain was not noted.

His past history was negative except for attacks of indigestion for the past forty years.

Physical examination showed a thin dehydrated old man who appeared to have lost considerable weight recently. The skin was oily and inelastic. Oral hygiene was very poor. Small firm bilateral axillary nodes were palpated. The chest was barrel shaped but the lungs appeared to be clear. The heart was normal. There was considerable tenderness in the right upper quadrant and right costovertebral angle. The prostate was moderately enlarged, particularly the left lobe. It was firm in consistency and smooth.

The temperature was 101.5°, the pulse 90. Respirations were 20.

Examination of the urine showed a specific gravity of 1.010. There was a trace of albumin and the sediment was loaded with red blood cells. The blood showed a red cell count of 3,690,000, with a hemoglobin of 65 per cent. The white cell count was 10,900. The nonprotein nitrogen of the blood was 42 milligrams per cent. The serum protein was 5 grams. A serum calcium was 11.01 milligrams and the phosphorus was 2.92 milligrams.

X ray examination showed a dense area of calcification, measuring 1 by 0.5 centimeters, in the lower pole of the left kidney. There was mottled increased density in the right side of the true pelvis. Marked arteriosclerosis was evident. The heart was not remarkable but the aorta was tortuous. There was an old tuberculous fibrous process in the right apex. A cystogram showed an irregular filling defect involving the left posterior half of the bladder. The catheter curved about this area. There was a round area of bony condensation in the left wing of the ilium.

On the second hospital day a bilateral vasectomy was done. The patient's temperature subsided to normal but he complained of constipation and gas pains. An indwelling catheter drained well but large pieces of questionable tumor tissue passed through it. On the third

postoperative day the patient vomited 20 ounces of pale, bile free, odorless fluid. Gastric lavage drained 22 ounces of residual content with a similar appearance. An electrocardiogram showed a single auricular premature beat. QRS_1 exhibited a low amplitude, S_2 and S_3 were prominent, and T_1 was flat. Q_4 was absent and T_4 was upright with a concave S-T₄. Two days later at 2:30 a.m. the patient complained of severe epigastric pain and developed repeated vomiting and board-like rigidity of the abdomen. Peristalsis was present but there was marked tenderness in the epigastrium and pelvic peritoneal floor. The white cell count was 23,000 and a plain film of the abdomen showed free gas in the abdomen beneath both leaves of the diaphragm. The patient's temperature rose to 100° but his pulse and respirations remained at 80 and 20 respectively. A laparotomy was performed three and a half hours after the onset of the acute pain.

DIFFERENTIAL DIAGNOSIS

DR. GEORGE G. SMITH: This is a complicated case because apparently there are two entirely separate factors involving different symptoms. This is the case of a man who entered because he could not pass water. The presenting symptom was hematuria. Two weeks ago he passed a stone after which the hematuria ceased but the patient had difficulty in voiding. He had to be catheterized, thus started up a good deal of bleeding. Another complaint was that of non-radiating pain in the right upper quadrant. The only other possibly important factor in the history was that he had had attacks of indigestion for forty years. He was a dehydrated old man. Examination apparently showed not much that gave us any clue. The prostate was moderately enlarged particularly the left lobe. It was firm in consistency and smooth. He had some fever and there was blood in the urine. He had some anemia. There was no great increase in the non-protein nitrogen, which was 42 milligrams. The serum protein was somewhat low. The serum calcium was 11 milligrams, phosphorus 2.92 not particularly remarkable.

X-ray examination showed a dense area of calcification in the lower pole of the left kidney, and mottled increased density in the right side of the true pelvis. There was marked arteriosclerosis. A cystogram showed an irregular filling defect involving the left posterior half of the bladder. The catheter curved around this area. There was a round area of bony condensation in the left wing of the ilium. Of course we must look at this patient with the eyes and ears of the people who examined him. They did not state that the prostate was stony hard, which would have been suggestive of carcinoma, they say merely it was firm in consist-

ency, and smooth. I should interpret that finding as meaning a hypertrophied prostate and not a malignant one. The cystogram shows a definite irregular filling defect involving the left posterior half of the bladder around which the catheter curved. It seems to me that if we take that at its face value we have to believe that there was a tumor of the bladder on the left side. The mottling and density in the right side of the true pelvis would be much easier to explain if they were on the same side as the filling defect in the bladder. In that case you would say that he had tumor of the bladder with calcium deposit in it. But seeing it on the other side makes one feel it has nothing to do with that condition in the bladder. As far as the examination goes, our diagnosis must be entirely guesswork. Urologists are perhaps fortunate in that they can get a much clearer picture of a case from the use of intravenous pyelograms and cystoscopy, than one can get in certain other branches of medicine, but here we are deprived of these aids to diagnosis. We do not know what an intravenous pyelogram would show. We do not know what the cystoscope would show. If we had this patient we would not be rash enough to make a definite diagnosis without knowing the result of these examinations. So we are forced to guess on the evidence we have here. That evidence would seem to show that the patient had a stone in the lower pole of the left kidney and apparently a tumor of the bladder near its base and on the left side. Why he has pain in the right costovertebral angle is difficult to explain. If the pain were on the same side that the tumor of the bladder was, one would explain it on the basis of obstruction of the lower ureter, but it is on the opposite side. If he has a tumor of the left base of the bladder, and has serious difficulty with his right kidney, one would not expect his nonprotein nitrogen to be so nearly normal as it is.

They did a bilateral vasectomy on him which is now preliminary to practically all prostatic and bladder operations.

He had an electrocardiogram but I do not know what it means. I do not believe it is important on the basis of this history.

"Two days later he had sudden severe epigastric pain and developed repeated vomiting and board-like rigidity of the abdomen." The only explanation that I can give, and it seems to me a perfectly obvious explanation of the abdominal condition, is perforation of a hollow viscus. With free gas in the abdominal cavity, sudden severe epigastric pain and board-like rigidity, I should think of a perforated gastric ulcer, possibly a duodenal ulcer, which might hook up with a history of attacks of indigestion for the past forty years. I can see no reason to think that this gastric condition or perfora-

tion is connected with his urinary condition. I remember one patient—I do not know whether this is the one—who developed an ulcer in his cecum a perforating ulcer and there was no cause found for it. The history sounds a little like this but I do not remember what the other factors were, except that I think he did have a tumor of the bladder.

On the evidence that we have, I should say we may diagnose a left renal calculus, a tumor of the bladder, and a rupture of a hollow viscus which, from the location of pain, I should think was probably in the stomach or duodenum. The condition of the right kidney, the cause of pain in the right kidney, I am unable to determine on the basis of the facts which we have at hand.

X RAY INTERPRETATION

DR. GEORGE W. HOLMES. There are several films missing in this case. Examination of the chest shows large bright lung fields suggesting a moderate amount of emphysema. The heart is not noticeably enlarged and the aorta is not unusually tortuous for a man of his age. We have not got the film of the upper part of the urinary tract to show the shadow described there. The shadow seen in the other films does not look like stone, but more like an undissolved pill in the gastrointestinal tract. The interesting thing in the x ray examination is this ragged filling defect in the bladder shadow with the catheter curved around it as described. That certainly looks like a tumor of the bladder possibly tumor outside the bladder pressing into it could produce a similar picture, but I think that is unlikely. I doubt if the changes described over the sacroiliac joint and in the sacrum are really important. So far as the x ray examination goes on the material we have here one would suspect a tumor of the bladder, probably malignant and no more.

DR. TRACY B. MALLORY. Dr. Breed would you care to comment on the electrocardiogram?

DR. WILLIAM B. BREED. The flat T_1 and the upright T_4 would certainly indicate the possibility of a coronary occlusion some time in the past.

DR. MALLORY. Dr. Colby have you any comment?

DR. FLETCHER H. COLBY. The only comment I have to make is that I am glad to see a genito-urinary surgeon make a diagnosis without cystoscopy. This man was in very poor condition when he came in on the ward and that is why he was not cystoscoped.

CLINICAL DIAGNOSES

Peptic ulcer with perforation
Peritonitis
Neoplasm of the bladder
Renal calculus (left)

Chronic myocarditis
Bronchopneumonia?

DR. GEORGE G. SMITH'S DIAGNOSES

Peptic ulcer with perforation
Tumor of the bladder
Renal calculus

ANATOMIC DIAGNOSES

Gastric ulcers, multiple
Operative wounds. Closure of a perforated gastric ulcer, bilateral vasectomy
Lobar pneumonia with multiple abscesses, bilateral
Carcinoma of the bladder with necrosis and extension to the left ureter
Renal calculus left
Pyelonephritis, left.
Pyoureter, left
Cardiac infarct, old healed.
Arteriosclerosis marked coronary with occlusion of left descending branch and marked aortic
Pericarditis, chronic fibrous.
Pulmonary emphysema, compensatory bilateral

PATHOLOGIC DISCUSSION

DR. MALLORY. This man was operated on and a perforated ulcer on the posterior aspect of the pyloric ring was found and sutured. He then developed signs of pneumonia and died in the course of a few days.

The autopsy showed, besides the sutured ulcer, two other ulcers on the anterior wall, all of them practically in the pyloric ring so that he had three gastric ulcers in all. The peritoneal cavity was almost perfectly clean. He had taken care of the infection there perfectly well. He did have extensive pneumonia with early abscess formation in the lungs, however. He had complete closure of the descending branch of the left coronary artery and an infarct of the heart, an old one. In the genito-urinary tract we found a stone in the left kidney with a completely atrophied kidney on that side and a dilated pelvis full of pus. The bladder itself showed a fairly extensive epidermoid carcinoma which had grown up the left ureter for a distance of about two centimeters.

A PHYSICIAN. Was there anything to explain the pain in the right kidney?

DR. MALLORY. Absolutely nothing.

A PHYSICIAN. Could compensatory hypertrophy of the kidney produce it?

DR. MALLORY. Sudden stretching of the kidney capsule will certainly produce pain but I would not suppose that compensatory hypertrophy would occur rapidly enough. If it did, contralateral pain should be the rule following surgical nephrectomies.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States, Canada \$7.04 per year \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office, 8 Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine 8 Fenway, Boston, Mass.

THE ENACTMENT OF HOUSE BILL 34*

THE passage of House 34, as amended in House 1720, represents the most important step in the progress of medical licensure in Massachusetts, since the establishment of the Board of Registration in Medicine in 1894.

The purpose of the Bill is to give increased protection to the health of the people of Massachusetts by raising the statutory requirements for qualification for the practice of medicine and this purpose would seem to have been clearly enough expressed in the original draft. The substantive objections, apart from the allegation that no legislation at all was necessary, were that insufficient protection by specific phrasing was provided for aggrieved applicants or aggrieved schools. The amendments have met these objections and a long step forward has been taken by Massachusetts.

So important is this legislation and so signal is the victory that there is glory enough for all who have participated in assisting the Bill on its difficult way. Where so many persons have

been interested in advancing the Bill, it may seem invidious to name any individuals, but it is not out of place to designate those acting in official capacity.

In the first place, chronologically speaking, the Board of Registration in Medicine deserves credit for persistently making the recommendation for change in the law in its annual report for a number of years, and for introducing a bill each year incorporating the recommendation, in spite of the discouraging outlook.

At the Hearing on the Bill, the Massachusetts Medical Society eloquently voiced its support through its President, Dr. Mongan, and the medical profession deserves great credit for its constant efforts, made not only through the officers of the Society, but through the individual members also, who by personal representations to members of the General Court accomplished so much in removing misunderstanding, overcoming prejudice and making clear the fundamental issue.

The Joint Legislative Committee on Education, under the Chairmanship of Senator Miles, the only physician in the Legislature, who has always vigorously supported the Bill, reported this Bill favorably, for the first time since the matter came up for legislative consideration. The House promptly approved the Bill, on second reading by a vote of two to one, and on third reading three to one. In the Senate the Bill was received unfavorably but on reconsideration gained strength as its true significance became better understood and on third reading the vote was two to one. The amendments in the House were accepted in the Senate where several more were added, the Bill gaining strength steadily as the discussion was prolonged, the House vote for enactment being four to one. Thus the supporters of the Bill in both House and Senate deserve great credit for their persistent efforts, for their willingness to accept strengthening amendments, and for their firmness in rejecting nullifying or invalidating proposals, which were made frequently by the opposition.

Then His Excellency, Governor Culey, deserves great credit for his insistence that the health of the people should be protected by the establishment of reasonably high minimum standards of medical education to be enforced by state control through a board of approval of medical schools, for his insistence that Massachusetts should take its proper place with the other states in exercising control over the medical education given to candidates who desire registration for practice, for his insistence that steps should be taken to make the Massachusetts license to practice medicine such that it will be accorded general recognition, for his insistence that medical schools chartered by the General Court shall become such that they

*The text of the bill appears on page 949 of this issue.

will be recognized by state boards of licensure throughout the United States finally for his insistence that all these ends shall be accomplished by a procedure which is just to the medical school, just to the applicant who seeks to practice medicine, and most important of all just to the patient whose confidence that the physician licensed by the state is really qualified and worthy of his trust, must not be betrayed.

In short the passage of this Bill reflects great credit on all who have supported it, and who have by their efforts placed Massachusetts where it belongs in the onward march toward better medical care for all the citizens of the Commonwealth.

THE HOUSSAY LECTURES

In 1911 the *Index Medicus* recorded the name of Bernardo A. Houssay as the author of an article entitled "Contribucion al estudio de la accion de los extractos hipofisarios ensayo sobre la glándula cardio vascular del lobulo posterior." This appeared in a Mexican publication. As so often happens, this title of his first paper gave a definite indication of the direction which his interests would take. Since then the number of and wide range of learning demonstrated in his publications have been little less than phenomenal.

Professor Houssay has not only headed the department of physiology in the Faculty of Medical Science at Buenos Aires since 1919 and built up from very small beginnings a department which ranks with the best in the world but together with his associates and pupils has contributed much of the best and earliest work in many important fields of physiology.

Endocrinology in general, and especially that part of it concerning the pituitary, has been the focus of his greatest endeavor. This field is a particularly difficult one to study and one in which purely objective studies leading to definite, but conservative conclusions, are all too rare compared with the volumes of speculative, poorly controlled work that has appeared from certain sources. Professor Houssay's studies are never in the latter category and are all extremely valuable to the person who is working and studying any phase of medicine in which this gland is important.

The important relationship of the pituitary to the pancreas and to other glands has been the subject of some of his most valuable work. This type of study which goes to the roots of the physiology of such diseases as diabetes and hyperthyroidism is of fundamental importance to the practicing physician who sees such cases.

Unfortunately for many workers in the United

States practically all Professor Houssay's publications have been in Argentine French, and Spanish Journals, many of which are not widely available in the United States even to those few students who can read Spanish. Last fall he made an extended tour in this country when he gave lectures under the Dunham Foundation at Harvard, the Lane Foundation at Leland Stanford, the Herter Foundation at Johns Hopkins, and the Eastman Foundation at Rochester. He also gave a Harvey lecture in New York and other lectures at the Universities of Chicago and of Pennsylvania, the Academies of Medicine at Los Angeles and San Diego, and before the American Association for the Advancement of Science. Next fall he is coming back to Boston as an honored invited guest to the Harvard Tercentenary and will take part in a symposium on "Various Aspects of Biology" at the Medical School on September 8.

The *Journal* has been fortunate in securing the lectures, delivered on his recent trip, for publication, and the first of the series appears in this issue. These articles will be the first, by Professor Houssay, to appear in the English language and will give a summary of his most important work. They also give most extensive references to his own and other original articles in this field taken from a wide survey of the world literature on the subjects. Reprints of the whole series, bound together, will be available for sale at a reasonable price soon after the whole series has been published. The exact price will depend on the probable demand. It is desirable that those who wish to apply for copies of these lectures do so promptly so that the demand can be gauged. Please apply to the *Journal*.

CUSHING'S "JOURNAL"

HARVEY CUSHING is the outstanding living American physician, both in surgery and in literature. Many years ago, he took a special field of surgery as his own. Building on the slender foundations of his predecessors—Horsley, MacEwen and Keen—he almost single handed, erected a substantial structure now copied all over the civilized world. Thus he rightfully takes his place as a world figure, honored wherever medicine progresses. In literature his "Life of Sir William Osler" has found a permanent place, one of the best of medical biographies. To those accomplishments he has now added another, perhaps, a hundred years from now to be considered his most enduring effort. "From a Surgeon's Journal" is his diary of his war time experience, written under the stress of conditions in the field. Ships at

sea, hospitals being formed in America and in action overseas, front-line dressing stations, the mud of Flanders, gassed and wounded troops, men with "chickens" on their shoulders and men without, bombing, illness and a host of friends and associates,—the pictures are deftly painted with the sure hand of a great surgeon and the clear eye of a penetrating, and yet sympathetic, mind. To those who shared, this fine book comes as an old friend, to sit by the fire-side with in a reminiscent mood, telling tales of bygone days. To the others, and particularly those boys too young to share, the diary presents a truthful picture of events which one hopes they will never see duplicated.

MILK COMPANY OFFICIALS INDICTED

It is now common knowledge, as well as a source of widespread amazement and concern, that the chief officials of the Whiting Milk Companies have been indicted by a Suffolk grand jury for distributing in large quantities, as fresh cow's milk, a grossly adulterated substance. During the milk shortage which accompanied the March floods, according to the contention of the Boston Health Department, the Whiting Milk Companies conspired to manufacture a product from an inferior grade of Dutch skimmed milk powder and rancid South American butter, over 100,000 quarts of this fluid were sold to chain stores in the poorer districts of Boston as *pure milk*, and indeed, so great was the supply of this spurious product that new markets were sought for its disposal!

We do not know how the criminal courts will decide this issue, nor should any case be judged until the evidence is submitted and the jury has rendered its verdict, but if this charge is substantiated, as gross a case of the sacrifice of public welfare to private greed will have come to light as has been heard of since pure food laws were first enacted. Unfortunately the record of this great concern, in which so many people have placed their confidence in the past, is not entirely clean, since in 1932 the Whiting Milk Companies were convicted of adding a foreign substance to milk and paid a substantial fine.

The public has a right to expect that the dispensers of food products should consider themselves as administering a public trust. Laws have been placed upon the statute books further to safeguard the public's rights and the public health. We trust, for the sake of common decency, that these charges will prove unfounded. If the defendants are found guilty, however, then the public has a right to expect that full justice will be done to it.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

HOUSSAY, BERNARDO A. Professor of Physiology, Faculty of Veterinary Medicine, University of Buenos Aires, 1910. M.D. Faculty of Medicine, University of Buenos Aires 1911. Professor of Physiology, Faculty of Medical Sciences, University of Buenos Aires 1919. His subject is What We Have Learned from the Toad Concerning Hypophyseal Functions. Page 913. Address: University of Buenos Aires, Buenos Aires, Argentina, S. A.

SCHUBE, PURCELL G. B.A., B.M., M.D. University of Cincinnati College of Medicine 1929. Formerly, Intern, Cincinnati General Hospital. Resident, Good Samaritan Hospital. Fellow, Neuropsychiatry, Colorado Psychopathic Hospital, Denver, Colo. Assistant Physician, Neuropsychiatric Institute and Hospital, Hartford Retreat, Hartford, Conn. Now, Physician in Charge, Psychiatric Clinic, Boston State Hospital. His subject is A Study of the Use of Cocaine in Dealing with the Effects of Barbiturate Acid Derivatives. Page 926. Address: Boston State Hospital, Dorchester Centre, Mass.

ROTHSCHILD, DAVID. B.Sc., M.D. McGill University, Faculty of Medicine 1922. Senior Physician and Director of Research, Foxborough State Hospital. Consulting Neuropsychiatrist, Brockton Hospital, Brockton, Mass. Address: Foxborough State Hospital, Foxborough, Mass. Associated with him is

SHARP, MORRIS L. M.D. Tufts College Medical School 1932. Junior Assistant Physician, Foxborough State Hospital. Address: Foxborough State Hospital, Foxborough, Mass. Their subject is Frequency of Active Tuberculosis in a Hospital for Mental Diseases. Page 929.

LITTLE, RUFUS R. A.B., M.D. University of Pennsylvania Medical School 1930. Assistant Physician, North Reading State Sanatorium. His subject is Congenital Defect of the Pectoral Muscles. Page 934. Address: North Reading State Sanatorium, North Reading, Mass.

CORRIDEN, THOMAS F. M.D. University of Vermont College of Medicine 1920. F.A.C.S. Consultant in Surgery, Veterans Administration Facility Hospital, Northampton, Mass., No. 95, and Northampton State Hospital. Surgeon, Cooley Dickinson Hospital, Northampton, Mass. His subject is Acute, Ulcerative, Terminal Ileitis and Colitis. Page 936. Address: 16 Center Street, Northampton, Mass.

The Massachusetts Medical Society

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524 Commonwealth Ave., Boston Mass. 472 Commonwealth Ave.
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BREECH DELIVERY 2

The operation of breech extraction bears the same relation to a breech presentation as does forceps delivery to a vertex presentation and has, in strict interpretation the same indications, e.g., conditions which demand prompt termination of labor in the interest of either mother or child. As with forceps delivery breech extraction should be carried out only

1 When there is no disproportion between the infant and the maternal pelvis

2 When the os is fully dilated in relation to the presenting part, and the membranes have ruptured spontaneously or have been ruptured as a preliminary step

3 When the patient is under the administration of full anesthesia.

4 When adequately trained assistance is at hand

Since the details of these conditions have been considered in the previous section of the communication it remains only to discuss the technique of extraction, which, save in the matter of the management of the submechanism of the breech, is identical in frank, full and footling presentations.

1 Under full anesthesia and with the vulva and perineum aseptically prepared the feet of the infant should be grasped. This step is simple in the full and double footling presentations, as the feet are low in the birth canal and may even be at the vulva. In frank breech presentations, where the hips are flexed and the knees extended the feet should be secured by the Pinard maneuver. To do this the perineum should first be dilated until the entire hand can be passed into the vagina. The right hand should be selected when the baby's back lies to the mother's right (RSA and RSP positions) the left when the position is LSA or LSP. In each case the palm of the hand inserted will face the infant's belly and the posterior aspect of its thighs. By making pressure on the posterior aspect of the thigh thereby hyperflexing the hip and tensing the hamstring muscles, the leg will flex at the knee and the foot will prolapse

within the grasp of the hand. It is well in this step to bear the following points in mind

a The breech must be pushed up above the pelvic brim in order to make room for the maneuver

b The umbilical cord will usually be felt and if wrapped around a leg or if between the legs, should be disengaged and displaced upward out of the way

c. The maneuver should be carried out between uterine contractions

d Each step should be effected methodically and without haste

e Both legs should be secured

In single footling presentations where the anterior foot is prolapsed, it is not essential to flex out the posterior leg. When however the posterior foot presents it is better judgment in all cases to secure the anterior by the method above described, as attempts to deliver a breech by traction only on the posterior leg may result in delay due to the tendency of the infant to straddle the maternal symphysis

2 After both feet have been secured traction should be made on both of them obliquely downward toward the floor exerting moderate pressure on the perineum. The use of a sterile towel to grasp the feet will provide a secure grip. As the knees appear the grip should be shifted upward on the legs thence upward to the lower thighs after the knees are born. The anterior hip of the infant will be rotated to the pubic arch by the resistance of the pelvic floor and will soon be identified beneath the pubis. Traction upward will now deliver the posterior hip over the perineum

3 Shifting the grip upward to grasp the hips traction is now continued obliquely downward rotating the baby's back upward and keeping it upward until time for delivery of the shoulders, for by so doing the shoulders are brought into relation with the widest transverse diameter of the pelvic inlet through which they are about to pass. As the umbilicus passes over the perineum the cord should be pulled down several inches from above in order to allow slack for the balance of the delivery

4 No attempt should be made to deliver the shoulders or arms until the scapulae can be either seen or definitely palpated beneath the arch. The grip is then shifted upward to embrace the thorax of the baby and the anterior shoulder is rotated ninety degrees to the arch keeping the body well downward against the perineum. Usually the arm will be found well flexed alongside the thorax and the elbow is swept out by the operator passing two fingers over the shoulder fixing the tips in the antecubital region and splinting the humerus,

A series of short selected articles by members of the Section is being published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

as he presses with the digital phalanges. The infant is now rotated one hundred and eighty degrees on its long axis, keeping the back uppermost, one hand over the delivered shoulder, and the other on the opposite side of the thorax to effect rotation, the shoulder which was originally posterior is now anterior, and the arm is delivered as above described.

Should the anterior shoulder prove to have an extended arm, attempts to deliver the latter should be postponed. The posterior shoulder should be made anterior without delay, the act of rotating serving to wipe the arm, if originally extended, down across the face, the shoulder originally anterior, now posterior, is again made anterior, when it will be found to have been also wiped down across the face and to lie alongside the thorax. *At no time during rotation should traction be made, and at all times the back should be kept uppermost.*

5 The arms once delivered, the towel used for traction should at once be discarded. For a right (left) handed operator the infant should be now laid face downward astride his left (right) forearm. The index and middle fingers of his left (right) hand are passed into the vagina and into the mouth of the infant to be used to guide the chin over the perineum. The right (left) palm seeks the cephalic prominence above the symphysis and steadily presses the baby's occiput into the pelvis, while the left (right) arm raises the body upward over the pubic region. This maneuver suffices to flex the head over the perineum in most multiparae, should it not suffice, a deep mediolateral episiotomy should be done without delay, a step which should be the rule with a primiparous breech extraction. If, despite this, the head does not descend and flex easily, the baby's feet and legs should be grasped in a sterile towel by an assistant and the body held high in front of the vulva, no time should then be lost in application of forceps to the aftercoming head and flexion by this means over the perineum.

Considerations of space do not permit an extended discussion of the pathological aspects of breech delivery. Sufficient has been described, however, to indicate that a successful outcome of this type of labor must be predicated upon the principle of eternal study and vigilance, and upon judgment and operative ability which can be acquired only by training and experience.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 10

Berkshire

Thursday, May 14, at 4 30 P.M., at the House of Mercy Hospital, Pittsfield Subject

Lung Diseases (Medical) — (a), Differential Diagnosis and Treatment of Lobar Pneumonia (b) Symptoms and Signs in Chronic Lung Disease, Tuberculosis, Bronchiectasis, etc. Instructor S H Proger. Melvin H Walker, Jr, Chairman

Bristol North

Wednesday, May 13, at 7 30 P.M., at the Morton Hospital, Taunton Subject Medical Economics Instructor C Frothingham. Arthur R Crandell, Chairman

Bristol South (New Bedford Section)

Friday, May 15, at 4 00 P.M., at the St Luke's Hospital, New Bedford Subject Syphilis and Gonorrhea — Syphilis Modern Treatment The Use of Neosalvarsan, Tryparsamid, Bismuth, Mercury, Potassium Iodide, etc., in Office Practice. Gonorrhea Treatment of Complications as Seen in General Practice. Instructors A. W Cheever and N A Nelson. Harold E Perry, Chairman

Franklin

Wednesday, May 13, at 8 00 P.M., at the Franklin County Public Hospital, Greenfield. Subject Psychiatry — Psychobiology in General Medicine. Instructor K J Tillotson. Halbert G Stetson, Chairman

Middlesex East

Wednesday, May 13, at 4 00 P.M., at the Melrose Hospital, Melrose Subject Diseases of the Liver—Hepatitis and Painless Jaundice. Problems in Diagnosis and Treatment. Instructor C M Jones. Joseph H Fay, Chairman

Middlesex North

Friday, May 15, at 7 00 P.M., at the Lowell General Hospital, Lowell Subject Lung Diseases — (a) Significance of Symptoms and Signs in Chronic Lung Disease, Tuberculosis, Bronchiectasis, etc (b) The Value of Surgery in Above Disease Problems. Instructors H F Newton and D S King. Leonard C Dursthoff, Chairman

Norfolk

Friday, May 15, at 8 30 P.M., at the Norwood Hospital, Norwood Subject Pediatrics (Surgical)—Abdominal Disease in Childhood. Instructor H W Hudson, Jr. H B C Riemer, Chairman

Worcester (Milford Section)

Wednesday, May 13, at 8 30 P.M., at the Milford Hospital, Milford, Subject Ophthalmology and Otolaryngology—(a) The Major Hazards in Diagnosis of Disease of the Eye, Ear, Nose and Throat as Seen in General Practice (b) Special Treatment in Acute Medical and Traumatic Diseases of the Eye. Emergencies Arising in the Treatment of the Ear, Nose and Throat. Instructors T Gundersen and F L Wellie. Joseph I Ashkins, Sub-Chairman

MASSACHUSETTS LEGISLATIVE
NOTES

House 34 has been amended under House 1 20 by striking out all after the enacting clause and inserting in place thereof the following (which includes the recommendation of His Excellency the Governor) —

"SECTION 1 Section two of chapter one hundred and twelve of the General Laws is hereby amended by striking out the second sentence, as appearing in section one of chapter one hundred and seventy one of the acts of nineteen hundred and thirty three and inserting in place thereof the following —

"Each applicant who shall furnish the board with satisfactory proof that he is twenty-one or over and of good moral character that he possesses the educational qualifications required for graduation from a public high school, that he has completed two years of pre-medical collegiate work including physics chemistry and biology in a college or university approved by a body consisting of the secretary of the board, the commissioner of education and the commissioner of public health, in this section referred to as the approving authority that he has attended courses of instruction for four years of not less than thirty-two school weeks in one or more legally chartered medical schools and that he has received the degree of doctor of medicine or its equivalent from a legally chartered medical school having the power to confer degrees in medicine and approved by the approving authority shall, upon payment of twenty-five dollars, be examined, and if found qualified by the board, be registered as a qualified physician and entitled to a certificate in testimony thereof signed by the chairman and secretary. An applicant aggrieved by the refusal of the approving authority to approve a medical school under this section shall be entitled to have the reasonableness of such refusal reviewed by a justice of the superior court whose decision shall be final.

"SECTION 2. Said section two of said chapter one hundred and twelve, as amended, is hereby further amended by adding at the end thereof the following three new paragraphs —

"The approving authority shall upon the request of any college university or medical school in this commonwealth inspect said college university or medical school and notify its trustees or other governing body in writing if said college, university or medical school is approved by the approving authority for the purposes of this section or if not, what steps said college university or medical school must take in order to gain the approval of the approving authority

"Any college university or medical school desiring to be approved for the purposes of this section may file with the approving authority a written request for the approval of such college, university or medical school and thereupon a public hearing shall be seasonably granted by the approving authority and

a written decision made by it within twenty days after the termination of such hearing and the applicant for such approval shall be notified of such decision. A written decision of the approving authority refusing to approve any college university or medical school shall not become effective until thirty days after written notice of such decision is given to the college university or medical school seeking such approval. Every such college university or medical school aggrieved by such refusal shall have the right to file a petition in the superior court for Suffolk county to revise or reverse the decision of the approving authority. Notice of the entry of such petition shall be given to the secretary of the board of registration in medicine and all proceedings connected therewith shall be according to rules regulating the trial of civil causes without juries. The court shall hear the case and finally determine whether or not such approval shall be granted or revised.

Upon the filing of such a petition within the aforesaid period of thirty days then the said decision of the approving authority shall not become effective until a final decree affirming said decision is entered upon the aforesaid petition.

"SECTION 3 The provisions of said section two of said chapter one hundred and twelve as existing immediately prior to January first, nineteen hundred and thirty-nine shall continue to govern as to the eligibility of any applicant for registration as a qualified physician who shall have matriculated prior to said date in any legally chartered medical school having power to confer degrees in medicine but subject, however to the provisions of section two of chapter one hundred and seventy-one of the acts of nineteen hundred and thirty-three.

"SECTION 4 For purposes of examination and registration of applicants and of approval of medical schools osteopathic schools recognized by the American Osteopathic Association shall have the same standing before the board of registration in medicine, and the approving authority provided for in section one as medical schools recognized by the American Medical Association.

SECTION 5 The approving authority provided for in section one shall within three months after the effective date of this section publish the qualifications that said authority will require of a college university or medical school in order that it be approved under section one.

"SECTION 6 The provisions of this act providing new eligibility requirements for applicants for registration as qualified physicians shall become effective January first, nineteen hundred and thirty-nine."

HOUSE 1759

Reported on Senate 321. A new draft as below
Resolved reviving and continuing the special commission on public health laws and policies

Resolved, That the unpaid special commissioners established under chapter eleven of the resolves of

nineteen hundred and thirty-five, for the purpose of studying and investigating the public health laws and policies of the commonwealth, is hereby revived and continued, and said commission is hereby directed to study the subject matter of the House resolve printed as Senate document number three hundred and twenty one of the acts of the current year relative to construction of a new hospital for the treatment of infantile paralysis and arthritis. The final report of said commission shall be filed with the clerk of the House of Representatives on or before the first Wednesday of December in the current year.

Senate 24 April 29 Report leave to withdraw Accepted in Senate (Final) The bill was designed to abolish the several Boards of Trustees of institutions in the departments of Mental Diseases and Public Welfare

MISCELLANY

CONNECTICUT NEWS

The Fairfield County Medical Association held its 144th annual meeting in Bridgeport on Tuesday, April 14, 1936. At this meeting the following officers were elected for the year 1936-37:

President—John Shea, M.D., Bridgeport
Vice-President—John H. Staub, M.D., Stamford
Secretary—R. Harold Lockhart, M.D., Bridgeport
Treasurer—Clifton C. Taylor, M.D., Bridgeport
Councilor—James D. Gold, M.D., Bridgeport

After an active business session the members were addressed by Dr. Walter S. Lillie, Professor of Ophthalmology, Temple University, on "Ophthalmological Changes Produced by Intracranial Lesions," and by Dr. Temple Fay, Professor of Neurological Surgery, Temple University, on "The Diagnosis of Cerebral Tumors."

Dr. Harry L. F. Locke has been appointed chairman of a special committee of the health division of the Hartford Chamber of Commerce which will direct participation for the third year in National Child Health Week. During this Child Health Week, an outgrowth of the dedication by Herbert Hoover, while president, of May 7 to better and healthier children, the care of the teeth will be stressed.

The health committee has pledged support to a dental health program initiated by the State Department of Health and to the plan of the local Department of Health for a campaign during May to immunize preschool children against diphtheria.

In 1933 the Chamber of Commerce endorsed the first Oral Hygiene program conducted by the Hartford Dental Society during Child Health Week. This present campaign will point out the value of dental care by means of posters and talks.

The special commission created by the last session of the General Assembly to study and inquire into the present financial responsibility act of Con-

necticut, with the purpose of suggesting alterations, amendments, or revisions of the act, has been sitting almost weekly since August, 1935. Suggestions have been solicited from many groups of citizens whose activities the present financial responsibility law has in some manner or form touched or controlled. Coroners, hospital managers, doctors, welfare administrators, officials of the State of Massachusetts, casualty company executives—all these and many more have been consulted and the suggestions offered run the whole distance from the proponents of the compulsory insurance idea down to the proponents of the theory of more restricted issuance of registrations and licenses to drivers.

That the topic is a timely one and that the conclusions of the committee will be awaited with interest is manifest on all sides. The State of New York has recently had a commission studying the same or similar subjects, various other commonwealths of the country are canvassing the situation and within the past ten days the State of Maine appointed a commission to study the problem.

There is a tendency in many states to pattern their laws after the Connecticut Responsibility Act and there is a feeling that Connecticut's contribution to the present discussion will bear considerable weight.

MENTAL HOSPITALS AND THE PUBLIC

The present relationship between the mental hospital and the community holds much that is fundamentally wrong, according to Dr. C. C. Burlingame, Psychiatrist in Chief of the Neuropsychiatric Institute of the Hartford Retreat. "This basic relationship will have to be changed before a better order of things can come. We, as workers in the field, have been too willing to remain as little isolated patches, or, may I say, detached artificial communities within a civilization of which, to a surprising degree, we have failed to be a real part."

"As a corollary, I might well indict the social order which continues to expect to solve the great problem of mental and nervous illness and yet allow the mental hospital to remain in such an isolated, detached relationship to the remainder of the present-day social structure and body politic."

"Those responsible for mental institutional care cry out against the indifference on the part of the public, against low appropriations, against the indifference to the sufferer from mental illness as opposed to the generosity to the sufferer from physical illness."

"In other words, the hospital for mental illness must not be a negative symbol of defeat from which people turn away in distaste; it must be a positive force in the community, exercising, in an ever widening sphere of influence for constructive good, a medium for the dissemination of education and a potent factor in breaking down the age-old prejudices against diseases of the mind."

Dr. Burlingame in his annual report emphasized the growth of the Neuropsychiatric Institute during

the past five years told how it had passed into the most active preventive and therapeutic field, but what should and does give us the greatest satisfaction is the fact that we have returned a far greater number of people to society who have benefited by their stay.

We must make mental hospitals more normal, conduct them more normally and more closely simulate appearances, practices and the division of responsibility that obtains in the community at large.

It is an undeveloped state of mind in the public which has created literally thousands of endowed general hospitals, backed by private philanthropy and lavish charity while but a handful of endowed institutions are providing care for mental and nervous cases. That must be changed.

"The general hospitals have a perfect army of friends who come forward and tell of their experiences and express their gratitude but the mental hospital most often hears only from the paranoid and disgruntled and the self-seeking as the army of those who have been helped during a nervous and mental illness still hesitate to come forward because they fear unenlightened public opinion and believe that revealing the fact that they have been in a mental hospital is tantamount to dragging the family skeleton from the closet.

THE NEGRO TUBERCULOSIS DEATH RATE IN HARTFORD

The death rate from tuberculosis in Hartford has dropped sharply during the past fifty years but this decrease has taken place almost entirely among the white population. The white death rate from tuberculosis was ten times as high fifty years ago as it is now. The present colored death rate from tuberculosis however is as high as the white rate was fifty years ago and is now ten times as high as the present white rate. While the colored population of Hartford is only about four per cent of the total it accounts for twenty-nine per cent of the tuberculosis deaths.

Fifty years ago the death rate from tuberculosis in Hartford was 365 per 100,000 population. In 1935 it was white 32, colored 363 per 100,000. New Haven for 1935 showed a tuberculosis death rate of white 43, colored 105 per 100,000 population.

In Detroit the colored tuberculosis death rate was reduced from 355 in 1915 to 248 in 1935 chiefly through a program conducted by the colored people. The Detroit Health Bulletin describes this program thus: "While it is true that the colored rate is about six times as high as that of the white group there is a commendable spirit among the colored people of Detroit to do everything possible to prevent the spread of infection among their people. Several colored physicians have taken special courses to make themselves proficient in the treatment of tuberculosis and several private hospitals have been established for the care of their afflicted. There has been established an organization among the colored people to promote sanitary living conditions

and to encourage the physical examination of all those who give symptoms suspicious of tuberculosis.

SUCCESS IN BOVINE TUBERCULOSIS ERADICATION PROGRAM

After seventeen years of effort Connecticut has become a modified accredited area in the bovine tuberculosis eradication program. The announcement which recently came from Washington means that on the last test less than one-half of one per cent of the cattle in the state reacted positively. This campaign to drive tuberculosis from Connecticut dairy herds has cost \$3,250,000. Ninety thousand cattle equal to one-half the normal cattle population of the state, have been condemned and slaughtered. The completion of this task was made possible by an emergency appropriation of \$150,000 granted by the 1935 General Assembly and by additional funds made available through the Agricultural Adjustment Administration at Washington. Since the beginning of this campaign in 1919 Connecticut has spent for indemnities roughly \$2,000,000. The Federal Government has contributed about \$1,250,000.

Connecticut now becomes the thirty-ninth state in the country to qualify as a modified accredited area. The last of the New England States except Rhode Island. Its task was more difficult than many other states since it was considered the most heavily infected state in the country with an average percentage of infection considered conservatively at thirty per cent. As neighboring states made more rapid progress in the early years of the campaign and as rules grew stricter elsewhere tuberculous cattle were shipped into Connecticut until it became a dumping ground of the unfit.

Hartford County several years ago became the first accredited area in the state, testing in this county being stimulated by the insistence of the Hartford (City) Board of Health that milk must come from tested herds. Tolland and Middlesex Counties followed, then Windham and Litchfield Counties. Within the past few weeks New London, New Haven and Fairfield Counties qualified. All dairy herds within the state are under supervision. If there has been a reactor in the herd at the last test, the herd is tested again in ninety days. Herds without reactors are tested once a year. In every case reactors are condemned and slaughtered.

FLOOD CONDITIONS IN THE HOSPITALS OF HARTFORD

A survey of the four largest hospitals in Hartford since the subsidence of the Connecticut River revealed the fact that varying conditions existed. St. Francis Hospital probably suffered the least since it was without electricity from the plant supplying the city only one night, and during this time it used its own emergency lighting system. The operating room schedule was not curtailed. At the other extreme was Mt. Sinai Hospital with no electric power for six days after which time it secured current from its own generator installed for the duration of

the emergency, five more days. It was necessary to operate by candle and flashlights.

The Municipal Hospital received no electric power from the usual supply for seventy-two hours, and during this time had no heat. The emergency unit supplied sufficient light to carry on work but only emergency operating was permitted. The Hartford Hospital, the largest in the city, was not dependent on electricity for its heat. It was necessary, however, to use its own electric generating plant for an entire week since this was more reliable although it supplied but one-half the usual load to the hospital. At times the hospital would switch back to the crippled city supply for a few hours at night. Only emergency surgery was done during this period.

ANNUAL MEETING OF HARTFORD COUNTY MEDICAL ASSOCIATION

The 144th annual meeting of the Hartford County Medical Association was held in Hartford on the afternoon and evening of April 7, 1936. The afternoon session, opening at 4:30, was concerned chiefly with the reports of officers and committees. Of particular interest among the latter was a report by Dr. Henry N. Costello in which was presented a review of medical legislation in the Connecticut General Assembly from 1919 to 1935. This supplemented a similar report given by the same chairman one year ago in which the period 1911 to 1919 was covered. The afternoon session closed with a résumé of the achievements of the Committee on Tumor Study of the Connecticut Medical Society by its chairman, Dr. Thomas H. Russell of New Haven.

One hundred and fifteen convened at the Hartford Club for dinner. Dr. Arthur B. Landry, retiring president of the Association, presented an excellent paper on "Unfinished Business." Honorable Newell Jennings, Judge of the Superior Court of Hartford County, spoke very entertainingly on "Expert Medical Testimony." Dr. Stephen Rushmore of Boston, guest at the dinner, briefly discussed Judge Jennings' paper.

Thirteen new members were elected to the Association bringing the total membership to 472.

The following were elected to office:

President, Ralph A. Richardson, M.D., Bristol, Vice-President, Maurice T. Root, M.D., West Hartford, Secretary-Treasurer, Stanley B. Weld, M.D., Hartford.

Member of Board of Censors for 3 years, Arthur B. Landry, M.D., Hartford.

Member of Committee on Public Policy and Legislation for 2 years, Aaron T. Pratt, M.D., Windsor.

State Delegates for 3 years, Vincent Mendillo, M.D., New Britain, D. C. Y. Moore, M.D., South Manchester, and William Hanrahan, M.D., Bristol.

THE ADDRESS ON "EXPERT MEDICAL TESTIMONY," BY
HONORABLE NEWELL JENNINGS, JUDGE OF THE SUPERIOR COURT OF HARTFORD COUNTY

Judge Jennings prefaced his remarks by saying that in looking around for material on this subject

he could find very little, in fact there was but one text on the subject in the combined State and County Bar libraries. This was by Lawson and too dry to be readable. He divided his subject into two parts, first, testimony as to fact, and secondly, opinion testimony. Facts are very important in the trial of cases. The physician called to testify cannot help the court and his clients any better than by having a clear grasp of the facts. Medical testimony differs from no other testimony offered in court other than it is given by a physician in the practice of his profession. Testimony as to fact is from observation and is not subject to dispute. The physician's language in court should be simple and couched in such terms that the jury and judge can readily understand. It is important for the physician to remember that he should use plain everyday English in the sense it is used by the jurymen and the lay judge. Many physicians' statements have to be translated. This is necessary because his opinion is based on the facts. The facts presented should be accurate and to this end it is of inestimable value that the physician have his records with him.

Opinion testimony, on the other hand, is not permissible in our United States system of jurisprudence but is admitted as a matter of necessity. This is evident in a situation where the facts have been presented to the jury and the jury, in turn, because of its limited knowledge, has no way of forming an opinion. In such a situation the opinion of an expert is allowed.

Opinion testimony may be based on observation or fact, or it may be based on hypothesis. Opinion testimony based on observation is the usual and most important form. According to Lawson, expert medical testimony was formerly as a rule based on hypothetical facts but this is no longer true. Now the most important testimony is based on actual observation. True, two men may look at the same phenomenon and derive therefrom different opinions. The controversy usually arises between the family physician who has had more and longer opportunities of observation of a case and the physician called in by the defendant to testify after making one or two examinations. Juries are often confused but there is nothing more fatal to the trial of a case than to have the jury discover it has been misled. The differences in the opinions between physicians are usually not striking except in mental cases. This is due to the different theories pertaining to mental science, also to the differences between the medical and legal definitions of sanity. Mentally we all differ from the norm in the psychiatrist's eyes but legally there is no such difference, only sanity and insanity. The jury pays attention only to the facts.

Opinion testimony based on hypothesis is not so important as formerly. It was formerly a long drawn out affair met, if possible, by more numerous and more tedious objections. At present it has fallen into disuse. There are certain kinds of hypotheses which are of value and arise when opportunities for observation have not been satisfactory.

In closing Judge Jennings referred to the question of a physician's qualification. Many through false or real modesty make it necessary to have dragged out of them their qualifications. The value of a physician's opinion depends on facts and one of the facts is the statement as to his own education and preparation. The most important qualification of the doctor is honesty. About eighty per cent of cases are settled out of court, the remainder are tried because of a difference of opinion. His final plea to the profession was for a clear presentation of facts in English that could be understood not too concise but full and complete.

THE SIXTY-FOURTH ANNUAL REPORT OF THE HARTFORD DISPENSARY

In this document the largest item of income is \$29,840.89 contributed by the Hartford Community Chest which together with the payments of patients of \$8,093.95, fees by the laity and income of endowments, make a total income of \$42,249.46. The disbursements were of an equal amount.

The report of Dr. Stanley B. Weld, Physician-in-Chief, showed that 33,938 treatments were furnished during 1935 as compared with 38,564 in 1934.

The cost per treatment increased from seventy-six cents to one dollar. The number of clinics has increased to twenty-eight.

MIDDLESEX COUNTY MEDICAL ASSOCIATION

At the annual meeting of the Middlesex County Medical Association held at the Edgewood Country Club, Cromwell, Thursday, April 9, 1936, the following officers were elected:

President, Louis O. LaBella, M.D. Vice-President, Harold M. Spaight, M.D. Secretary-Treasurer, G. Mansfield Craig, M.D.

Guest speakers were Philip Woodbridge, M.D., and Samuel A. Marshall, M.D., both from the Lahey Clinic, Boston.

APPOINTMENT OF DR. LABELLA

On April 6, 1936, Dr. Louis O. LaBella was appointed Health Officer for the city of Middletown.

APPOINTMENTS IN THE HARVARD MEDICAL SCHOOL

The following Harvard Medical School appointments for the year beginning September 1, 1936, have been announced:

HUNTINGTON MEMORIAL HOSPITAL

Ernest Merrill Deland—Consulting Surgeon.
Varazdat Hovhannes Kazanjian—Consulting Surgeon (Plastic Surgery).
George Adams Leland, Jr.—Surgeon.
Charles Carroll Lund—Surgeon.
George Gilbert Smith—Surgeon (Genito-Urinary).

Grantley Walder Taylor—Surgeon.
Joe Vincent Meigs—Associate Surgeon.
Fletcher Hatch Colby—Assistant Surgeon (Genito-Urinary).
Charles Longdon Parsons—Assistant Surgeon.
Charles Louis Swan, Jr.—Assistant Surgeon.
Arthur Moses Greenwood—Dermatologist.
Clarence Guy Lane—Dermatologist.
Edwards Woodbridge Herman—Laryngologist.
Leroy Allen Schall—Assistant Laryngologist.
Simeon Burt Wolbach—Consulting Pathologist to the Cancer Commission.
Shields Warren—Pathologist to the Cancer Commission and to the Huntington Hospital.
Olive Gates—Assistant Pathologist to the Cancer Commission and to Huntington Hospital.
Merrill Clary Sosman—Consulting Roentgenologist.
Richard Dresser—Roentgenologist.
William Thomas Salter—Associate Physician to the Huntington Hospital and Research Fellow in Biological Chemistry to the Cancer Commission.
Francis Tannery Hunter—Associate Physician.
Henry Jackson, Jr.—Associate Physician.
Austin Moore Brues—Assistant Physician.
John Alfred Calhoun, Jr.—Assistant Physician.
Paul Charles Zamecnik—Resident Physician.
Ira Theodore Nathanson—Lucius Littauer Fellow.
Clark Edward Brown—Lucius Littauer Fellow.
George Herbert Hitchings—Research Fellow.
Robert Harold Oster—Research Fellow.
Joseph Briggs Howland—Administrator.

CANCER COMMISSION

James Bryant Conant, Chairman. Joseph Briggs Howland, Secretary. Charles Sidney Burwell, Elliott Proctor Joslin, Edwin Bidwell Wilson, Simeon Burt Wolbach, Robert Battey Greenough, Channing Chamberlain, Simmons, Ernest Edward Tyxer, Lawrence Joseph Henderson, Hans Zinsser, George Richards Minot, Joseph Charles Aub, William John Crozier.

ADVISORY BOARD

James Bryant Conant, Chairman. Charles Jackson, Treasurer. William Perkins Homans, Deputy Treasurer. Joseph Briggs Howland, Secretary. Charles Grey Bancroft, Robert Winsor, Jr., Alfred Harlow Avery, Phillips Ketchum.

ADMINISTRATIVE COMMITTEE

Charles Sidney Burwell, Chairman. Joseph Briggs Howland, Secretary. Lawrence Joseph Hender, Joseph Charles Aub.

THE APPOINTMENT OF DR. FRANK FREMONT SMITH

Dr. Frank Fremont Smith, until recently Assistant Professor of Neuropathology at the Harvard Medical School, and Associate Psychiatrist at the Massachusetts General Hospital, was appointed on February 1, 1936, to the staff of the Josiah Macy Jr. Foundation. Dr. Fremont-Smith will be in charge of the Medical Division to which he will give full time.

DR WILLIAM D McFEE WILL ATTEND THE INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE

Dr William D McFee will act as official delegate to the Sixth International Congress of Physical Medicine and Physiotherapy in London, May 12 to 16 representing the Public Health Service of the United States, his appointment having been authorized by President Roosevelt. He will also be the official delegate of the Academy of Physical Medicine and of the New England Physical Therapy Society.

At the Section on Electrotherapy Dr McFee will present a report on the Present Status of Fever Therapy in the United States by Dr McFee and Dr Hosea W McAdoo.

Dr McFee has served as Vice-President of the International Association of Physical Medicine and Physiotherapy since his election at the Congress in Liege, Belgium, in 1930.

PHYSICIANS' ART EXHIBITION

The following physicians contributed to the exhibition recently held at the Doll and Richards Galleries, 138 Newbury Street, Boston: E. P. Bagg, Lawrence W. Baker, J. Dellinger, Barney, Robert M. Bell, Howard Coggeshall, Frederic J. Cotton, William P. Coues, John R. Graham, Lewis Webb Hill, James C. Janney, Arthur Bates Lyon, James H. Means, Harris P. Mosher, Claude L. Payzant, Hale Powers, Walter F. Sawyer, Somers H. Sturgis, Fritz B. Talbot, Nathan B. Talbot, G. W. Taylor, Sidney C. Wiggin and A. William Reggio.

ONLY ONE CASE OF TYPHOID FEVER REPORTED IN APRIL

According to alleged reports by Dr Gaylord Anderson of the Massachusetts Department of Public Health, only one case of typhoid fever was reported in Massachusetts during April. That was in Waltham and outside the flood area.

MORTALITY RATES

Telegraphic returns from 86 cities with a total population of thirty-seven millions for the week ending April 18 indicate a mortality rate of 13.2 as against a rate of 12.3 for the corresponding week of last year. The highest rate (23.8) appears for Evansville, Ind., and the lowest (4.9) for Somerville, Mass. The highest infant mortality rate (13.9) appears for New Orleans, La., and the lowest for Cambridge, Mass., Duluth, Minn., Erie, Pa., Long Beach, Calif., Lowell and Lynn, Mass., and Waterbury, Conn., which reported no infant mortality.

The annual rate for 86 cities is 13.6 for the sixteen weeks of 1936, as against a rate of 12.6 for the corresponding period of the previous year.

SUMMARY OF MORTALITY FROM AUTOMOBILE ACCIDENTS

The Bureau of the Census announces that during the four weeks ending April 11, 1936, 86 large cities in the United States reported 567 deaths from automobile accidents. This number (567) compares with

630 deaths during the four weeks ending April 13, 1935. Most of these deaths were the result of accidents which occurred within the corporate limits of the city, although some accidents occurred outside of the city limits.

THE BOSTON PSYCHOANALYTIC INSTITUTE

A little more than fifteen years ago, the necessity for organized teaching according to academic standards, in the new and rapidly developing science of psychoanalysis, became manifest. It was this necessity for systematized training which, in 1920, instigated the establishment of the first Psychoanalytic Institute in Berlin. Previous to this, the usual method of teaching and learning psychoanalysis consisted essentially in undergoing a personal analysis by an experienced analyst. Following the original Berlin plan, there gradually evolved a systematized curriculum and training, supervised by training committees, who planned courses for accepted candidates and who designated certain analysts as qualified teachers. This systematic training consisted of supervised or controlled work with clinical cases and theoretical and clinical seminars, in addition to the personal analysis previously utilized.

As a result of these developments, training institutes were subsequently established in various European centers (London, Vienna, Paris, Budapest) and in the United States at New York (1931) and Chicago (1932). The Boston Psychoanalytic Institute, incorporated in Massachusetts, founded by the Boston Psychoanalytic Society in October, 1935, and under its supervision, is the third of such training institutes in American cities.

The aim of the Boston Psychoanalytic Institute is to provide a center of instruction in the field of psychoanalysis and related subjects for such properly qualified individuals as are selected by the Training Committee of the Boston Psychoanalytic Society. Among the future plans of the Institute are the establishment of a clinic for psychoanalytic treatment of patients with moderate means, systematic research in problems of clinical psychoanalysis and lectures for general practitioners.

The Institute is under the supervision of a Board of Trustees elected by the Boston Psychoanalytic Society, the majority of the members of this Board being selected from the Educational (Training) Committee of the Society. The trustees of the Institute are as follows: William Barrett, M.D., Isador H. Coriat, M.D., Leola Dalrymple, M.D., William Healey, M.D., M. Ralph Kaufman, M.D., John Murray, M.D., Martin W. Peck, M.D., Dr. Hanns Sachs and Dr. Helene Deutsch are members of the advisory board.

The activities of the Institute consist of lectures and clinical and theoretical seminars on psychoanalysis given to properly qualified individuals. Some of these courses and seminars are obligatory for all candidates in training. Among the courses offered are seminars on clinical psychoanalysis, technique, instincts, psychoanalytic psychiatry,

dream interpretation child analysis Freud's writings lectures on problems of adolescence, etc. The Institute thus offers a postgraduate training for physicians who wish to specialize in psychoanalysis and also gives opportunities for training in various nontherapeutic applications of analysis to those engaged in professional fields allied to medicine. The instruction at the Institute is given by training analysts who are appointed by the Educational Committee of the Boston Psychoanalytic Society. Admission to membership in the Society is open only to those who have satisfactorily completed the required training at the Boston or some other Institute which is recognized by the International Psychoanalytic Association.

Dr M. Ralph Kaufman, Riverbank Court Hotel, Cambridge Mass., is chairman of the Educational Committee to whom all inquiries should be addressed.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR MARCH 1936

Disease	Mar., 1936	Mar., 1935	5 yr. average*
Anterior Poliomyelitis	—	—	—
Chickenpox	1 137	1 149	1 14
Diphtheria	2	24	104
Dog Bite	677	716	396
Epidemic Cerebrospinal Meningitis	39	9	—
German Measles	816	5 120	1 16
Gonorrhea	485	51	—
Lobar Pneumonia	768	501	534
Measles	3 975	1 974	3 161
Mumps	2 477	532	812
Paratyphoid	1	—	—
Scarlet Fever	1 307	1 066	1 680
Syphilis	493	556	423
Tuberculosis Pulmonary	280	311	390
Tuberculosis, Other Forms	44	38	44
Typhoid Fever	5	6	7
Undulant Fever	4	3	—
Whooping Cough	399	777	1 164

Based on the figure for the preceding 5 years.

RARE DISEASES

Anthrax was reported from Lynn 1 August 1 total 2.

Diphtheria was reported from Boston 8 Bridgewater 2 Brockton, 1 Hanover 1 Lowell 3 Millbury 1 Newton 1 Quincy 1 Revere, 1 Somerville, 1 Waltham 1 West Bridgewater 1 total 23.

Encephalitis lethargica was reported from Boston, 1 August, 1 total 3.

Epidemic cerebrospinal meningitis was reported from Ashland, 1 Belmont, 1 Boston 18 Bourne, 1 Bridgewater 4 Cambridge, 1 Dracut, 1 Easthampton 3 Hull 1 Lincoln 1 Natick, 1 Quincy 1 Somerville, 2 Southboro, 1 Springfield, 1 Whitman, 1 total 39.

Pellagra was reported from Boston 1 Waltham 1 total, 2.

Septic sore throat was reported from Beverly 1 Boston 9 Concord 1 Danvers 1 Easthampton 1 Gardner 5 Georgetown, 1 Lynn 2 Malden 1 Melrose, 1 Petersham 4 Somerville, 1 total 28.

Trachoma was reported from Boston 1 Cambridge 1 Malden, 1 total 3.

Trichinosis was reported from Boston 4.

Typhus was reported from Chelsea 1.

Undulant fever was reported from Ashby 1 Boston 1 Bourne 1 Conway 1 total, 4.

Diphtheria and pulmonary tuberculosis had their lowest reported March morbidity in the history of the State.

Epidemic cerebrospinal meningitis. Exclusive of twenty-two cases which occurred at two institutions the balance of seventeen is higher than for any March since 1930 with practically all sections of the State represented.

Undulant fever continues to be reported more frequently than in previous years.

Lobar pneumonia morbidity remained above the five-year average.

The incidence of typhoid fever to date is somewhat higher than in 1935 although the monthly figure fell below the previous year for the first time.

Since last August the reported incidence of mumps has been the maximum recorded for the State. Scarlet fever morbidity is running above both the 1934 and 1935 figures but well below 1932 and 1933.

Whooping cough had its lowest reported March incidence since 1917.

The reported incidence of German measles remained higher than usual but not to compare with the epidemic figures of 1935.

The reporting of anterior poliomyelitis, chickenpox, measles, and tuberculosis other forms was not remarkable.

HEALTH OFFICERS MONTHLY STATEMENT OF VENEREAL DISEASES REPORTED IN NEW ENGLAND FOR FEBRUARY 1936

State	Syphilis		Gonorrhea	
	Cases Reported	Monthly Case Rate per 10 000 Population	Cases Reported	Monthly Case Rate per 10 000 Population
Connecticut	204	1.23	114	.69
Maine	23	.29	53	.66
Massachusetts	426	.98	396	.91
New Hampshire	12	.26	13	.28
Rhode Island	153	2.24	59	.84
Vermont	12	.33	11	.30

—Public Health Service

THE CERTIFICATION OF MASSACHUSETTS PSYCHIATRISTS

The American Board of Psychiatry and Neurology has certified a list of twenty-six Massachusetts physicians as qualified to practice this specialty. The list is as follows: Clarence A. Bonner, Ralph M. Chambers, Roderick B. Dexter, Lonnie O. Farrar, Winfred Overholser, Harlan Paine, Harry C. Solomon, Charles E. Thompson, Geneva Tryon, C. Macfie Campbell, James V. May, Joseph E. Barrett, Gaylord P. Coon, Frederick LeDrew, Jackson M. Thomas, David Rothschild, and Purcell G. Schube.

CORRESPONDENCE

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Illinois,
May 1, 1936

New England Journal of Medicine,

In addition to the articles enumerated in our letter of April 1 the following have been accepted:

Cheplin Biological Laboratories, Inc.

Mercury Salicylate, 1 Grain (0.065 Gm.) Suspended in Oil, 1 cc

National Drug Co.

Refined Tetanus Toxoid (Alum Precipitated)

Scientific Sugars Co.

Kinney's Cod Liver Oil Concentrate Capsules

Kinney's Cod Liver Oil Concentrate Liquid

G. D. Searle & Co.

Ampoules Bismuth Sodium Tartrate—Searle, 3 per cent, 2 cc

Solution Bismuth Sodium Tartrate — Searle, 3 per cent, 60 cc vial

Sharp & Dohme, Inc.

Antipneumococcal Serum Types I and II

United States Standard Products Co.

Bismuth Salicylate in Oil

Scarlet Fever Streptococcus Toxin for the Dick Test

Winthrop Chemical Co., Inc.

Granules Protargol Compound

PAUL NICHOLAS LEECH, *Secretary,*

Council on Pharmacy and Chemistry

UNDULANT FEVER

A LETTER TO DOCTORS

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

April, 1936

During 1935, forty-two cases of undulant fever, one of which was fatal, were reported in Massachusetts. These cases occurred, with one or two exceptions, among users of raw milk, the cases being confined to those sections of the State where such milk is still sold. Unquestionably these figures, which are a

distinct increase over those of previous years, do not represent the total incidence of this disease which has become the principal milk borne infection in this State. Already in 1936 more cases have been reported than for the corresponding period of last year. Although the disease is rarely fatal, it is frequently extremely crippling, the patient being incapacitated for a period of months.

Such infections are usually contracted from the consumption of raw milk from infected herds. The only other source of infection is through contact with infected animals, this hazard being limited obviously to those whose occupation brings them into such contact. The prevention of the disease in animals is not yet possible, inasmuch as surveys of the State show a very high proportion of the cattle to be infected. If undulant fever is to be prevented, therefore, it is essential that all those milk supplies where pasteurization is feasible be so protected.

The united support of the medical profession is essential in any program toward improvement of the milk supplies. In some sections, however, there has been hesitation in recommending pasteurization because of a feeling that this procedure might impair the food value of the milk. This Department is not aware of any scientific evidence to support such a belief. Numerous studies have been made on this subject, all of which show an unimpaired food value. In order that some of this evidence may be brought before you so that you may form an independent opinion on the subject, the Department is sending herewith reprints regarding this subject and will send additional reprints when and as they are available.

Very truly yours,

HENRY D. CHADWICK, M.D.,
Commissioner of Public Health

EDITORIAL NOTE Enclosed with this letter were two reprints* by Leslie C. Frank and others of the United States Public Health Service emphasizing the food value of milk and the necessity of boiling or pasteurizing it in order to guarantee its safety.

*Frank, Leslie C. What every person should know about milk. Public Health Reports (Dec. 14) 1934.

*Frank, Leslie C., Clark, F. A., Haskell, W. H. et al. Do children who drink raw milk thrive better than children who drink pasteurized or other heated milk? Public Health Reports (Sept. 23) 1932.

RECENT DEATHS

KONIKOW—MOSES J. KONIKOW, M.D., of 726 Washington Street, Brookline, Massachusetts, died April 26, 1936. Dr. Konikow was born in Russia in 1868. After a preliminary education there and in Switzerland, he was given his M.D. degree by the University of Berne, Switzerland, in 1893, and came to Boston in the same year. He joined the Massachusetts Medical Society in 1894 and retired in 1933.

A widow, two sons and three daughters survive him.

REYNOLDS—JOHN TIMOTHY REYNOLDS M.D. of Quincy Massachusetts died at the New England Baptist Hospital, Boston April 28 1936 after a short illness.

Dr Reynolds was born in Winchester Massachusetts the son of Mr and Mrs Richard Reynolds and after graduating from Holy Cross College studied at the Baltimore Medical College and received his M.D. degree in 1905.

He was the founder of the Reynolds Hospital in Quincy and was a Fellow of the Massachusetts Medical Society and the American Medical Association.

Three sons, Richard Reynolds of Washington John Reynolds Jr., and Lawrence Reynolds both of Quincy and four daughters Mrs. Margaret Blanch of Braintree Mrs. Eleanor Reilly of Milton and the Misses Barbara and Rosemary Reynolds, of Quincy survive him.

Mrs. Reynolds died two years ago.

MORRISON—ARCHIBALD BENJAMIN MORRISON M.D. of 1493 Beacon Street, Brookline Massachusetts died at his home May 3, 1936 after an illness of two years.

Dr Morrison was born in Inverness County Nova Scotia, in 1864.

He graduated from the College of Physicians and Surgeons of Baltimore in 1906 and for the succeeding ten years served at the Boston City Hospital. While there he joined the Massachusetts Medical Society in 1906. After leaving the City Hospital Dr Morrison practiced in Deer Isle and China Maine, but after a few years returned to Massachusetts and located in Brookline.

His practice was confined to otolaryngology and ophthalmology.

Dr Morrison is survived by his widow Mrs. Currie E. (Brown) Morrison and a daughter Miss Enid Morrison.

NOTICES

STAFF ROUNDS AT THE PETER BENT BRIGHAM HOSPITAL

On Saturdays in the wards of the Peter Bent Brigham Hospital from 10 00 to 12 00 Staff Rounds will be conducted by Dr Henry A. Christian Physician in Chief Hersey Professor of the Theory and Practice of Physic at the Harvard Medical School. To these, practitioners and medical students are cordially invited.

SURGICAL LECTURES AT THE PETER BENT BRIGHAM HOSPITAL AMPHITHEATRE

Dr K. H. Gieritz, Surgeon-in-Chief Sabbatsbergs Sjukhus Stockholm Surgeon-in-Chief Pro Tempore Peter Bent Brigham Hospital.

May 18, 1936 Monday 2-4 P.M. Twenty Five Years of Experience in the Treatment of Peritonitis.

May 20 1936, Wednesday 2-4 P.M. Thrombo-Embolic Disease and Its Surgical Treatment

May 25 1936 Monday 2-4 P.M. Development of Respiratory Apparatus for Thoracic Surgery
All students and doctors will be welcome

TWO WORTHY INDIGENT PHYSICIANS

The sister of a reputable physician has notified this Journal of two elderly women physicians living together one a member of the Massachusetts Medical Society and the other a former member who are suffering for want of the comforts of life.

If anyone is interested in contributing money or food for these women, the facts are available at the office of this Journal.

HOSPITAL ADMINISTRATION

Dr Joseph C. Doane Medical Director of the Jewish Hospital Philadelphia, has arranged to give a short course in hospital operation this summer at Cornell University June 29 to July 11.

Students will devote all of their study time to hospital problems. The plan is to give executive instruction in the latest and generally endorsed methods for promoting efficient and economic administration of hospital problems.

Full information can be obtained on application to Professor Howard B. Meek of Cornell University Ithaca, New York.

REPORTS AND NOTICES OF MEETINGS

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

The seventy-seventh annual meeting of the Worcester North District Medical Society was held at Burbank Hospital Wednesday April 22. Dr George P. Norton president, presided. The invocation was given by Rev. A. Vincent Bennett, rector of Christ Episcopal Church.

The annual election of officers resulted as follows: President Dr Sherman Perry Winchendon vice-president, Dr James F. Cuddy of Athol secretary Dr Francis M. McMurray treasurer Dr Frederick H. Thompson, Jr. councillors Dr Thomas R. Donovan, Dr Richard A. Morgner Dr Harry R. Nye and Dr Charles J. Laserte both of Leominster and Dr Albert F. Lowell of Gardner censors supervisor Dr T. Donovan Dr Edward A. Adams Dr F. H. Thompson Jr., Dr Bartholomew P. Sweeney of Leominster Dr Alfred A. Wheeler of Leominster delegates for nomination of state officers: Dr G. P. Norton alternate Dr John H. Kearney commissioner of trials Dr Nye of Leominster.

The report of the treasurer Dr F. H. Thompson Jr., showed a cash balance of \$308.20.

Among those present who spoke were Mayor Robert E. Greenwood who extended the greetings of the city Dr Howard M. Clute Boston surgeon and Richard Bullock superintendent of the hospital.

Dr Nye made a report of the committee on pub-

lic relations and Dr Frederick H Thompson, Sr, gave a résumé of the activities of the Fitchburg cancer clinic

The annual oration was delivered by Dr Clifford L Derick of Boston, associate professor at Harvard University and a nonresident consulting physician at Bulbank Hospital His subject was "Staphylococcus Infection and Its Treatment"

A steak dinner was served by the hospital authorities and a rising vote of thanks was given to the superintendent and trustees of the hospital for the courtesy and facilities of the hospital for the meeting

Dr Norton in closing spoke of the pleasure he enjoyed as president during the past year and thanked the members for their attendance and assistance given him The secretary reported the deaths of two members during the year, Dr H W Ellam of Gardner and Dr Edward G Fosgate of Ashburnham

MASSACHUSETTS MEMORIAL HOSPITALS

There will be a luncheon meeting of the Surgical Section in the Aid Association Room, ground floor, Talbot Memorial, 82 East Concord Street, Boston on Friday, May 8, 1936, at 12 noon

"Massive Torsion of the Mesentery of the Small Intestine—A Case Report presented by Dr Ensio K F Ronka

Surgical deaths during April will be discussed
MILO C GREEN, M D, *Secretary*

THE SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, May 19, 1936, at 12 noon The speaker will be Howard B Sprague, M D, Assistant Physician, Massachusetts General Hospital Visiting Physician, House of the Good Samaritan, Assistant in Medicine, Harvard University Medical School, Courses for Graduates His subject will be Failure of the Circulation All physicians are cordially invited to attend Luncheon will be served at 1 o'clock

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance), Tuesday evening, May 12, at 8 15 P M

PROGRAM

Presentation of Cases

Development of the Cells of the Blood and Bone Marrow By Florence R Sabin, M D, Member, Rockefeller Institute for Medical Research, New York City

Medical students and physicians are cordially invited to attend

MARSHALL N FULTON, M D, *Secretary*

NORFOLK DISTRICT MEDICAL SOCIETY

EIGHTY SIXTH ANNUAL MEETING

The annual meeting of the Norfolk District Medical Society will be held at the Woodland Golf Club, West Newton, on May 12

ORDER OF EXERCISES

Business Meeting 7 00 P M

1 Minutes of Previous Meeting

2 Report of the Treasurer

3 Reports of Committees

4 Election of Officers

5 Incidental Business

Dinner 8 00 P M

Following the dinner there will be an Illustrated Lecture by Commander Donald B MacMillan, noted Arctic explorer

Commander MacMillan's lecture will be a general talk on the Arctic regions illustrated by means of both still and motion pictures It will include many of his unusual experiences with Peary in his polar expeditions as well as a wealth of material based upon his own expeditions in the exploration of these regions Commander MacMillan is an intensely interesting and able speaker and your Executive Committee urges you to make a special effort to attend

In accordance with our recent custom, members are invited to have ladies accompany them Dinner tickets for members will be \$1.50 and for their guests \$2.50 Please notify the secretary not later than Saturday, May 9, as dinner reservations must be made with the club management in advance

GOLF

Members are invited to enjoy the privileges of the links during the entire day

LEIGHTON F JOHNSON, M D, *President*,

FRANK S CRICKSHANK, M D, *Secretary*

1247 Beacon Street, Brookline

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Essex South District Medical Society will be held Wednesday, May 13, 1936, at the Salem Country Club

Dinner at 7 00 P M

Speaker Dr Paul White

Subject "A Medical Pilgrimage to Ancient Greece and Medieval Italy", with moving pictures

HANFORD CARVELL, M D, *President*

R E STONE, M D, *Secretary*

SOCIETY MEETINGS.

CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY, MAY 11, 1936

Monday, May 11—

9 A.M. Massachusetts General Hospital Orthopedic Clinic

Tuesday May 12—

*9-10 A.M. Boston Dispensary 25 Bennet Street,
Boston Clinical Preventive Medicine Dr Robert W Buck

- 9 30 A.M. Massachusetts General Hospital. Thoracic Clinic. Ether Dome
30 P.M. Pediatric Ward Visit. Massachusetts Eye and Ear Infirmary
15 P.M. Harvard Medical Society. Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance)

Wednesday May 13—

- 9 10 A.M. Boston Dispensary. 5 Bennet Street Boston. Hospital Case Presentation. Dr S J Thannhauser
11 A.M. Clinico Pathological Conference Children's Hospital.
3 P.M. Massachusetts General Hospital. Psychiatric Clinic. Out Patient Department Amphitheatre.

Thursday May 14—

- 8 30 9 20 A.M. Clinic Surgical Staff of the Peter Bent Brigham Hospital, at the Peter Bent Brigham Hospital.
9 A.M. Massachusetts General Hospital. Surgical Grand Rounds. Amphitheatre
9 10 A.M. Boston Dispensary. 5 Bennet Street Boston. Effect of Protamine Insulin on the Blood Sugar Case Presentation. Dr Harry Blotner
11 A.M. Massachusetts General Hospital. Medical Grand Rounds. Ether Dome.
12 M. Massachusetts General Hospital. Clinico-Pathological Conference

Friday May 15—

- 9 10 A.M. Boston Dispensary. 5 Bennet Street Boston. Thyroid and Psycho. Dr Janus H. Means.
10 30 A.M. Massachusetts General Hospital. Fracture Rounds.
11 1 P.M. Boston University School of Medicine. Surgical Clinic Boston City Hospital. Cheever Amphitheatre

Saturday May 16—

- 9 10 A.M. Boston Dispensary. 25 Bennet Street Boston. Hospital Case Presentation. Dr S J Thannhauser
10 A.M. 12 M. Staff Rounds at the Peter Bent Brigham Hospital. Conducted by Dr Henry A. Christian.

Open to the medical profession.
Open to Fellows of the Massachusetts Medical Society

- May 7—Faulkner Hospital Clinical Meeting at 5 P.M.
May 8—Massachusetts Memorial Hospitals Luncheon Meeting. Surgical Section. See page 948.
May 11—American Medical Golfers Play in Kansas City. See page 710 issue of April.
May 11—American Association for the Study and Control of Rheumatic Diseases. See page 811 issue of April 6.
May 11 12—Annual Joint Meeting of the American Association of Medical Milk Commissioners and Certified Milk Producers. See page 852, issue of April 22.
May 12—American Heart Association. Inc. See page 712, issue of April 7, and page 901 issue of April 30.
May 12—Harvard Medical Society. See page 958.
May 12 16—The International Congress of Physical Medicine. See page 412 issue of February 7.
May 15—Boston University School of Medicine Surgical Clinic. Boston City Hospital. See page 901 issue of April 30.
May 16—Staff Rounds at the Peter Bent Brigham Hospital. See page 937.
May 18—Springfield Medical Association. 8 30 P.M. at the Rooms of the Springfield Academy of Medicine, 20 Maple Street. The Development of Medicine in the United States, 1636-1926. Dr Henry E. Sigerist.
May 18—The American Neisserian Medical Society. See page 811 issue of April 16.
May 18, 20 25—Surgical Lectures at the Peter Bent Brigham Hospital by Dr R. H. Glert. See page 953.
May 19—The South End Medical Club. See page 953.
May 31 June 1—International Cardiological Meeting. Royal (Avenue) Assembly of Physiologists, Pathologists and Therapists. See page 164 issue of April 9.
June 15 19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore Md.
June 16-July 23—Summer Course in Bacteriology. See page 345 issue of February 9.

June 23 July 11—Hospital Administration. See page 957.

September 1935—First International Conference on Fever Therapy. See page 113 issue of December 26, 1935.

September, 1935—First International Congress of Sanatoria and Private Nursing Homes. See page 803 issue of April 16.

September 7 10—International Union against Tuberculosis. See page 554, issue of March 12.

October 19 23—Clinical Congress of the American College of Surgeons. See page 180 issue of January 23.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

May 7—Censors' Meeting. See page 863 issue of April 3.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 7—Thursday Censors' Meeting
May 13—Wednesday Annual Meeting. Salem Country Club. Dinner at 7 P.M. Speaker Dr Paul White. See page 953.

R. E. STONE, M.D. Secretary

38 Lthrop Boulevard Beverly

FRANKLIN DISTRICT MEDICAL SOCIETY

May 12—Weldon Hotel Greenfield at 11 A.M.

CHARLES MOLINE, M.D. Secretary

Sunderland

NORFOLK DISTRICT MEDICAL SOCIETY

May 12—Annual Meeting. See page 958.
The censors meet for the examination of candidates May 7 1936 November 5 1938.

FRANK S. CRUICKSHANK, M.D. Secretary
136 Beacon Street, Brookline.

PLYMOUTH DISTRICT MEDICAL SOCIETY

May 21—Lakeville State Sanatorium.

G. A. MOORE, M.D. Secretary

167 Newbury Street, Brockton

SUFFOLK DISTRICT MEDICAL SOCIETY

May 7—Censors' Meeting. 4 P.M. 8 Fenway Boston

ROBERT L. DeNORMANDIE, M.D., President
CHARLES C. LUND, M.D. Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

May 7—Censors' Meeting. See page 713 issue of April 2.

May 13—Wednesday afternoon and evening Annual Meeting of Society

ERWIN C. MILLER, M.D. Secretary

37 Elm Street Worcester

BOOK REVIEWS

From a Surgeon's Journal 1915-1918. Harvey Cushing. Boston. Little Brown and Company 555 pages \$5 00

This long awaited diary covering March to May 1915 and March, 1917 to November 1918 will take its place as one of the outstanding books of the Great War. The author pre-eminent in the field of surgery made a distinct place for himself in literature with his 'Life of Sir William Osler' published in 1915. He has now given us a glorious account of his war experiences in a day-by-day diary carefully recording the events he witnessed in his sojourn with the French Army and his longer stay with the British and American Expeditionary Forces.

In 1915 he spent three months with the Ambulance

has been measured and that have been published up to date, twenty-two were prepared and studied in our Institute^{1 2 48 49 50 53 54 55 117} The metabolism was diminished (average 16 per cent) in all except three, in which there was no decrease. These three dogs were the only ones which had a high columnar epithelium in the thyroid.

In the rat we found, like Collip, an average decrease of 24 per cent. In the toad no metabolic decrease occurred except when there was advanced asthenia*.

In hypophysectomized dogs there is thyroid insufficiency but not athyroidism because if the thyroid gland is removed there is a further metabolic decrease reaching to 24 per cent. On the other hand the metabolic decrease in thyroidectomized animals (average 24 per cent) is not modified by hypophysectomy.

Tuberal lesions caused a decrease in the metabolism in eleven of the twenty-two dogs studied up to date (eleven by Grafe and his collaborators, eleven in our Institute by Mazzocco,¹¹⁷ Solari¹³³). It is probable that in these cases, as in others, the tuberal lesion diminishes or inhibits the thyrotropic action of the anterior pituitary, but in several animals there was no atrophy of the thyroid epithelium. It is also possible that the tuber has a direct action on the pituitary or on other mechanisms.

A rise in metabolism occurs on injection of anterior pituitary extracts which have a thyrotropic action, the degree of rise depending on the species studied†. In the experiments of Artundo and Solari⁴ and Houssay and Artundo^{53 54 55} in both normal or hypophysectomized dogs there was a metabolic increase of between 28 and 62 per cent, accompanied by hyperactivity of the thyroid (high epithelium, liquefaction and reabsorption of colloid) and by signs of hyperfunction (tachycardia, polypnea, slight rise in temperature, loss of weight, polyuria). These phenomena do not occur if the injected animal is already thyroidectomized‡ although some animals have a slight metabolic increase and others a diminution.^{51 52 54}

We have not studied the habituation that is observed with prolonged treatment. In these cases a gradual decrease in metabolism which falls below the normal is seen and an antithyrotropic substance appears in the blood, (Anderson and Collip, Collip, etc.). In this connection it must be remembered that other anterior pituitary extracts depress metabolism (Falta, Verzar, Magistris, etc.).

The specific dynamic action in twenty hypoph-

*In other batrachians a decrease has been observed. Observations at different temperatures should be repeated.

†Blasotti by nasal insufflation of the acetone extracted powder of anterior pituitary lobe in some human cases obtained an increase in basal metabolism and polyuria. In others this result was not obtained.

‡Care must be taken to verify that only the parathyroids remain and that no thyroid tissue has been left.

yssectomized dogs was found to be equal to that seen in normal animals^{1 2 55 117*}. There is a slight decrease in the specific dynamic action after thyroidectomy, which is more pronounced if the pituitary is also removed.⁵⁵

In conclusion the anterior pituitary has an indirect tonic action on basal metabolism, through its influence on the development and maintenance of the thyroid gland.

WATER METABOLISM

It is impossible even to mention all the complex problems presented by the physiological and pharmacological actions of the pituitary on different aspects of water metabolism so I will confine myself almost exclusively to the results of work done in our Institute.

Hypophysectomy almost always causes an intense polyuria† in dogs, rats and toads within a few hours of operation. This polyuria is transient in the great majority of dogs, and the rate of formation and the composition of the urine return to normal very soon,⁸⁸ possibly because the tuberal part remains. From the time of recovery from the initial polyuric stage, water administered is eliminated either with slight retardation^{81 82 83} or else normally (Refoizo, unpublished results).

Lesions of the tuber cinereum produce an intense polyuria which is frequently transient but at times permanent.^{38 73 98 99 130 131 140 144 166 178 179 181 194 254 313 421 etc.} This phenomenon seen by Aschner¹⁴⁰ and amply studied by Camus and Roussy^{178 179} has been confirmed many times in our Institute. Polyuria is observed only when the region in the neighborhood of the tuber cinereum is damaged. It does not occur if the lesion is produced outside this zone, as, for example, in the base (Houssay and collaborators, 1915-20) or in the dorsal surface of the brain¹⁰⁰ (Fig. 1). The polyuria occurs even when the pituitary appears to be histologically normal. This tuberal polyuria can be obtained experimentally in dogs,^{38 72 73 98 99 130 131} toads,^{80 124} sometimes in rabbits,³³ rats,³⁶⁹ pigeons^{371 372} and is also seen in man in cases with pathological changes.^{167 306 307 313 etc.}

The tuberal polyuria occurs in dogs with previously denervated kidneys^{72 99 144 175 01} after the splanchnics have been cut and the lumbar sympathetic chain extirpated¹³¹ and also when the liver and pancreas have been denervated (Rubio¹³¹).

There may be lesions in various of the hypothalamic nuclei in animals suffering from polyuria but the only constant lesions are those of the tuberal nuclei (Ramirez Coria,¹²⁶ confirming Camus, Gounay and Le Grand,¹⁷⁷ Gournay²⁴⁸).

*This statement is made without reference to what may occur in man since we have not studied the latter species.

†Confirmed by numerous workers since it was discovered by Vassallo and Sacchi¹²⁰ in the dog.

Polyuria usually precedes polydipsia and is seen even if the animal is deprived of water. The animals suffering from polyuria may be distinguished from the controls in water deprivation experiments by the fact that the diuresis is more prolonged, the density of the urine increases later and the blood becomes more concentrated.

Posterior lobe extract usually has an oliguric

its absence causes polyuria. When blood of a heart lung kidney preparation is diffused through the head of a dog it causes a decrease in polyuria and an increase in the elimination of chlorides. Perfusion through the pelvis and hind legs has no effect. If however the pituitary has been previously extirpated perfusion through the head also fails to check the polyuria.¹²⁸ Hypophysectomy in a few hours causes

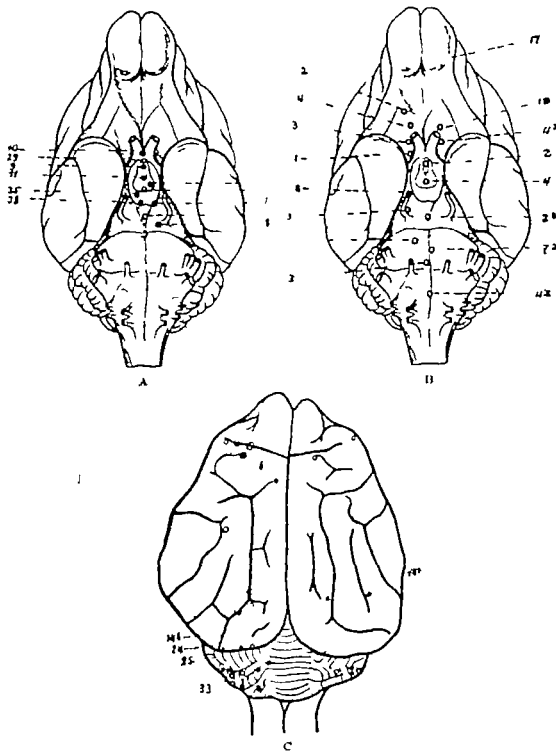


FIG. 1

Drawing of a dog's brain showing the position of pituitary glands which resulted in diabetes insipidus. A and B of those which did not alter the water metabolism in B and C.

action in normal animals^{12, 30, 141, 175} and also in animals in which the kidneys have been denervated.^{79, 283} In certain conditions, however, it acts as a diuretic.^{41, 284, 285}

Posterior pituitary lobe extract diminishes or counteracts experimental or pathological polyuria insipida but its action is only transient, particularly if the polyuria is very intense (Houssay and Hug^{31, 32, 43}).

The experiments of Verney^{4, 5} and Brull^{142, 170} favor the theory that a pituitary secretion physiologically modifies normal diuresis and that

polyuria and fall in chloride excretion which pituitrin corrects.¹⁴⁰ If the blood vessels of a kidney are united to those of a polyuric dog it secretes dilute urine but if the irrigation is changed for that of a dog with intact pituitary the kidney secretes more concentrated urine.^{1, 143}

It is therefore probable that tubular polyuria is to be attributed in great part to an inhibition of the kidney regulating secretion of the posterior pituitary.

The results we have obtained with toads in

our Institute are of great interest. Polyuria may be produced in toads of the species *Bufo arenarum* Hensell, as was observed by Hous-say, Gusti, and Goñalons.⁸⁰ This was carefully analyzed by Pasqualini (work being published) and shown to be due to insufficiency of the neuro-intermediate lobe affecting especially the renal function. In toads polyuria occurs in 70 per cent of total hypophysectomies, in 33 per cent where the principal lobe is extirpated,* and in 20 per cent where there are diencephalic lesions (of the *infundibular lobe* or of the *pars basalis lamina terminalis*). In the first two groups it is immediate, progressive, intense and persistent, in those with diencephalic lesions the polyuria is transient.

The renal origin of the polyuria, through a deficiency of neuro-intermediate secretion, is suggested by the following facts: 1. The polyuria persists even when the animal is deprived of water until urine secretion ceases. 2. From the moment the diuresis ceases the animal loses weight by evaporation until the final rate of evaporation equals that in controls. 3. Water injected into the abdomen is eliminated more rapidly in the hypophysectomized animal. 4. If the ureters are ligated, cutaneous absorption of water is equal both in hypophysectomized and control animals. 5. The neuro-intermediate lobe and pitressin will stop the polyuria. With very large doses oliguria or anuria may be produced. 6. These results may be observed in animals deprived of water and with or without injection of water into the peritoneum. 7. Large doses of neuro-intermediate lobe extract have another action completely apart from the renal. This consists in the production of edema, with a great increase in weight, in both normal and nephrectomized animals.^{5 171 262 410 411 412 etc} If the animal is placed in a hypertonic solution there is no such effect. Pitressin is more active than pitocin. Besides the renal action in these cases there is an increase in the permeabil-

*In this case probably owing to hypofunction of the remaining neuro intermediate lobe

ity of the skin to water.¹²¹ For the sake of brevity I will omit further details. Thyiotropic anterior pituitary lobe extract causes polyuria in the dog by its thyroid stim-ulating action, but does not do so if the thyroid has been previously extirpated.^{8 150} It is not modified by castration, section of the splanchnics, etc.

MINERAL METABOLISM

Maizeni and Geischman have shown that the blood plasma of hypophysectomized dogs has a diminished amount of potassium.^{88 112 113} In eighteen dogs the average was 16.3 mgm per 100 cc. On the other hand the calcium is normal,^{34, 35 88 112 113} 11.6 mgm average in forty seven dogs, and so is the magnesium, 2.03 mgm in twenty dogs. No significant alterations are found in chlorine, phosphorus, sodium and CO₂ (Table 1).

The decrease in the potassium of the plasma is not seen in thyroidectomized or pancreatectomized animals. It occurs in some dogs with tubercular lesions (average 17.2 mgm in eight animals) probably due to a certain degree of pituitary hypofunction.

Extirpation of the pituitary and pancreas in the same dogs causes the modifications found in both hypophysectomized (decrease in potassium) and pancreatectomized (decrease in calcium, chlorides and sodium) animals. The alkali re-serve, however, is only a little lowered and acido-sis and ketonuria are very slight (attenuation of diabetes due to pituitary insufficiency).¹¹³

Alkaline anterior pituitary extract (in large doses intraperitoneally) causes an abnormal rise in the alkali reserve, and in phosphates, cal-cium, magnesium and potassium.* The chlorides and sodium are lowered, the latter to a less marked degree (Table 1). These results are not due to hyperthyroidism since, except for the hypercalcemia, they are observed in thyroidec-

*Potassium returns to normal in the hypophysectomized ani-mals but is not modified in the controls. It should also be remembered that diabetes develops under this treatment.

TABLE 1
MINERAL CONTENTS OF THE BLOOD PLASMA OF DOGS UNDER DIFFERENT EXPERIMENTAL CONDITIONS

Operation and Number of Dogs	Blood Sugar in Gm per 100 cc	Red Cell Vol- ume	Total CO ₂ Vol %	Mgm per Cent of Plasma Inorganic Substances					
				Cl	P	K	Na	Ca	Mg
Normal dogs (11).....	0.095	43.9	48.2	389	4.18	18.9	385	11.2	2.08
Hypophysectomized dogs (9).....	0.090	42.5	47.5	386	3.95	15.7	396	11.2	1.89
Tuber cinereum lesion dogs (3).....	—	51.9	48.3	389	3.77	17.1	395	11.6	1.74
Thyroidectomized dogs (6).....	0.109	45.9	49.6	381	4.14	18.7	379	10.2	1.85
Normal dogs injected with glandu- lar lobe extract (6).....	0.266	42.3	53.8	325	7.88	18.8	345	12.8	2.34
Normal dogs injected with organ extracts (2).....	0.135	46.2	48.1	368	3.44	17.9	388	11.1	1.83
Pancreatectomized dogs (2).....	—	34.0	31.9	356	5.88	18.5	352	8.3	1.69
Hypophysectomized and pancrea- tized dogs (3).....	—	33.0	54.1	296	4.18	15.2	323	8.5	1.90

tomized animals, nor have they a nonspecific effect since they are not produced by extracts of kidney and muscle. The rise in calcium is not seen in thyroparathyroidectomized animals that is to say, when the parathyroids are missing.

The urinary elimination of phosphates is almost the same in hypophysectomized dogs as in normal animals when on a meat diet, but it is diminished more than in the normals during total fasting and the decrease is greater still when there is protein fasting.^{24, 25} There is a marked decrease of phosphatase in the serum of hypophysectomized dogs (Martinez, unpublished work).

IODINE METABOLISM

In more than twenty five papers, we have published the studies made in our Institute on the relation between the thyroid and the pituitary. The anterior pituitary lobe controls the development and the maintenance of the anatomical structure and functional activity of the thyroid. Extirpation of the pituitary produces atrophy and hypofunction of the thyroid while an excess of the thyrotropic substance of the anterior pituitary causes morphologic and functional overactivity of the thyroid gland.

Hypophysectomy does not modify or only slightly raises the total iodine in the thyroid but the percentage content of iodine is manifestly raised.⁴⁷ (Table 2 and fig. 2) The iodine in

posterior lobe, thirteen craniotomized.* Lesions of the tuber and extirpation of the posterior lobe produce a lower initial rise in the blood iodine which is only transient. Extirpation of the thyroid causes an initial slight increase followed by a definite decrease to considerably below the normal level. We have attributed the initial rise in the blood iodine to the slight hyperthyroidism which frequently occurs during the first days after hypophysectomy. We did not obtain this initial increase in the blood

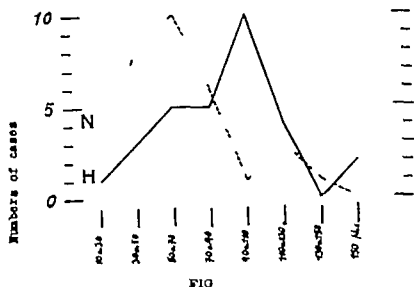


FIG. 2
Distribution curves of normal (dotted line) and hypophysectomized (solid line) dogs on the basis of the concentration of iodine in the thyroid.

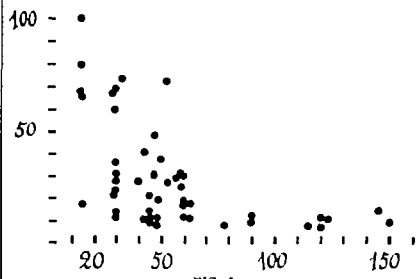


FIG. 3
Chart showing the early rise and later fall of the blood iodine following hypophysectomy.
Abcissae—Days after hypophysectomy.
Ordinate—Mgm. iodine per 100 cc. blood.

iodine after hypophysectomy in two previously thyroidectomized dogs, which further supports our interpretation. This does not, however, explain satisfactorily why it should persist even when the thyroid is undergoing atrophy.

The average blood iodine in the second series was 13 mgm. per 100 cc.

*Sturm⁴⁸ did not find an increase when the tuber was inured.

Sturm⁴⁸ has confirmed the existence of an initial hyperiodemia, but he found it to be transient and accompanied by hyperioduria. He believes that the hypophysis forces iodine sending it to the intermediate brain (rich in iodine according to Schützheim and Elia⁴⁹ and Sturm⁴⁸ and Schneberg⁵⁰) which in its turn has a direct influence on the thyroid secretion and an indirect one by means of the thyrotrophic function of the anterior pituitary. Some of his argument is not reliable, as that the hypophysis is peculiarly rich in iodine (as has been proved by H. G.) besides it is neither the first nor the only work to have demonstrated the iodine content of the pituitary (see also 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000).

TABLE 2
IODINE CONTENT OF THE THYROID OF DOGS UNDER
DIFFERENT EXPERIMENTAL CONDITIONS
(Mean Weight 9 Kgm.)

Operation and Number of Dogs	Total Iodine Mgm.	Iodine per Cent	Probable Error \pm	Variation % of Normal
32 Normals	0.95	63	3.7	0
17—Hypophysectomized during first month	—	85	6.5	—
14—Hypophysectomized 1 to 5 months later	1.12	100	7.7	+53
10—Normals, injected with glandular lobe extract	0.26	47	—	-25

the blood rises considerably during the first few days after operation and later decreases over a period of two to four weeks, after forty five to sixty days it is always normal and remains so afterwards (Fig. 3). We have been able to add further results to those already published⁴⁸ and have so far studied a total of sixty one hypophysectomized dogs, thirty-seven controls eleven with lesions of the tuber six without the

Anterior pituitary lobe extract with thio-tropic action causes a marked decrease in the total iodine of the thyroid (alcohol insoluble and thyroxine iodine)^{90 91 185 230 231 249 250 318 391 etc} and prevents an increase after unilateral thy-roidectomy⁹⁰ (Table 2) The blood iodine, (total and alcohol insoluble), rises considerably in normal,^{90 91 185 249 387 etc.} hypophysectomized or unilaterally thyroidectomized dogs with this treatment⁹¹ This hyperiodemia is due to the hyperthyroidism produced, since it is not obtained if dogs with total thyroidectomy are injected^{90 91} The last-mentioned animals usually present a decrease in blood iodine (due possibly to excessive elimination or greater fixation) *

The action of the anterior pituitary on the thyroid iodine and blood iodine is undeniable but it is impossible to tell whether the gland has a specific action, either direct or indirect, apart from its effect on the thyroid

*This suggests the possibility of another action of the extract on blood iodine opposed to the effect of the thyrotropic hormone

PROTEIN METABOLISM

The pituitary gland is an important regulator of the endogenous protein metabolism which it stimulates, whereas it has little influence on the exogenous protein metabolism It also takes part in the formation of sugar from protein

On a meat diet or the same mixed diet, hypophysectomized animals eliminate the same quantity of nitrogen per Kg per day, as the controls^{15-24 56 60 140} (Table 3) However, during the first six to seven hours after food their urinary excretion is less, with compensatory greater excretion during the remaining seventeen to eighteen hours^{15 21} If glycine is injected the curve showing its disappearance from the blood is more gradual than in the controls¹²⁰ There seems to be a slower fixation or catabolism of amino-acids

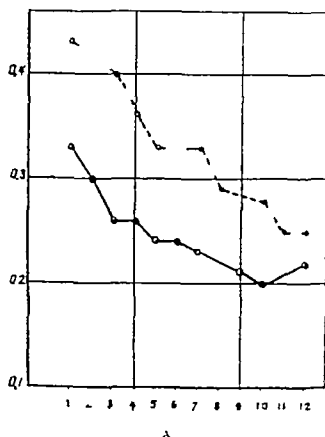
When fasting, hypophysectomized dogs^{15 21} and toads^{22 23} only eliminate two thirds of the quantity of nitrogen excreted by the controls On a fat and carbohydrate diet which is protein free (i.e, protein fasting) the decrease in

TABLE 3
NITROGEN EXCRETION OF DOGS, TOADS AND RATS
Recorded in Grams Nitrogen per Kilogram Body Weight per Diem

	Hypo- physec- tomized	Lesion of Tuber Cinereum	Normals	Per Cent of Decrease of Hypophysec- tomized Compared with Normals
DOGS				
Meat Diet				
Houssay and Biasotti, 1930.....	0 99	0 97	0 93	0
Braier, 1931.....	1 29	1 23	1 51	—14
“ 1933.....	1 40	—	1 40	0
“ 1933.....	0 92	—	0 94	0
Total Fasting				
10 days Braier, 1931.....	0 253	0 366	0 36	—30
Nitrogen Free Diet				
4th day Braier, 1931.....	0 14	—	0 24	—42
“ 1933.....	0 16	—	0 26	—38
Total fasting 2nd day Braier, 1931.....	0 300	—	0 446	—32
Total fasting 3rd day B coli vaccine Braier, 1931.....	0 345	—	0 513	—33
Fasting and Phlorhizin				
Mean of 6 days Houssay, Biasotti, 1931.....	0 455	0 674	0 758	—40
Mean of 6 days Houssay, Biasotti 1932.....	0 360	0 660	0 63	—42
Minimum protein balance with fat and starch diet Braier, 1931.....	0.200	—	0 300	—34
TOADS				
Total Fasting				
Braier 1933.....	0 100	—	0 131	—30
RATS				
Complete Diet				
Braier, 1935.....	0 757	—	0 727	0
Braier, Morea, 1935.....	1 160	—	1 080	—
Nitrogen Free Diet				
Braier, 1935.....	0 205	—	0 283	—27
Braier, Morea, 1935.....	0 197	—	0 325	—65

catabolism is even more marked in dogs¹⁵⁻¹⁷ and rats.⁴ With this diet only 0.18-0.20 Gm. of protein per Kg. per day is necessary to maintain the nitrogenous equilibrium in hypophysectomized animals whereas the controls require 0.30 Gm.

Since Folin's work, creatinine excretion is considered as the index of endogenous catabolism. This is slightly diminished in hypophysectomized dogs when on a meat diet^{18, 19} and very slightly altered in hypophysectomized rats.⁴ But during total fasting or protein fasting there is a decrease of thirty to forty per cent in both species. (Fig. 4 and table 4)



the expense of protein during diabetes is extremely diminished.

The change in the endogenous protein metabolism cannot be due to the simple operative trauma or to a superficial lesion of the tuber, since it is not observed in craniotomized animals or in those without the posterior lobe or with injury of the tuber (galvanocauterization of 3.5 mm. in depth and width, from the pituitary stalk to behind the mammillary bodies).

Implantation of the principal pituitary lobe causes an increase in the nitrogen excretion in

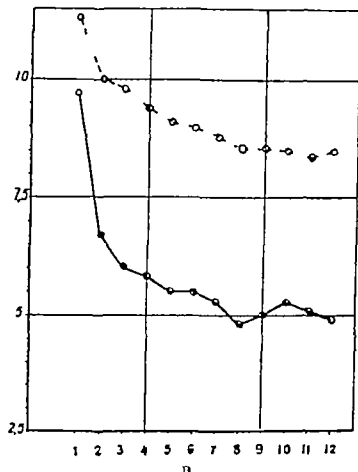


FIG. 4

A. Average urinary excretion of A. Nitrogen and B. Creatinine of normal and hypophysectomized dogs (broken and solid lines respectively) during fasting.
Abscissae—Time of fasting in days.
Ordinates—A. Gm. N per Kg. body weight per diem.
B. Mgms. Creatinine per Kg. body weight per diem.

This lowered consumption of endogenous proteins is seen particularly and in a marked form in hypophysectomized animals suffering from pancreatic diabetes,²⁰⁻²² phlorhizin diabetes²³⁻²⁵ (table 5) or avitaminosis B and also after the injection of colli vaccine.^{15, 21}

In all these cases, and also in simple or protein fasting, the loss of weight of the hypophysectomized animals is on an average less than of the controls. They are also able to survive longer if they are not killed by a concurrent attack of hypoglycemia.

The lowered protein catabolism cannot be explained by hypothyroidism because although thyroidectomized dogs have a decreased nitrogen excretion in simple or protein fasting when there is need of large protein destruction (e.g. in pancreatic or phlorhizin diabetes) this is as exaggerated as in the controls whereas the increase is very small in hypophysectomized animals. In the latter the formation of sugar at

fasting hypophysectomized toads.²² Injection of thyrotropic extract of the anterior pituitary lobe causes an increase in the nitrogen excretion of normal or hypophysectomized rats during protein fasting for the first few days (Braier and Morea, unpublished) and slightly increases the protein catabolism in dogs.²⁶ We have not yet verified the duration of this action or whether it occurs by way of the thyroid.

The metabolism of nucleoproteins has been studied by Braier^{22, 23} in hypophysectomized dogs and by Braier and Morea (unpublished data) in hypophysectomized rats.²⁴ In both species the hypophysectomized animals eliminate less uric acid and purin bases but more allantoin, whether on ordinary diet or protein fasting. But the total sum of the three quantities is equal to that in the controls. (Table 6)

According to F. H. and Nowakowski²⁷ in seven out of eight craniotomized rats there was an increase in the endogenous utilization of the urea cycle. Schmitt-Nielsen and Harpell²⁸ found a normal blood urea acid.

PLASMA PROTEINS AND NONPROTEIN NITROGEN	PHOSPHOCREATIN
In the plasma of twelve hypophysectomized dogs, Goldberg ³⁷ found an increase in the globulins (54 per cent) and in the viscosity (inconstant), but a decrease in the albumins (22 per cent) and in the A/G ratio (from 1.79 to 1.01). These modifications are identical with those seen in hypothyroidism.	When asthenia is well developed in the hypophysectomized toad (or in the toad after removal of only the glandular lobe) the phosphocreatin phosphorus in muscle diminishes in 33 per cent of the cases. The injection of glandular lobe extract or of mammalian anterior lobe extract brings it back to normal values. ^{104, 105}
Alkaline anterior pituitary extract, given in-	

TABLE 4
URINARY CREATININE IN MG/M PER KG/M PER DIEM

	Hypophysectomized	Lesion of Tubal Cinereum	Normals	Per Cent of Decrease of Hypophysectomized Animals Compared with Normals
Dogs				
Meat Diet				
Braier, 1931.....	23.5	31	28.7	-19
Braier, 1931.....	14.4	—	19.1	-24
Total Fasting				
10 days Braier, 1931.....	5.9	9.5	9.3	-35
2nd day Braier, 1931.....	11.7	—	15.6	-24
3rd day, with B. coli vaccine Braier, 1931..	15.0	—	21.1	-29
Nitrogen Free Diet				
4th day Braier, 1931.....	6.1	—	10.0	-39
Minimum protein balance, with fat and starch diet Braier, 1931.....	7.0	—	11.1	-37
Rats				
Complete Diet				
Braier, Morea, 1935.....	25.7	—	29.1	-11
Nitrogen Free Diet				
Braier, Morea, 1935.....	12.7	—	18.0	-29

TABLE 5
AVERAGE URINARY NITROGEN IN DOGS UNDER DIFFERENT EXPERIMENTAL CONDITIONS FOR EACH GROUP
(Recorded in Gm. N per Kg/m Body Weight per Diem)

	17 Dogs Hypophysec- tomized	5 Dogs Tuberal Lesion	4 Dogs Thyroidec- tomized	10 Dogs Control	
Fasting without phlorhizin.....	0 25	0 36	0 25	0 36	
Fasting with phlorhizin.....	0 36	0 66	0 63	0 80	
Absolute increase.....	0 11	0 30	0 38	0 44	
Percentage increase.....	44	83	152	122	
DIFFERENT DIETS PLUS PHLORHIZIN					
<i>Meat Fed</i>		<i>Sugar Fed</i>		<i>Fat Fed</i>	
4 Hypophysec- tomized	4 Con- trol	4 Hypophysec- tomized	4 Con- trol	4 Hypophysec- tomized	4 Con- trol
1 37	1 56	0 30	0 76	0 33	0 73

trapeutoneally, produces not only a diabetic state, but also a marked increase in the total proteins, globulins, albumins and viscosity of the blood.³⁷ Immediately after injection of the extract there is a decrease in the nonprotein N which lasts several hours (Braier, confirming Teel and Watkins⁴¹⁹)

GLUTATHIONE
Helen Maverloff,¹¹⁴ in nine hypophysectomized dogs, found an average decrease of 10 per cent in the glutathione of the red blood cells (88 mgm per cent as compared with 98 mgm per cent in the controls). Injection of anterior lobe extract increases the glutathione in the red blood

cells of normal, hypophysectomized and thyroidectomized dogs.^{114*}

In the hypophysectomized toads (or after removal of the glandular lobe) when the asthenia is evident, the glutathione decreases in the muscles and more markedly in the liver, implantation of the glandular lobe prevents this decrease.¹⁰⁴⁻¹¹¹

UROBILINURIA

Hypophysectomized dogs eliminate 0.12 mgm. per day of urobilin in the urine (average of fifty determinations in six dogs). This is a normal amount (Royer unpublished data). Injec-

TABLE 6

URINARY EXCRETION OF URIC ACID, PURINE BASES AND ALLANTOIN

(Recorded in Mgm. per Kgm. Body Weight per Diem)

	Uric Acid	Puric Bases	Allantoin
Dogs (Braler 1933)			
<i>Meat Diet</i>			
Normals	4.5	12.3	10
Hypophysectomized	2.1	4.0	5.6
<i>Nitrogen Free Diet</i>			
Normals	2.0	4.3	11.1
Hypophysectomized	1.0	1.9	4.1

RATS (Braler and Morea, Unpublished)

<i>Complete Diet</i>			
Normals	3.5	11.2	83
Hypophysectomized	1.5	14.0	99
<i>Nitrogen Free Diet</i>			
Normals	1.5	7.5	98
Hypophysectomized	0.9	5.2	35

URINARY EXCRETION OF PHOSPHORUS IN FASTING DOGS (GERSHONMAN 1931)

(Recorded in Mgm. per Kgm. Body Weight per Diem)

	Meat Diet	Total Fast Ing	Nitrogen Free Diet
Normals	46.5	17.7	15.1
Hypophysectomized	42.9	13.7	6.7

tion of 2 mgm per Kg tetrabromosulphathalen in these animals is followed by a blood curve of normal aspect (Royer, unpublished data)

INDOXYLEMIA

This is normal in hypophysectomized and in thyroidectomized dogs.⁹²

PHENOLURIA

Hypophysectomized dogs eliminate normal amounts of urinary phenol when on a meat diet

Muller and Gershonman observed a decrease in the glutathione of hypophysectomized dogs and that protein increased it.

but the excretion diminishes in fasting and more especially in protein fasting.^{24, 25, 101, 105}

FAT METABOLISM

Adiposity is a symptom of pituitary insufficiency in some species, but not in others. It forms part of the adiposogenital syndrome in man, due to lesion of the hypophysis or of the tuberal region. On the other hand in pituitary cachexia (Simmonds syndrome) there is extreme emaciation. In hypophysectomized tadpoles the adipose organ persists.¹⁰⁶ Adiposity is frequently observed after hypophysectomy in puppies but occurs rarely in the adult dog. It is almost constantly seen, and in extremely accentuated form, in dogs surviving tuberal lesions for a few months. (Solari¹²² confirming Camus and Roussy). In the rat, adiposity is absent or may appear for a short time in a slight degree. Sooner or later these animals lose weight and become cachectic. (Morea, confirming Smith 1927-30)

In hypophysectomized dogs there are slight variations in the total fats, fatty acids, and cholesterol of the blood with a tendency toward a decrease.^{115, 119, 120*} Munoz has seen that repeated injections of a diabetogenic anterior pituitary extract produce a marked increase in the total lipids of the blood (which has a milky aspect), as also in the fatty acids, cholesterol and phospholipids.† This can be observed in dogs of both sexes, castrates, thyroidectomized and after section of both splanchnic nerves and extirpation of the lumbar sympathetic chain. Extracts of kidney and muscle prepared by the same technique do not have this activity. The liver in these animals also has a fatty aspect.

Dogs showing manifest adiposity owing to tuberal lesions have a normal specific dynamic action. (Solari¹²²)

Raab has proposed a theory which has been favorably received.^{140, 170, 256, 262, 292} He believes that pituitrin and lipotrin (which is found in both lobes of the pituitary and in the wall of the third ventricle) stimulate the tuber from whence impulses travel by the spinal cord and the splanchnic nerves to the liver, increasing the fats in this organ and in the blood, owing to an increased mobilization of storage fat and consumption by the liver. A disturbance of some part of this complicated mechanism would cause an increase in fat storage and consequently adiposity. Munoz¹²⁰ could not find any activity tending to decrease the blood lipids in posterior pituitary extracts, in spite of having injected as much as 100 mgm per kg of standard powder into dogs.

Karlick and Robinson¹⁷¹ find hyperlipemia.

†The increase in lipids is mentioned by Bauman and Miller¹⁴¹ in the case of the rat, but not in the case of the dog.

KETONEMIA AND KETONURIA

Hypophysectomy considerably diminishes ketonuria, to 60 per cent of the normal in dogs under basal conditions,¹²⁹ to 28 per cent of that of the control animals in pancreatic diabetes,^{128†} and to as low as 7 per cent of that of the control animals in phlorhizin diabetes during fasting^{128‡} (Table 7) Tuberal lesions also pro-

duce a small decrease in ketonuria in pancreatectomized dogs cant increase but the ketonuric activity of the extract was not altered by castration, extirpation of the adenal medulla, lesion of the tuber or section of the splanchnic nerves with extirpation of the lumbar sympathetic chain^{1,2} (Table 7) In hypophysectomized phlorhizinized dogs the extract raises the excretion of ketones to the same level as in the controls

TABLE 7

URINARY KETONE BODIES (VAN SLYKE, 1917), IN DOGS UNDER DIFFERENT EXPERIMENTAL CONDITIONS (RIETTI, 1932-34)

(Recorded in Mgm per Kgm Body Weight per Diem)

	6 Pancreatectomized Dogs	9 Pancreatectomized and Hypophysectomized Dogs	5 Pancreatectomized Dogs with Lesion of the Tuber Cinereum		
	76	21	31		
	6 Phlorhizin Dogs	6 Hypophysectomized Dogs Plus Phlorhizin	7 Dogs with Lesion of Tuber Cinereum Plus Phlorhizin	6 Thyroidectomized Dogs Plus Phlorhizin	4 Dogs without Posterior Lobe Plus Phlorhizin
Fasting	88	5	120	123	116
Meat 300 Gm	56	12	—	—	—
Sugar 50 Gm	35	18	—	—	—
Oil 100 Gm	75	11	—	—	—

	Normals	Partial Pancreatectomized	Thyroidectomized	Castrated	Splanchnics Severed	Lesions of Tuber Cinereum	Without Adrenal Medulla
Without extract	6.2	8.5	5.8	3.8	4.5	10	4
With extract of glandular lobe of hypophysis	22.8	55	6.3	10.4	13.0	45	16

duce a small decrease in ketonuria in pancreatectomized dogs

In hypophysectomized dogs on meat, sugar or fat diets the ketone elimination in phlorhizin diabetes is always smaller than in the corresponding controls. Sugar intake diminishes the elimination of ketones in the controls, but in the hypophysectomized there is a slight rise. Thyroidectomy, extirpation of the posterior lobe and lesions of the tuber do not diminish ketonuria as hypophysectomy does.¹²⁸

The ketonuric activity of the anterior pituitary extract found in the rat by Burn and Ling,^{139 159 172 173 209 226 236 237 238} has been studied in the dog by Rietti.¹²⁹ The total extract produces ketonuria in normal animals and this is more marked in partially pancreatectomized and hypophyso-pancreatectomized dogs.^{68 69 70} In thyroidectomized dogs there was no signifi-

The increase in ketonemia produced by the anterior pituitary extract discovered by Anselmino and Hoffmann¹³⁷ has been repeatedly confirmed.^{137 138 139 162 219 238 246 258 259, 27* 310 335 339 340, 360 393 402 403 414 etc}

The ketogenic extract has been called the "fat metabolism hormone" by Anselmino and Hoffmann and "Orophysin" by Magistis, names that are not suitable and should not be used because they presuppose something which is not yet proved. According to Anselmino and Hoffmann,¹³⁷ (cf 246 393) after a fatty meal the blood contains this hormone in quantities sufficient to produce effects when injected into another rat. This substance is not identical with the glycogen mobilizing one^{338 339} nor with the thyrotropic hormone.^{139 159}

Urine has a ketogenic and ketonuric activity.^{236 237 238 239} Methods have been described for the extraction and purification of this substance, both from the urine and the pituitary.

†Long and Lukens¹²² confirmed this in the cat
‡Black¹²⁴ confirmed this in the rat

tary^{127 128, 129 127 128} In thyroidectomized animals the ketogenic activity is less than in normals according to Funk,²³⁰ or almost completely absent according to Eitel Löhr, and Loeser¹⁹ and Rietti.¹²⁹ Other workers however find that it may be normal.¹²⁸ Prolonged administration of the ketogenic substance produces the appearance of an antihormone in the serum.^{144 159}

It is surprising with what assurance some investigators explain the numerous metabolic

effects of the pituitary or even all of its influence on the fat metabolism by the action of a single ketogenic hormone. Evidently the anterior lobe of the hypophysis participates in the regulation of the daily amount of urinary excretion of ketone bodies however it has not been definitely established whether its role consists in increasing their production or decreasing their consumption.

CARBOHYDRATE METABOLISM*

BY BERNARD A. HOUSAY, M.D.

INTRODUCTION

DURING the last few years the important role which the pituitary plays in carbohydrate metabolism has been demonstrated. The essential physiological mechanism involves the anterior lobe, the posterior lobe having an accessory and much less important action. This is contrary to what has previously been supposed. The anterior pituitary lobe is probably, after the liver and pancreas, the most important regulator of carbohydrate metabolism. It would however be a grave mistake to imagine that the only metabolic function of the anterior pituitary is its action on carbohydrates. It holds a central position in the general metabolic regulation (water, iodine, protein, carbohydrate, fat, ketogenesis, etc.), as well as having essential and important actions on the endocrine system.

The alterations in the carbohydrate metabolism are especially marked in the toad which is therefore the animal par excellence for its study. The changes appear or become accentuated about three weeks after hypophysectomy or extirpation of the principal lobe alone. At the same time symptoms of progressive neuromuscular asthenia develop together with decrease in blood sugar and glycogen which causes death in four to eight weeks, survival for months being exceptional. Implantation of the principal lobe corrects these changes and prevents death. Similar symptoms are observed in hypophysectomized rats when they become cachectic. In dogs the compensation apparently is better for they can survive for months or years in an apparently good state. However, they may present mortal cachexias or hypoglycemias. Despite their good appearance their metabolism is modified, as may be demonstrated by subjecting them to agents that induce hypoglycemia, or by producing diabetes, either by extirpation of the pancreas or by the administration of phlorhizin, these modifications affect particularly the metabolism of fasting animals.

Lesions of the tuber cinereum or of the hy-

pothalamus have a varying effect on the pituitary functions, according to the localization and extent of the lesion. In certain cases they cause marked inhibition of the anterior pituitary function which may be corrected by administration of the anterior pituitary lobe.

THE BLOOD SUGAR IN HYPOPHYSECTOMIZED ANIMALS

Normal Blood Sugar. Many investigators have found subnormal blood sugar in hypophysectomized animals, dogs^{126 279 280 792 91 222} rabbits,^{191 135} and in the pituitary cachexia of human beings. In reality if the animals are properly cared for and are kept on an adequate diet, it has been found that the blood sugar remains within normal limits* in dogs^{126 1 47 50 55 88 89} rabbits,^{97 279 280} cats,²²⁷ rats,²⁶ and amphibians.^{29 79 92, 94 461 427}

However one of the most salient characteristics of pituitary insufficiency is the tendency to hypoglycemia during fasting, which becomes manifest after a few hours.

Hypoglycemia. Hypophysectomized animals readily become hypoglycemic and may present grave symptoms, frequently terminating in death. Treatment with sugar produces spectacular improvement but must be initiated early and repeated frequently. Good results from injection of adrenalin or postpituitary extracts are much rarer.

The hypoglycemias may be classified according to their cause as postoperative spontaneous, due to fasting cachexia, insulin phlorhizin secondary etc. After operation^{126 68 21 421} or during the evolution of pituitary cachexia^{146 174 51 137 2, 5 6 7 7 361 365 379 380 461 42} hypoglycemia and hypoglycemic crises frequently occur. Spontaneous¹²⁷ hypoglycemia observed first by Wilder⁴²² in man and by Housay and Brasotti⁵⁸⁻⁶⁰ in dogs has since been seen in dogs,^{126-59 127 66 90} rabbits,^{191 421} guinea

In 6 hypophysectomized dogs we found 0.097 per cent in the morning and 0.1 per cent 3 1/2 hours after a meat meal. In 9 controls the figures were 0.105 per cent and 0.125 per cent respectively.

pigs²²² and rats. The surprising feature is that it may develop in hypophysectomized dogs which are also pancreatectomized^{56 60}. We have never seen spontaneous hypoglycemia in dogs with extensive lesions of the tuber (retro-pituitary), but D'Amour and Keller²⁰⁰ have observed it with lesions in other parts of the brain.

Fasting is the essential factor in the rapid, progressive decrease of the blood sugar, which, if not treated, may produce serious or even fatal accidents. This has been proved principally by Bjaer^{14 21} and has been confirmed in the dog,^{15 21 58 187 200 325 334} rabbit,^{191 431} and monkey¹⁸⁷. While the blood sugar level is low there is little glycogen in the liver in dogs (Houssay, unpublished) and rabbits¹⁹¹.

Phlorizin produces a rapid hypoglycemia in the fasting dog^{56 62} and in the toad,²⁸ accompanied by convulsions and death. These accidents usually appear in the dog on the third day, when the blood sugar is below 70 mgm per cent. Under these conditions we lost fifteen out of seventeen hypophysectomized dogs. Feeding meat and sugar prevents the hypoglycemia and the consequent accidents, but feeding fat is not efficacious¹³. Treatment with a diabetogenic anterior pituitary extract, before and during fasting, prevents the occurrence of hypoglycemia and death.^{48 49 50 66}

Secondary hypoglycemias are observed after epinephrin,^{14-21 325} and glucose³²⁵ hyperglycemias, and may be serious if they occur after fasting.

Sensitivity to Insulin. Another remarkable peculiarity of pituitary insufficiency is the extreme sensitivity to the toxic and blood sugar reducing actions of insulin, which even in small doses produces convulsions, coma and frequently death. In hypophysectomized animals the fall in blood sugar is more rapid, more marked and lasts longer than in the normal, and recuperation is difficult and slow if it takes place at all. Early, intense and repeated treatment with cane sugar, glucose or posterior pituitary extract is necessary, and is frequently efficacious in the dog. This extreme sensitivity to insulin, which we found with Magenta in 1924 has been proved in dogs,^{85 86 87 148 149 199 216 241 242 279 293 325 332 333} etc. cats,³³⁷ toads,^{93 90} monkeys,²⁶⁰ rabbits,^{190 191 235 297 298 379 380 381} and man^{141 102 257 327 335 349 366} etc. but apparently is not present in birds.⁶⁸ It is also seen in hypophysectomized dogs from which the pancreas as well has been removed.*

The protective action of anterior lobe extract is very potent and is incomparably superior to that of the posterior lobe extract. It is able to correct the sensitivity to insulin and even to produce a supernormal resistance. This occurs in both normal and hypophysectomized toads,⁹⁶

dogs^{29 332} and rabbits¹⁹⁰. Injections of anterior pituitary extract for one to two days are needed to reinforce the resistance²⁹ since such injections are unable to save animals already in convulsions or coma.⁸⁷

A number of observations have been made on the relation of the thyroid to the hypersensitivity to insulin. The protective action of anterior pituitary extract is also evident in hypophysectomized-thyroidectomized animals (di Benedetto, Houssay). The hypersensitivity of hypophysectomized dogs is much greater than that of thyroidectomized dogs. Thyroidectomized rabbits¹⁹⁰ and thyroidectomized dogs (Houssay) become far more sensitive to insulin when they are later hypophysectomized. Thus it is clear that the decrease in resistance to insulin is not due to hypothyroidism in the hypophysectomized animals but to the lack of the anterior pituitary lobe.

It has been thought that the hypersensitivity to insulin is due to hypofunction of the adrenals,¹⁵² because extirpation of the latter produces a similar hypersensitivity, as shown by Lewis and Magenta in our Institute. Furthermore, in pituitary insufficiency there is often an atrophy of the adrenal cortex. In opposition to this view we cite the following observations. Anterior pituitary extract has a diabetogenic action on hypophysectomized-pancreatectomized toads from which the adrenals also have been removed, and on dogs after extirpation of the adrenal medulla or after complete adrenalectomy.^{84 101} It also increases the resistance of the latter to insulin. According to Barnes, Dix and Rogoff¹⁴⁸ hypophysectomized dogs require more adrenalin to prevent convulsions than dogs with denervated adrenals. These authors maintain that hypophysectomized animals do not liberate adrenalin during the hypoglycemia due to insulin. Cope and Marks¹⁹⁰ showed, however, that there was a hypersecretion of adrenalin, and they advanced the idea that the glycogenolytic action of adrenalin is less marked in the absence of the anterior pituitary lobe.

Our opinion is that pituitary insufficiency causes the suppression of a hormone which is necessary for the metabolism of carbohydrates, and that it is the lack of this hormone which causes hypersensitivity to insulin. Adrenal insufficiency may be an additional cause.

Hypoglycemic action of the blood. Cowley¹⁹² stated that the blood of hypophysectomized animals produces hypoglycemia in rabbits but this was found in only one case out of three by Daggs and Eaton¹⁹⁹ and could not be confirmed by di Benedetto³⁰ using the blood of sixteen hypophysectomized dogs.

Kepinov and Guillaumie²⁰¹ using a pancreatic anastomosis have found that the pancreatic blood of hypophysectomized dogs is more

*Unpublished data. See also 187 and 367.

hypoglycemic than that of the controls, the pituitary would retard the secretion of insulin and extirpation of the pituitary exaggerate it. Recently the same authors have shown that stimulation of the peripheral end of the vagus causes a marked hypoglycemia in hypophysectomized animals whether the adrenal veins are intact or not.

UTILIZATION OF SUGAR IN PITUITARY INSUFFICIENCY

Respiratory Quotient. Hypophysectomized dogs apparently do not have a raised consumption of sugar, since their basal metabolism is slightly diminished and the R Q is normal:^{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 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992, 993, 994, 995, 996, 997, 998, 999, 1000.}

Glycogen. The hepatic glycogen was found normal in hypophysectomized dogs by Aschne¹⁴⁰ but we found an average of 27 per cent in seven hypophysectomized dogs and 3.48 per cent in six controls without anesthetic and 16.7 per cent in four hypophysectomized and 21 per cent in nine controls under chloralose. In the rabbit the hepatic glycogen has been found to be low^{236, 241} or normal with decrease during fasting.¹²¹ In the hypophysectomized toad it falls gradually, especially from the third week when the asthenia appears.^{78, 79, 82, 84, 401} The muscle glycogen does not change in rabbits²⁴¹ or dogs (our Institute) and decreases slowly in toads.^{78, 79, 82, 84, 401} After tetanization it is synthesized in hypophysectomized dogs as completely as in controls (Dambrosi, 1933). The cardiac glycogen is found to be less than normal when bradycardia occurs in hypophysectomized toads.^{1, 2}

It is possible that the velocity of the formation and decomposition of glycogen is altered. Phillips and Robb³⁴³ observed that hypophysectomized rats form much less hepatic glycogen and somewhat less muscle glycogen when given glucose than do the controls. According to Finch, Greiner and Loewi^{2, 6} the liver of hypophysectomized frogs perfused with Ringer's solution either alone or adrenalinized gives up less glucose than the liver of normal frogs. It is still doubtful whether the pituitary plays any role in the accumulation of glycogen which occurs in the *thesauriosis glycogenica* of Gierke.^{2, 6, 8, 13, 17}

Blood sugar curves. Cushing and his collaborators¹⁵ found that larger doses of sugar by mouth or glucose by injection were necessary to produce glycosuria in hypophysectomized than in normal dogs. This increase in tolerance was confirmed by Karlik and Robinson³⁷ but was

Muscle lactic acid is normal in these animals in the resting condition, but after tetanus it increases less than in the controls.

It is heavier in hypophysectomized animals with an Eick and Holzner.

not present in the dogs studied by Camus and Roussy¹⁷⁹ and only occurred in some of those studied by Houssey, Hug and Malamud.¹¹

If hypophysectomized rabbits receive glucose by mouth the blood sugar rises less and the secondary fall in blood sugar is greater than in normal rabbits.^{191, 25, 279, 330, 331} Lucke Heydemann and Hechler²⁴² in one incompletely hypophysectomized dog found a greater absolute increase and a marked secondary drop. Other investigators^{21, 60, 29} have found the blood sugar curve to be more prolonged in hypophysectomized dogs. The velocity of absorption has

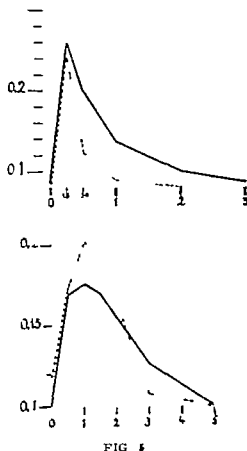


FIG. 5.

A. Blood sugar in 10 normal (broken line) and 14 hypophysectomized dogs (solid line) following 1 Gm. of glucose per kg. body weight intravenously.

B. Blood sugar in 5 normal (broken line) and 7 hypophysectomized dogs (solid line) following 2 Gm. glucose per kg. body weight intravenously.

Abscissa—Time in hours after glucose administration. Ordinates—Blood sugar in Gm. per 100 cc. blood.

not been studied in either species although in hypophysectomized rats Phillips and Robb³⁴³ found it was slower than was normally the case.

In the dog no modification of tolerance is demonstrable by continuous intravenous injection of glucose^{15, 242, 258} but in rabbits five hours after extirpation of the pituitary there is a larger consumption.⁶ When only one intravenous dose is given the curve of hyperglycemia shows a slower fall in hypophysectomized dogs than in the controls.^{10, 199, 15} (Fig. 5). Kepinov^{240, 20} found a rapid rise with abrupt and intense fall but perhaps this better assimilation was due to other factors such as the general condition of his dogs. In the toad *Xenopus laevis* injection of sugar causes a greater rise in blood sugar with better tolerance after hypophysectomy than before.¹²⁷

HYPERGLYCEMIAS IN HYPOPHYSECTOMIZED
ANIMALS

Adrenalin^{191 235 297 381} or pilocarpin²⁹⁸ hyperglycemia is less marked in hypophysectomized rabbits than in normals and grave secondary hypoglycemias usually follow. Similarly, hypophysectomized toads have a lower hyperglycemia after adrenalin and morphine injections⁷⁵. Parathormone does not cause a rise in blood sugar in hypophysectomized pigeons³⁷⁰. The hyperglycemia of avitaminosis¹⁹ fails to occur in hypophysectomized dogs while that caused by ether is less intense than in normal controls³¹. The hyperglycemias due to glycerol,¹²⁶ thyroxin^{279 228 330} and pituitrin^{279 293} are somewhat greater. The morphine hyperglycemia is similar in hypophysectomized and in normal dogs³¹.

Adrenalin subcutaneously does not usually produce glycosuria in hypophysectomized dogs as it does in the controls^{39 140}. The blood sugar rise has been found both greater^{293 325 326 327 332 333} and less^{16 279} after hypophysectomy. Bialek observed that after eighteen hours' fasting the rise is slightly less in the hypophysectomized dogs than in the controls. After four days of fasting there is still less hyperglycemia and a marked secondary fall in blood sugar (six out of ten of the dogs dying in hypoglycemia).

PANCREATIC DIABETES IN HYPOPHYSECTOMIZED
ANIMALS

Hypophysectomy brings about a marked alleviation of the symptoms of pancreatic diabetes resulting in a less intense and slower development of that disease. The hypophysectomy is equally efficient if it is performed before or after the pancreatectomy. This alleviation of pancreatic diabetes, which we proved with Bisotti and described in 1929-30,^{45 58*} has been

*Goesch, Cushing and Jacobson⁴⁵ had previously observed that subtotal hypophysectomy may increase glucose tolerance in dogs with a subtotal pancreatectomy. In experiments which were repeated by Cushing⁴⁹ and Davidoff and Cushing²⁰²

amply confirmed in dogs,^{58 59 113 128 129 147 149 159 186 187 286 289 290 299 329 367 409} cats,^{204 205 327 373} amphibians,^{6 22 23 25 56 65 84 *} reptiles (*Ophis meieri* Wagler^{63 64 65}), fishes (*Mustelus canis*³⁵⁹)

Hypophysectomized toads and toads in which the principal lobe alone has been extirpated do not have glycosuria and there is little or no hyperglycemia, nor is the urinary nitrogen excretion raised, on removal of the pancreas. On the other hand, diabetes appears with normal, or even supernormal, intensity if the principal lobe is implanted (the neuro-intermediate lobe is less active) (Table 8).

We have studied sixty-five hypophysectomized pancreatectomized animals. On the basis of this material it may be stated that the usual syndrome of pancreatic diabetes in mammals undergoes numerous changes due to the hypophysectomy. As compared with control cases of pancreatic diabetes in otherwise normal animals, the hypophysectomized-pancreatectomized animals show the following characteristics. Survival is prolonged and may reach six,⁵⁸ or even nine months^{147 187}. The wounds heal and there are fewer infections. The loss of weight occurs more slowly. Glycosuria diminishes and some times is not present, and fasting causes a more marked decrease. Polyuria is scarce or absent, depending on the degree of glycosuria. The blood sugar in general is lower, oscillating between 0.1 and 0.25 per cent (Table 9). Sometimes there is no hyperglycemia and it is even possible for hypoglycemic crises which improve on administration of sugar to occur. Together with this there is hypersensitivity to insulin^{149 187}. The ketones in the blood and urine decrease markedly, but the alkaline reserve falls slightly or not at all, although the calcium in the blood is lowered†. There is a small increase

*In the species *Bufo arenarum*, *B. marinus*, *B. paracnemis*, *B. d'Orbigny*, *Ceratophrys ornata*, *Leptodactylus ocellatus*.
†With lesions of the parathyroids but it is also observed when pancreatectomy alone is performed.¹¹³

TABLE 8
BLOOD SUGAR IN Gm PER 100 CC
Toads *Bufo arenarum* Hensell
Averages

	Nor mals	Cranio- ecto- mized	Hypophy- secto- mized	Without Glandu- lar Lobe	Tuber- Clnere- um Lesion
With pancreas.....	0.064	0.064	0.051	0.056	0.057
Implantation of glandular lobe.....	0.065	0.069	0.058	0.069	0.060
Pancreatectomized.....	0.199	0.169	0.094	0.094	0.117
Pancreatectomized with implantation of glandu- lar lobe.....	0.256	0.278	0.228	0.214	0.234
Pancreatectomized with implantation of neuro- intermediate lobe.....	—	—	0.110	—	—

TABLE 9

No	Survival After Second Operation Days	Weight kgm		Urine cc Per Day	Averages—						Interval Between Operations Days	
		Initial	Final		Glucose Eliminated Gm		N Eliminated Gm		D N	Glycemia Average Gm %		
					Per Day	Per kgm Per Day	Per Day	Per kgm Per Day				
Dogs Without Pituitary and Without Pancreas												
1	180	8.6	6.4	868	9.60	3.23	14.70	3.15	1.61	0.950	39	
27	154	12.8	5.1	274	9.83	1.30	7.81	1.05	1.33	0.287	24	
36	90	8.5	6.3	211	5.16	0.79	5.76	0.80	0.88	0.136	240	
35	64	13.4	6.9	221	6.30	0.69	8.92	0.99	0.70	0.233	55	
38	51	10.3	5.4	166	7.1	0.78	3.89	0.43	1.35	0.325	210	
43	41	9.8	6.1	164	1.97	0.25	—	—	—	0.267	27	
11	35	12.4	10.2	356	0.688	0.059	—	—	—	0.113	61	
15	28	10.5	7.4	253	3.15	0.395	—	—	—	0.218	41	
29	25	10.0	6.1	160	4.4	0.552	—	—	—	0.215	30	
Pancreatectomized Dogs With Lesion of the Tuberc												
64	10	8.7	6.4	513	1.6	2.95	8.18	1.13	2.60	0.327	35	
77	10	7.5	5.2	456	18.10	3.05	7.10	1.14	2.67	0.345	30	
95	9	8.0	6.4	267	12.13	1.75	4.16	0.60	2.91	0.310	29	
56	9	6.2	4.1	273	11.17	2.60	4.57	0.99	2.61	0.298	30	
Pancreatectomized and Thyroidectomized Dogs												
1	24	8.1	4.7	373	—	3.18	—	1.61	2.37	0.293	—	
2	21	8.6	6.2	380	—	3.10	—	1.7	2.05	0.326	—	
5	9	15.5	12.8	6.6	—	2.55	—	0.95	2.72	0.370	—	
3	9	10.2	8.5	68	—	1.17	—	0.59	1.92	0.366	—	
4	7	11.0	8.6	423	—	2.15	—	—	—	0.435	—	
Pancrectomized Dogs												
	7 to 30	up to 50% loss	500 to 2000	2 to 4	—	0.7 to 1.8	2.8	0.3 to 0.4				

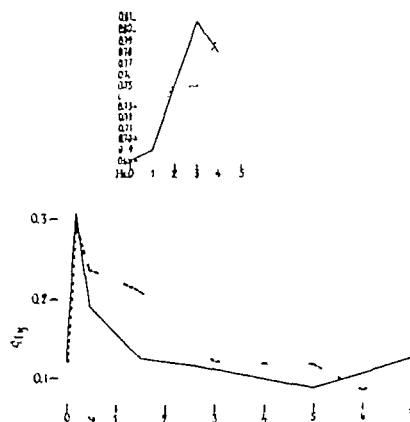


FIG. 6

A. B. Q. following the intravenous administration of 1 Gm of glucose in the hypophysectomized dog No. 139 before (solid line) and after pancreatectomy (broken line).
Abscissae—Time in hours after injection.
Ordinate—B. Q.

B. Blood sugar after administration of glucose to the hypophysectomized dog No. 3 before (solid line) and after pancreatectomy (broken line).
Abscissae—Time in hours after administration of glucose.
Ordinate—Concentration of blood sugar in G. per 100 cc. blood.

in the catabolism of proteins (slight and slow loss of weight, slightly increased nitrogen elimination during fasting.) The dextrose nitrogen ratio is low. The lipids and cholesterol in the blood rise less than in the controls.^{11, 12} The hepatic and muscular glycogen may be found in normal quantities,^{43, 64, 65, 147} although following tetanization the restitution of muscle glycogen may not occur until after an hour.⁷ If sugar is administered, the animals can partially or even sometimes totally utilize it.^{12, 60} The respiratory quotient rises occasionally as much as in normal animals.^{12, 59, 149} (Fig. 6.) The hyperglycemic curve falls more rapidly than in animals with pancreatic diabetes, although more slowly than in normals. Repeated administration of sugar aggravates the diabetic state.

This proves clearly that even without the internal secretion of the pancreas the organism can utilize sugar. In pancreatic diabetes it seems that the secretion of the anterior pituitary increases the production of glucose and diminishes its consumption so that the organism becomes overcharged with sugar.

The work of Kepinov²⁹ is in favor of this hypothesis of ours. This investigator found that transfusion of the blood of pancreatectomized dogs into normals caused a secondary net rise of blood sugar (independently of the sugar injected) which did not occur if the blood of

pancreatectomized-hypophysectomized animals was used

According to Boller, Uibernak and Falta¹⁶¹ if the blood of healthy individuals injected with insulin is transfused into normals it causes a lowering of the blood sugar of the recipient. If, however, the donor is an insulin resistant subject injected with insulin, hypoglycemia is not produced in the recipient. The blood of insulin resistant individuals seems to contain one or more antagonistic bodies

Folliculin X-Rays — It has been possible to modify pancreatic diabetes by inhibition of the pituitary in other ways. With treatment by folliculin the pancreatic diabetes of dogs^{149 151 352 353} and monkeys^{352 353} has been prevented or improved and its development retarded. Human cases of diabetes have also been improved in this way^{348*}

On the other hand, unpublished observations of Biasotti indicate that irradiation of the pituitary, before or after pancreatectomy, gives no results (cf 398). It is, however, uncertain whether the pituitary is affected by this treatment. This method has been tried in human diabetes^{214 234 373} etc.

PANCREATIC DIABETES OF THYROIDECTOMIZED AND ADRENALECTOMIZED ANIMALS

Thyroidectomy does not alleviate pancreatic diabetes in dogs⁴³⁵. If in a pancreatectomized dog all adrenal tissue is extirpated and the administration of insulin is suspended, there is a marked rise in blood sugar which may remain at a high level or may decline^{145 247 261 311 316}. Dogs with no adrenal medulla have an intense pancreatic diabetes^{276 311 415 423}. Thus it is clear that the adrenal is not indispensable for the rise in blood sugar to the diabetic level nor is the adrenin from the adrenal necessary for its maintenance †

With unilateral adrenalectomy we did not find any modification of the pancreatic diabetes, although Barnes, Scott, Ferill and Rogoff¹⁵² observed this. Long and Lukens^{322 323} found that adrenalectomized-pancreatectomized cats maintained with cortin, presented an attenuated diabetes with little or no hyperglycemia, glycosuria or ketonuria. Both groups of investigators think that possibly hypophysectomy causes alleviation of the diabetes because it provokes an adrenal hypofunction.

DIABETES AND HYPOTHALAMIC LESIONS

In a certain number of dogs and cats^{39 83 140 155 179 180 183 232 243 255 264} etc. a transient glycosuria is noted after hypophysectomy. This is not due to the glandular deficiency because it

is observed after mere manipulation of the hypophysis without extirpation^{179 180 245} etc. and after lesions of the tuber cinereum^{39 47 140 144 180 201 204 207 313 314 346 378} etc. It has also been noted that hypothalamic excitation may cause a rise in blood sugar^{270 280 341 350}

The glycosuric action of excitation of the superior cervical sympathetic ganglion has been attributed to a pituitary hyperfunction, but this has not been confirmed^{188 288 365}. The fact that it ceases on section of the splanchnics and on bilateral lesion of the hypothalamus²⁰⁴ suggests the possibility that there is a central reflex which acts through the liver or the adrenal^{277 282}

Lesions of the nuclei in the wall of the third ventricle sometimes produce glycosuria in the rabbit^{177 305}. Dewulf,^{210 211} however, could not confirm this by making lesions in these nuclei, although when there were other mesencephalo-diencephalic lesions, excluding the tuber, glycosuria did occur. It is as well to mention that both investigators observed some cases of spontaneous glycosuria. We ourselves have never observed a permanent hyperglycemia or glycosuria in dogs with either circumscribed or extensive lesions of the diencephalon. On the other hand, certain hypothalamic lesions may cause hypoglycemic crises²⁰⁰. Although lesions of the diencephalon and of other central zones have been observed in some cases of diabetes^{215 307 308 309 312 314 345 347 355 399 425} etc. they are usually absent^{210 305}

Certain lesions of the tuber may inhibit the pituitary diabetogenic secretion since Houssay and Biasotti^{56 60} found that following such lesions there was a marked decrease in the pancreatic diabetes of toads,* but that implantation of the glandular lobe resulted in its reappearance. The pituitary of these toads contained diabetogenic substances, but apparently could not secrete it. Our dogs with tubal lesions extending from the pituitary stalk to behind the mammillary bodies, developed a pancreatic diabetes as severe as that of the controls^{58†}. However, after more extensive hypothalamic lesions (caudo-dorso-lateral to the mammillary bodies, in the region of the ventromedial nucleus of the hypothalamus) pancreatectomy did not produce a high blood sugar and life was prolonged in both dogs and monkeys^{204 205}. Anterior pituitary extract aggravates this attenuated diabetes. Davis's opinion, quoted from a letter, coincides with ours and is "that we have simply produced a functionless pituitary gland by interference with its blood and nerve supply with the lesion in the hypothalamus, which must be very accurately placed"

*Biasotti (unpublished) observed a remarkable case in a child

†The relationship of the adrenals to diabetes is considered in detail with a very complete bibliography by my pupil Leloir²¹¹

*In the fish *Mustelus canis* after the tubal lesion was produced there was a slight increase in the pancreatic hyperglycemia

†The glycaemic curves following injection of glucose in dogs with tubal lesions are similar to those seen in normal controls^{9 10 11 12}

PHLORHIZIN DIABETES OF HYPOPHYSECTOMIZED ANIMALS

Hypophysectomy causes a decrease in the intensity of phlorhizin diabetes* in fasting dogs^{15 16 50 56 6} (table 10) and toads,³ but the blood sugar falls rapidly, death occurring in from two to seven days (fifteen out of seventeen dogs). The glycosuria, ketonuria,^{1 1 1 9} urin

the direct stimulation of the pancreas found by La Barre, although the latter used adrenalectomized dogs while those of Foglia had intact adrenals.

Posterior lobe extract, even in repeated large doses does not produce diabetes in normal dogs^{46 50 427} or in dogs with incomplete removal of the pancreas^{62 70} but causes a slight rise in

TABLE 10

AVERAGES		DOGS UNDER PHLORHIZIN (7 DAYS)		BLOOD SUGAR MG. PER 100 CC.					
Hypophysectomized		Tubercular Lesions		Without Posterior Lobe		Thyroidectomized		Controls	
Initial Final		Initial Final		Initial Final		Initial Final		Initial Final	
Fasting	98 67	104	88	87	77	108	87	113	104
Meat fed	102 93	—	—	—	—	—	—	101	92
Sugar fed	94 86	—	—	—	—	—	—	105	105
Fat fed	88 66	—	—	—	—	—	—	112	120

AVERAGES		URINARY GLUCOSE EXCRETED IN GM. PER KG. PER DIEM	
Fasting	0.68	1.04	2.31
Meat fed	3.30	—	—
Sugar fed	2.56	—	—
Fat fed	0.82	—	—

ary nitrogen, dextrose nitrogen ratio and loss in weight, are all diminished (Table 10). On a meat or sugar diet, hypoglycemia and death do not occur, but on a fat diet they do. In all cases less sugar is excreted by the hypophysectomized animals than by the controls. Tubercular lesions or previous thyroidectomy do not affect the phlorhizin glycosuria.

ACTION OF PITUITARY EXTRACTS ON THE BLOOD SUGAR

Extract of the posterior pituitary lobe raises the amount of sugar in the blood. Extracts with three different actions can be obtained from the anterior lobe, (a) with hypoglycemic action, (b) with slight quick transitory hyperglycemic action due to intervention of the adrenals and (c) with diabetogenic action.

Hyperglycemic action of posterior lobe extracts.—Since Borchardt⁴⁶ found that posterior lobe extracts produced glycosuria this phenomenon, together with the hyperglycemia has been the object of numerous studies. We have shown^{74 77} that the hyperglycemic action is slight and increases with the dose, and that the vasopressor substance has the more intense action. It does not develop if the liver or adrenals are extirpated but if the pancreas alone has been removed it is normal and there is very little increase after section of the vagi. The action is on the liver with participation of the normal adrenal secretion. It has not been possible to demonstrate an increase in the secretion of adrenalin. Foglia³ could not confirm

the blood sugar of hypophysectomized animals with no pancreas. The neuro-intermediate lobe in the toad (corresponding to the posterior lobe of mammals) has similar metabolic actions to those of the principal lobe, although less intense. It counteracts the toxic and hypoglycemic actions of insulin,^{50 56} increases the diabetes of hypophysectomized pancreatectomized toads,³⁷ counteracts the asthenia and lengthens the life of hypophysectomized toads and causes an increase in their diminished glycogen content.^{48 49 50}

Hypoglycemic action of the anterior lobe.—Certain anterior pituitary lobe extracts produce hypoglycemia.^{133 73 335 340 495 496} etc. According to Anselmino and his collaborators they have a pancreatotropic action since they cause hypertrophy of the islets of Langerhans in the rat and do not produce hypoglycemia in pancreatectomized dogs. The increase in the secretion of insulin was proved by Zunz and La Barre,⁴²⁰ using a pancreaticojugular anastomosis. The pancreatotropic hormone is active in thyroidectomized animals; it decreases alimentary and adrenalinic hyperglycemia and lowers the glycogen content of the muscles. Its preparation and properties have been studied in detail by Anselmino and his collaborators.

The rapid and transient hyperglycemic action of anterior lobe extracts and of urine.—The commercial extract (of unknown preparation)

The fact that it has an antihyperglycemic action in the dog has been mentioned also (Houssey, under Anselmino, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 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3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3268, 3269, 3270, 3271, 3272, 3273, 3274, 3275, 3276, 3277, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3291, 3292, 3293, 3294, 3295, 3296, 3297, 3298, 3299, 3300, 3301, 3302, 3303, 3304, 3305, 3306, 3307, 3308, 3309, 3310, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3344, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 3374, 3375, 3376, 3377, 3378, 3379, 3380, 3381, 3382, 3383, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3393, 3394, 3395, 3396, 3397, 3398, 3399, 3400, 3401, 3402, 3403, 3404, 3405, 3406, 3407, 3408, 3409, 3410, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3418, 3419, 3420, 3421, 3422, 3423, 3424, 3425, 3426, 3427, 3428, 3429, 3430, 3431, 3432, 3433, 3434, 3435, 3436, 3437, 3438, 3439, 3440, 3441, 3442, 3443, 3444, 3445, 3446, 3447, 3448, 3449, 3450, 3451, 3452, 3453, 3454, 3455, 3456, 3457, 3458, 3459, 3460, 3461, 3462, 3463, 3464, 3465, 3466, 3467, 3468, 3469, 3470, 3471, 3472, 3473, 3474, 3475, 3476, 3477, 3478, 3479, 3480, 3481, 3482, 3483, 3484, 3485, 3486, 3487, 3488, 3489, 3490, 3491, 3492, 3493, 3494, 3495, 3496, 3497, 3498, 3499, 3500, 3501, 3502, 3503, 3504, 3505, 3506, 3507, 3508, 3509, 3510, 3511, 3512, 3513, 3514, 3515, 3516, 3517, 3518, 3519, 3520, 3521, 3522, 3523, 3524, 3525, 3526, 3527, 3528, 3529, 3530, 3531, 3532, 3533, 3534, 3535, 3536, 3537, 3538, 3539, 3540, 3541, 3542, 3543, 3544, 3545, 3546, 3547, 3548, 3549, 3550, 3551, 3552, 3553, 3554, 3555, 3556, 3557, 3558, 3559, 3560, 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577, 3578, 3579, 3580, 3581, 3582, 3583, 3584, 3585, 3586, 3587, 3588, 3589, 3590, 3591, 359

used by Lucke and his collaborators caused an immediate rise in blood sugar of not more than 30 to 50 mgm per cent which lasted for a few hours. This action is produced through the sympathico-adrenal path and is absent in adrenalectomized animals and in those with section of the splanchnics or under the influence of ergotamine or somnifen. It has a rapid action if injected into the cerebrospinal fluid.[†] This immediate action has also been found in other extracts.^{274 400}

Extracts of normal urine or pregnancy urine contain hyperglycemic substances.^{63 64 65 103 206 217 258 etc.} which can also be found in the ketogenic extracts prepared from them.^{258 402 403} These do not invariably alter the blood sugar nor do the following purified prolactin,^{206 213 327 408 etc.} the galactotrophic substances,³⁵⁴ the thyrotrophic substances,^{327 330} nor various other pituitary extracts.²⁷⁸ The action of the urine is due to the uric or hippuric acid according to Davis, Hinsey and Markee.²⁰⁶

Glycogenolytic action—The hepatic glycogen decreases after injection of various extracts of anterior pituitary lobe.^{139 274 284 327 433 etc.} The ketogenic^{402 403 414 etc.} and especially the thyrotrophic^{218 219 319 339} extracts have this effect.

According to Anselmino and Hoffmann¹³⁹ the anterior pituitary contains a glycogenolytic substance (on which they have bestowed the rather unfortunate name of Kohlehydratstoffwechselhormon) which is secreted into the blood. After a carbohydrate meal the blood, if removed and injected into a rat, has the power of diminishing the hepatic glycogen. In fasting the blood does not have this power except in diabetics. The blood of hypophysectomized dogs does not acquire the glycogenolytic capacity after carbohydrate intake. Hoffmann and Anselmino²⁷³ describe the properties of the hormone and its separation from the ketogenic substances.

Glycogenetic action—According to Magistius^{338 339 340} certain extracts of anterior pituitary lobe allow glycogen to be formed in the livers of rats in hyperthyroidism when sugar has been administered.

DIABETOGENIC ACTION OF ANTERIOR PITUITARY LOBE EXTRACT

Amphibians—In hypophysectomized-pancreatectomized amphibians, particularly the toad, glandular lobe extract of amphibians birds, fishes and mammals^{63 64 65} produces diabetogenic effects which are more intense than those produced by the intermedio-neural or posterior lobe extract. Anterior lobe raises the blood sugar of normal toads only slightly but produces

a considerable increase in the diabetes of hypophysectomized-pancreatectomized animals, with hyperglycemia, glycosuria^{56 60 61 62 64} (table 8) and an increase in urinary nitrogen.²² This diabetogenic action does not occur if the liver is absent²⁵ although the muscular glycogen falls less than in the untreated hepatectomized controls. The diabetogenic action is observed in hypophysectomized-pancreatectomized animals even if the thyroid or testes, digestive tract kidney or adrenals, diencephalon and anterior cerebrum are absent.^{56 60}

In hypophysectomized toads, extracts of this lobe cause an improvement of the asthenia and a lengthening of the survival time,^{48 49 50} there is a rise of glycogen⁷⁸ and of lactic acid formation during tetanic stimulation of the muscles.¹⁰⁶ It also causes an increase in the glycosuria following phlorhizin²⁸ and in the hyperglycemias following adrenalin and morphine injection.⁷⁵

Normal mammals—The hyperglycemic and glycosuric actions of anterior lobe extract have been described by Johns, O'Mulvenny, Potts and Laughton.^{284*} The diabetogenic action has been observed and studied minutely by Evans,[†] Houssay,^{9-12 29 48 49 50, 63 66 69 70 71 74} Baumann and Maime,¹⁵⁴ Baines and Regan,¹⁴⁹ and E I Evans.²²¹ It is the only glandular extract known at present which will produce a definite diabetic state,[‡] since extracts of liver, muscle, thyroid, spleen, kidney, testicle posterior pituitary lobe, and adrenalin all either have no action on the blood sugar or increase it only slightly.

In the dog the blood sugar gradually rises from the second or third day of injection until it reaches levels of 0.18 to 0.30 per cent (on carbohydrate diet the rise occurs more rapidly and is more intense) (Fig 7). After two days and before hyperglycemia develops there is considerable increase in the resistance to the toxic action of insulin (both in normal and hypophysectomized animals) even if the thyroids or adrenal medulla are removed.^{29 190 327}

The hyperglycemias due to adrenalin and morphine are also increased.^{76 77}

Besides the hyperglycemia there is glycosuria, ketonuria,^{120§} increase in plasma proteins,³¹ increase in hematic glutathione,¹¹⁴ hyperlipemia and hypercholesterolemia,^{120 164 221} acidosis,²²¹ etc. During the hyperglycemia there is diminished glucose tolerance (fig 8) since the hyperglycemia curve falls gently and approximates the diabetic one.^{9 10 11 12 149 221} The respiratory quotient does not rise and part of the injected

*They do not give their method of preparation of the extract, but they say it is protein free (which seems impossible to us) and their glycemias are not over 0.150 per cent.

†Evans, Meyer, Simpson, Reichert^{222 224} produced diabetes which persisted for a few weeks after the treatment had been discontinued.

‡The extract should be prepared from fresh frozen anterior lobes and kept at a low temperature.

§It is also seen after extirpation of the gonads or section of the splanchnics etc. but not after thyroidectomy.

†We found the action of this extract to be very weak even repeated high doses did not increase the glycemias more than 30 mg per cent transiently and showed no diabetogenic action.

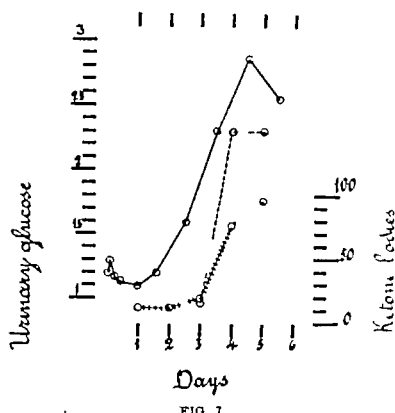


FIG. 7

Normal dog No. 2, daily injection 6 cc. (1 G.) of anterior lobe extract.

— Urinary glucose Gm. per kgm. per day
 --- Blood sugar in Gm. per 100 cc. blood
 + + + Urinary ketone bodies mgm. per kgm. per day

sugar is eliminated.^{9 10 11 12} It is worthy of note that during the intense hyperglycemia there is an increase in glycogen.¹⁴ (Table 11)

This action is observed in various species and can be obtained in castrated or thyroidectomized

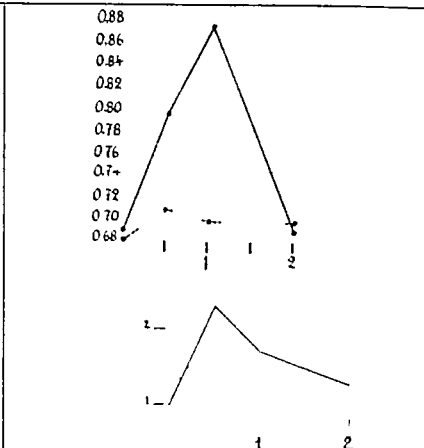


FIG. 8

A. R. Q. in the normal dog No. 1 following the intravenous injection of 1 Gm. of glucose before (solid line) and after (broken line) 10 minutes with anterior lobe extract. Abscissae—Time in hours after injection. Ordinates—R. Q.

B. Blood sugar in the normal dog No. 4 following the intravenous injection of 1 Gm. glucose per kgm. body weight before (broken line) and after (solid line) treatment with anterior lobe extract. Abscissae—Time in hours after injection. Ordinates—Blood sugar concentration in Gm. per 100 cc. blood.

TABLE 11

GLYCOGEN PER 100 GM. BEFORE AND 2 HOURS AFTER INTRAVENOUS INJECTION OF 1 GM. OF GLUCOSE PER KG. BODY WEIGHT

Chloralose Anesthesia	Liver Glycogen in Gm.		Muscle Glycogen in Mgm.	
	Before	2 Hour	Before	2 Hour
9 Normal dogs	3.10	2.65	528	583
6 Dogs injected 6 days with anterior lobe extract glycolysis above 0.18%	2.73	2.84	515	615
4 Dogs with splanchnic nerves severed injected 6 days with anterior lobe extract	3.30	3.40	660	734
7 Dogs injected 6 days with anterior lobe extract. No diabetes	1.90	2.36	434	560
8 Thyroidectomized dogs	2.16	2.48	51	609
10 Thyroidectomized dogs injected 6 days with anterior lobe extract	2.62	3.05	493	528
4 Hypophysectomized dogs (1)	1.63	1.94	—	—
3 Hypophysectomized dogs injected 6 days with glandular lobe extract	2.63	3.01	550	595
4 Pancreatlectomized dogs	1.45	1.73	340	337
10 Hypophysectomized and pancreatlectomized dogs	2.32	3.04	58	350

(1) The chloralose anesthesia has an unfavorable influence on the hypophysectomized dogs. With out anesthesia—77 Gm. % in the liver and 510 mgm. % in the muscle (averages of 7 hypophysectomized dogs) 3.48% in the liver and 639 mgms in the muscle (average of 6 normals) (Houssey Blasotti unpublished data.)

tomized dogs and in those with no adrenal medulla, with lesions of the tuber, or with section of the splanchnics and extirpation of the lumbar sympathetics.¹¹ If dogs deprived of one adrenal are injected with anterior lobe ex-

tract and when in hyperglycemia the second adrenal is removed but with the injections still continued the blood sugar remains high or falls gently during two or more days whereas there is a rapid fall if the injection of extract is suspended when the second adrenalectomy is performed. (Fig. 9) For this reason and also be-

cause of increasing activity: cats, dog, pigeons, guinea pigs, rabbits, rats, mice. It was not obtained in toads and snakes.

cause the diabetogenic action can be obtained in hypophysectomized-pancreatectomized and adrenalectomized toads, it is evident that this pituitary extract has its own action which is independent of the adrenals.*

The diabetes produced by the anterior pituitary lobe extract has five marked characteristics (1) it generally does not occur until the second or third day, (2) it does not occur or is hardly evident during fasting, (3) if administration of the extract is suspended the blood sugar falls rapidly and reaches a normal level in one to three days, (4) it is accompanied by a rise in glycogen (this is the only diabetes in

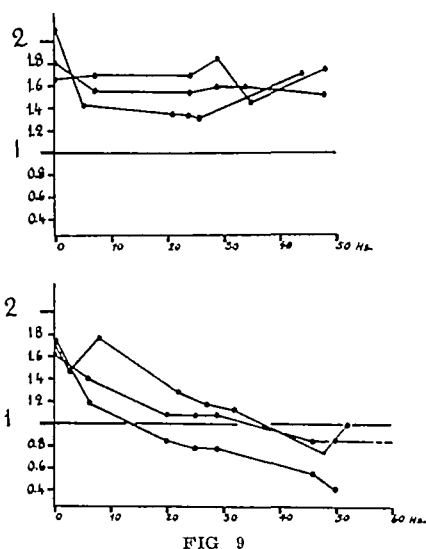


FIG. 9

Blood sugar in dogs. In all cases one adrenal was removed and anterior lobe extract injected until the blood sugar rose above 1.6 Gm per 1000 cc. The remaining adrenal was then removed.

The injections of anterior lobe extract were continued in the cases shown in graph A but were stopped in those shown in graph B.

Abscissae—Time in hours after complete adrenalectomy.
Ordinates—Blood sugar in Gm per 1000 cc. blood.

which this occurs), (5) the diabetes occurs even if the thyroids and suprarenals are absent.

If the injections are continued the blood sugar may fall to normal levels,²²¹⁻⁴⁰⁰ which gives rise to the theory that there may be an antihormone¹⁸⁶ however, it must be remembered that diabetes has still been observed after several months of uninterrupted treatment.²²³⁻²²⁴

Action in the pancreatic diabetes of hypophysectomized animals—When there is subtotal pancreatectomy (with or without glycosuria) the diabetogenic action is particularly intense. If there is total pancreatectomy all the symptoms of diabetes are intensified, especially the ketosis, and death occurs in one to three days.

In hypophysectomized-pancreatectomized mammals the anterior pituitary lobe extract causes an increase in the diabetes. The hyperglycemia, ketonuria, glycosuria, etc., reach abnormally high figures. These effects occur in

the same manner whether the thyroid or gonads are extirpated or not.

Action in phlorhizin diabetes—In the toad⁹⁵ and particularly in the dog⁶⁵⁻⁶⁶ anterior pituitary extract causes an aggravation of phlorhizin diabetes in hypophysectomized animals, it doubles the glycosuria, causes an immense increase in the ketonuria, accelerates the fall in weight, and increases the diuresis, but prevents the hypoglycemia and rapid death.

NAME, PROPERTIES AND ACTION OF THE SUBSTANCE WHICH IS ACTIVE ON CARBOHYDRATE METABOLISM

Of the substances present in the anterior pituitary secretion, the blood sugar lowering agent has been demonstrated pharmacologically but not physiologically. We do not yet know the importance of the glycogenolytic agent (the Kohlehydratstoffwechselhormon of Anselmino and Hoffmann). It can, however, be taken as proved that there is an anterior pituitary secretion which maintains the normal blood sugar, prevents the occurrence of hypoglycemia and raises the blood sugar in diabetes.

One may speak of the diabetogenic action of the extracts but it is not advisable to say there is a definite diabetogenic hormone, since its normal physiological action cannot be to produce diabetes. It seems that its action is to stimulate and facilitate the production of sugar and perhaps regulate its utilization, in large doses it produces hyperglycemia and diminishes sugar consumption. It would be more satisfactory to call it the glucose regulating (or glucido-regulating) hormone of the anterior pituitary.

Although in general it has antagonistic actions to those of insulin, it should not be called a contra-insular hormone (Lucke) because (1) it acts in hypophysectomized-pancreatectomized animals and its rôle is not exclusively anti-insulinic, (2) many other hormones (viz., adrenalin, posterior pituitary, etc.) are anti-insulinic. It has a direct action, not through its influence on the thyroids or adrenals, although it is clear that its effectiveness, like that of other agents, is less or may even fail in profound adrenalectomy.

The chemical properties of the glucose regulating hormone are not completely known although we⁵⁶⁻⁶¹ have studied them in the toad and the ox.⁷¹⁻³²⁵⁻³²⁶⁻³²⁷ It is soluble in water, partially so in alcohol at 50-60°, insoluble in acetone, absolute alcohol, ether, methyl alcohol, chloroform, benzene, partially precipitated by 95 per cent alcohol, acetone, and 30 per cent Na₂SO₄ (anhydrous). It is destroyed rapidly by heating above 55° to 80° C. It is absorbed by charcoal or kaolin and in great part by the filters. It is not ultrafiltrable or dialyzable. It is distinct from the gonadotropic, thyrotropic and mammatropic hormones but cannot be separated from the growth hormone.

*In contradistinction to what has been maintained by Lucke²²³⁻²²⁴⁻²²⁷ perhaps because his extracts had little activity or were of another kind.

PITUITARY AND LACTIC ACID

Marenzi's work¹⁰⁶⁻¹¹¹ has shown that there is an increase in the lactic acid of the blood due to the action of posterior pituitary lobe extract and during the diabetic action of anterior pituitary lobe. The lactic acid is normal in the blood of hypophysectomized animals and is also normal in the muscles of resting hypophysectomized toads (or of those with extirpation of the posterior lobe). After several weeks however, tetanization causes a smaller increase of lactic acid as compared with the normal, probably because the initial content of glycogen is diminished.

CARBOHYDRATE METABOLISM IN DISEASES OF THE HUMAN PITUITARY

It has already been mentioned that in serious pituitary insufficiency there is hypoglycemia with hypoglycemic crises and hyperactivity to insulin. Hyperglycemia due to glucose or adrenalin may be less²⁶¹ or greater than in normals^{1, 2, 3, 4, 5, 6, 7, 8} but is frequently followed by profound secondary hypoglycemia.

Glycosuria is very frequent in cases of Cushing's syndrome (it was found in nine out of twenty-three cases in which basophilic adenoma of the pituitary was histologically confirmed). There may be hyperglycemia with prolonged glycaemic curves²⁶⁷. The insulinic hypoglycemia curve is normal²⁶⁷ or lower²⁶⁸ but without hypoglycemic symptoms.

Glycosuria and hyperglycemia are frequent in acromegaly, there is a diminished fall in blood sugar due to insulin, and the alimentary glycaemic curves are prolonged,^{93, 217, 261, 3, 212, 234, 261} etc.

(3) Anterior pituitary extract can produce diabetes in normal mammals.

(4) When the pituitary is absent there is a tendency to hypoglycemia hypersensitivity to insulin and other hypoglycemic agents, etc.

In acromegaly glycosuria is frequent (table 12) and occasionally it is even possible for a diabetic state to develop, with irregularities, fluctuations or remissions. In 32 per cent of six hundred and fifty cases reviewed by Atkinson¹¹² glycosuria was mentioned. That this glycosuria or diabetes is due to hyperfunction of the anterior pituitary seems probable on the basis of various arguments formulated by Davidoff and Cushing⁹¹ (1) in these cases there is always an acidophile adenoma of the anterior pituitary. (2) Diabetes usually does not occur in cases of chromophobe adenomas or other pituitary lesions, (3) pancreatic lesions are not constant in such cases, (4) partial extirpation of the tumors causes an improvement (5) some of these cases are insulin resistant (6) extirpation or irradiation of the pituitary lowers this resistance.

The histological changes in the pituitary in cases of diabetes have been studied with contradictory results and interpretations.^{126, 167, 196, 12, 22, 236, 261, 232, 235, 4, 9} It is probable that there is a pituitary factor in all cases of diabetes to a greater or lesser extent for example it is possible that it has a more important influence in cases of infantile diabetes, etc.

SUMMARY OF THE METABOLIC ACTIONS OF THE PITUITARY

The anterior pituitary has a tonic action on the basal metabolism since it develops and maintains the thyroids.

TABLE 12
FREQUENCY OF GLYCOSURIA IN ACROMEGALY

	Cases with Glycosuria	Total No of Cases of Acromegaly	%
1. Hansemann D. Berl. klin. Wchnschr. 34 417 1897	13	97	12
2. Hinsdale G. Acromegaly. Medicine 4 442 1898	14	130	10
3. Borchardt, L. Ztschr. f. klin. Med. 66 332 1908	71	176	40
4. Rosenberger F. Die Ursachen der Glykurie. Muenchen 1911	82	196	42
5. Davidoff, L. M., and Cushing H. Arch. Int. Med. 39 751 (June) 1927	25	100	25
6. Atkinson Acromegaly. Bale London 1932	108	650	31

THE PITUITARY AND DIABETES*

Our experimental work has shown

(1) In the absence of the pituitary (or of the anterior lobe) pancreatic and phlorhizin diabetes is attenuated and animals retain and consume glucose.

(2) Anterior pituitary lobe extract counteracts the action of insulin increases pancreatic and phlorhizin diabetes etc.

The neuro-intermediate lobe regulates the secretion of water by the kidney (in amphibians and perhaps in mammals).

The anterior pituitary by its action on the thyroids and perhaps partly through other mechanisms, influences the concentration of iodine in the blood.

Colwell¹¹³ collected 23 cases. Davidoff and Cushing⁹¹ found it in 4 out of 108 of their cases, etc.
Hirshman¹¹⁴ has found that in a monkey has been found to be increased 200 per cent in the normal.
Atkinson¹¹² 127 cases 32 per cent 404 cases 31 per cent 650 cases 31 per cent.

* We have published paper on this subject in 1930-31 24

It maintains the potassium in the plasma at a normal level

It stimulates the endogenous protein catabolism and the protein minimum, particularly in fasting diabetes, etc

It has some influence on the nucleoprotein metabolism (stimulation of production of uric acid)

It has an action on the protein equilibrium of the plasma (through the thyroid)

It has a definite stimulatory action on ketonuria

Its action on the deposition and consumption of fats varies from species to species

In the absence of the anterior pituitary there is a great decrease in the excretion of sugar during fasting in diabetes and the new formation of sugar from protein is diminished

Hypophysectomized animals readily become hypoglycemic and may present grave symptoms and frequently die. Treatment with sugar produces spectacular improvements

Diabetes in hypophysectomized animals is less intense and they are able to utilize sugar. Excess of anterior pituitary lobe aggravates the diabetes or produces it in normal animals and causes a hyperglycemia which results in a poor consumption of glucose. It considerably increases the resistance to insulin in normal and hypophysectomized dogs. It has a direct action which is seen in the absence of the pancreas, gonads, thyroid or adrenals, etc

In pituitary insufficiency of the dog there does not appear to be an excessive consumption of glucose (low basal metabolism normal respiratory quotient and glycogen). However only a very careful study of the consumption of sugar in different animal species would definitely establish whether it is normal increased or decreased. For fasting animals glycogen is low

Without doubt the pituitary is one of the most important metabolic regulatory organs and in some species (in the toad particularly) it is of vital necessity. In the future it will be impossible to study any metabolic problem whether normal or pathologic, without reference to the pituitary. Growth endocrine regulation (including the reproductive functions) and metabolic regulation form the functional trinity of the anterior pituitary gland

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Maternity and Infancy

Robert O Blood, Benjamin P Burpee, Chester
F McGill

Medical Liability

Henry C Sanders, Jr, David W Parker, Al-
thun T Downing

MONDAY, MAY 25, 7 30 P M

Hotel Carpenter

HOUSE OF DELEGATES

Speaker, James B Woodman, Franklin Falls
Vice-Speaker, Cleon W Colby, Exeter

Delegates to N E States' Meetings

Maine Charles F Nutter, Nashua, Joseph J
Cobb, Berlin
Vermont Oscar C Young, Charlestown, El-
mer M Miller, Woodsville
Massachusetts Harry W Savage, Lebanon,
John F Holmes, Manchester
Rhode Island Benjamin E Sanborn, Manches-
ter, George M. Crowell, Suncook
Connecticut A Philip LaFiance, Laconia, Os-
mon H Hubbard, Keene

HOUSE OF DELEGATES

The President, ex-officio
The Vice-President, ex-officio
The Secretary-Treasurer, ex-officio

Belknap County

Richard W Robinson, Laconia
Raymond J Turley, Meredith

Carroll County

William J Paul Dye, Wolfeboro
Francis J C Dube, Center Ossipee

Cheshire County

Osmon H Hubbard, Keene
Frank M Dinsmoor, Keene

Coos County

Richard E Wilder, Whitefield
James A Ferguson, Lancaster

Grafton County

Leslie E McKinlay, No Haverhill
Leslie K. Sycamore, Hanover
Robert M Deming, Glencliff

Hillsborough County

Joseph E Laroche, Manchester
Roland J Joyce, Nashua
Deering G Smith, Nashua
Clarence E Dunbar, Manchester
Charles H Cutler, Peterborough

Merrimack County

Henry H Amsden, Concord
Warren H Butterfield, Concord
James B Woodman, Franklin Falls

Rockingham County

Lawrence R Hazzard, Portsmouth
Oscar B Gilbert, Exeter

Strafford County

Harry O Chesley, Dover
Jeremiah J Morin, Rochester

Sullivan County

Henry C Sanders, Jr, Claremont
Donald C Moriarty, Newport

TUESDAY, MAY 26, 10 00 A M

Standard Time

GENERAL MEETING

1 *Call to order by the President* Clifton S
Abbott, Laconia

2 *The Inevitable Colon Diagnosis and Treat-
ment by the General Practitioner* J Dunbar
Shields, Concord

Discussion opened by Clarence O Coburn,
Manchester, Fred E Clow, Wolfeboro

3 *Artificial Pneumothorax in the Treatment
of Tuberculosis* John D Spring, Nashua

Discussion opened by Robert B Ken, Man-
chester, Robert M Deming, Glencliff

4 *Diuretics and What They Do* Henry A
Christian, Boston Hersey Professor of Theory
and Practice of Physic, Harvard Medical School

Discussion opened by Bruce Snow, Manches-
ter, Walter F Taylor, Keene

TUESDAY, MAY 26 2 00 P M

Standard Time

1 *Presentation of 50-year Membership Gold
Medal to Ellen A Wallace, Manchester*

2 *Introduction of Doctors who have been
in practice 50 years* Frederick L Hawkins,
Meredith, J Franklin Robinson, Manchester

3 *The President's Address* Clifton S Ab-
bott, Laconia

4 *Symposium on Pediatrics*

a *Medical Aspects* Richard M Smith,
Boston Assistant Professor of Pe-
diatrics, Harvard Medical School
Discussion opened by Ursula G Sanders,
Concord

b *Surgical Aspects* William E Ladd,
Boston Clinical Professor of Sur-
gery, Harvard Medical School
Discussion opened by MacLean J Gill,
Concord

*The Prevention and Modification of
Certain Communicable Diseases* R
Cannon Eley Boston
Discussion opened by Abbott L Winograd
Nashua.

WEDNESDAY, MAY 27, 10:00 A M
Standard Time

1 *Reception of Visiting Delegates*
2. *Problems in the Diagnosis and Treatment
of Bronchiectasis* M Dawson Tyson, Hanover
Discussion opened by Robert M Deming,
Glencroft, Leslie K Sycamore, Hanover

3 *More Rational Methods in the Prevention
and Control of Eclampsia* J O Arnold Phil
adelphia Professor of Obstetrics, Temple Uni
versity

Discussion opened by Benjamin P Purpee
Manchester, Robert O Blood Concord

4. *Public Relations of the Medical Profes
sion* Morris Fishbein Chicago Editor *Jour
nal of the American Medical Association*

WEDNESDAY MAY 27 2:00 P M
Standard Time

1 *Introduction of New President*
2 *Report of House of Delegates*
3 *Report of Trustees*
4 *Recent Advances in Urologic Surgery In
cluding Renal and Prostatic Surgery Experi
ences with a New Operation for Impotence* Os
wald S Lowsley, New York City

Discussion opened by Elmer J Brown Man
chester Richard W Robinson, Laconia

5 *Coronary Disease, Including Angina Pec
toris* William D Stroud, Philadelphia. Pro
fessor of Cardiology, Jefferson Medical College
Discussion opened by Granville E Hoffes
Manchester, Harry T French Hanover

WEDNESDAY MAY 27, 6:30 P.M.
Standard Time

THE BANQUET

Inniversary Chairman
Richard W Robinson, Laconia

Guest Speakers

His Excellency H Styles Bridges Governor
of New Hampshire.

Dr Clifton S Abbott President N H Med
ical Society

Dr Morris Fishbein, Medicine in the Chang
ing Social Order

COMMITTEE ON ARRANGEMENTS

General Chairman—Adolphe J Provost
Vice-Chairman—Benjamin E Sanborn
Secretary—Harris E Powers
Treasurer—Elmer J Brown
Location—Alexandre Barbeau
Program—Daniel J Sullivan
Reception—George V Fiske
Banquet—Walter A Bartlett
Exhibition—George F Dwinell
Finance—Elmer J Brown
Publicity—Murray H Towle
Hospital—Damase Caron

List of Commercial Exhibitors at the time of going to press

Bard Parker Company Inc Danbury, Conn
Elmer N Blackwell Portland, Maine
Boss & Seiffert Company, Inc., Providence, R I
Canada Dry Ginger Ale, Inc Chelmsford, Mass
Otis Clapp & Son, Inc Boston, Mass
Davies Rose & Co, Ltd Boston Mass.
The Denver Chemical Mfg. Co, New York, N Y
Endo Products Inc, New York N Y
George C Frve Company Portland, Maine
General Electric X Ray Corporation, Boston
Mass.
Hartford Accident & Indemnity Co G Allen
Putnam Agency Manchester N H
H P Hood & Sons, Manchester, N H
Horlick's Malted Milk Corporation, Racine Wis
Lederle Laboratories, Inc, New York, N Y
Lepel High Frequency Laboratories Inc, New
York, N Y
E F Mahady Company, Boston Mass
E H Marey Drug Company Hillsborough,
N H
Mead Johnson & Company, Evansville Indiana
Mellin's Food Company Boston Mass
M & R Dietetic Laboratories, Inc, Colum
bus O
Philip Morris & Company Ltd, New York N Y
The P J Noyes Company Lancaster N H
The E L Patch Company Boston, Mass
R J Strassenburgh Company Pharmaceutical
Chemists Rochester N Y
Surgeons' and Physicians' Supply Co, Boston.
Fairby Nason Company, Boston Mass
Winthrop Chemical Co Inc New York N Y

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Vice-President Harry A Cheney Campton
Secretary-Treasurer Clifton S Abbott Laconia
Delegates Richard W Robinson Laconia Ray
mond J Turley Meredith
Board of Censors Lyall A Middleton Plymouth
Park R Hoyt Laconia John R Perley
Laconia

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 M Dinsmoor, Keene
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 Norris H Robertson, Keene, George N Barry,
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 North Haverhill
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 ua Clarence E Dunbar, Manchester
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 Butterfield, Concord
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 Fred S Eveleth, Concord, William P Clough,
 New London

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 Vice-President Alice C Lamprey, Exeter
 Secretary-Treasurer Wendell P Clare, Ports-
 mouth
 Delegates Lawrence R Hazzard, Portsmouth,
 Oscar B Gilbert, Exeter
 Board of Censors Ralph H Barker, Derry,
 Thomas W Luce, Portsmouth Donald W
 Leonard, Exeter

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 O Chesley, Dover

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 Claremont.
 Councilor Emery M Fitch, Claremont
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 Donald C Moriarty, Newport
 Board of Censors Ernest L Huse, Meriden, John
 H Munro, Sunapee, Robert H Brooks, Clare-
 mont

CLINICS

The State Board of Health, Division of Maternity, Infancy and Child Hygiene is sponsoring a Maternity Clinic at the Laconia Hospital the third Wednesday of each month for expectant mothers who are not under the care of a physician Miss V M Jennings of Lakeport is the nurse in charge of the clinic

Four Tuberculosis Clinics have been started recently in Cheshire County Dr Robert B Kerr of Manchester will be the examining physician with Mrs Mildred Alken, County Tuberculosis Nurse, as sisting

An appeal for more persons in Cheshire County to take advantage of the free Cancer Clinics being conducted at the Elliot Community Hospital has been made by Dr Walter H Lacey, examining physician of Keene The State Legislature appropriated a sum of money for this work at its last session

The State Cancer Commission reports that since establishment of eleven clinics the first of January, 1934, doctors attached to the clinics have examined 1,152 patients Of this number, diagnosis showed that 39 per cent of those examined had cancer and treatment was prescribed

NURSES

Miss Maude Miles, Superintendent of the New Hampshire Memorial Hospital, has recently resigned her position Miss Miles plans to study this summer

The District Nursing Association and Portsmouth Red Cross are making plans to have a course in home nursing, classes to be held at the Portsmouth Hospital under the supervision of Miss Velma Pet-
 tiner, R.N The course will consist of twenty hours and will include such subjects as healthful home environments, care of the sickroom and patients, and feeding of the sick

The New Hampshire Graduate Nurses' Association held its quarterly meeting in Concord March 11, with Miss Ruth Whitcomb, R N, of Concord as Program Chairman Miss Claribel A Wheeler, R N, of New York City, Executive Secretary of the National League of Nursing Education, spoke at both morn-
 ing and afternoon sessions Miss Wheeler addressed the Association on "Curriculum as it Affects State Groups" Miss Margaret Riley, head of the Der-
 matology Department at the Massachusetts General Hospital, spoke to the Public Health section and Miss Alice E Jackson, Executive Secretary of the

Family Welfare Society spoke to the Private Duty group

HOSPITALS

The Laconia Hospital has recently acquired from one of its prominent physicians a McKesson Electric Oxygen Tent with which to treat pneumonia

PERSONALS

Governor H. Styles Bridges proclaimed Friday May 1, as Child Health Day. The slogan chosen for this year was "Health and Security for Every Child." In proclaiming this day as Child Health Day the Governor asked each community to take thought for its own needs and how they may be supplied and to give active and loyal support to the leadership in this regard of the Division of Maternity and Infancy of our State Health Department.

Dr. Anna Philbrook of the State Hospital in Concord spoke before the members of the Legion Auxiliary at Laconia April 15. Dr. Philbrook's subject was Child Welfare.

The Spring meeting of the New Hampshire Surgical Club was held at the Laconia Hospital on April 22. The morning session was devoted to a Dry Clinic. Luncheon was served at noon. Fifty-four members were present. Dr. Mark H. Rogers of Boston addressed the Club on Painful Shoulders and Dr. Otto J. Hermann of Boston spoke on Compound Fracture Therapy.

DEATHS

CONNOR—HAROLD J. CONNOR, M.D., aged forty-five, one of the leading physicians of Concord and a member of the staffs of the Margaret Pillsbury and Memorial Hospitals, died at his home 41 Auburn Street on April 8, 1936. He had been ill for several weeks and his death was directly due to cerebral embolus.

Born in Woodstock, N. B., he received his medical training at Tufts College Medical School, class of 1914. On August 5, 1917, he entered the military service enlisting in the National Guard Medical Corps and was stationed both at Salem and Boxford, Mass. He served in France from September 23, 1917, to April 4, 1919. At various times he was attached to the 101st Engineers, the 102nd Field Artillery and the 103rd Infantry and was discharged on April 28, 1919. He started his service as a first lieutenant and on September 16, 1918, was promoted to a captaincy.

Dr. Connor was married to Miss Mary Cragg of Concord, who survives him as do two children, Mary Louise and James.

BROOKS—HARLOW BROOKS, M.D. Word has been received of the death in New York City April 13, 1936, of Dr. Harlow Brooks, internationally known as a diagnostician and a summer resident of New Hampshire for several years. He was sixty-five years old.

Dr. Brooks, who was in great demand as a consulting physician and who numbered among his patients General John J. Pershing, Gerard Swope and Bishop William T. Manning, was stricken the Thursday preceding his death following his return to New York from Florida.

Dr. Brooks was the guest speaker at one of the annual meetings of the New Hampshire Medical Society several years ago. For the past thirty years, he had maintained a home in Raymond to which he returned for week ends and occasional weeks during the summer.

Dr. Brooks, who resided at 47 West Ninth Street, New York City, is survived by his widow, Mrs. Louise Davis Brooks, whom he married in 1899, and his daughter, Miss Ruth Brooks, who sailed for South America on April 2 with a scientific expedition.

NEW HAMPSHIRE STATE CANCER CONTROL*

Local control of the cancer problem requires the co-operation of a fairly large group of interested people, a trained and competent directing authority and a supply of money sufficient to defray the expenses necessary to attain the planned objective. While the group of interested people will consist of both physicians and laymen, it is obvious that the major policies of development and procedures should be directed by physicians.

In May 1931 an act (Laws of 1931 Chapter 146) entitled "An Act providing for state aid for persons suffering from cancer and for the creation and appointment of a Cancer Commission," was passed by the New Hampshire Legislature. This act provides in brief for a commission of five persons with the governor as ex-officio chairman and the four appointive members to consist of two laymen and two physicians. One physician shall be a member of the State Board of Health and one to represent the New Hampshire Medical Society. These appointees have no definite term but serve at the will of the governor and council.

The act further provides that the commission shall establish and support cancer clinics, make studies and surveys of the cancer situation in the state, expend money for clinical care and assistance of poor and indigent cancer patients, partly on a fifty-fifty basis with towns and counties and partly outright. The commission may receive voluntary contributions for general or special purposes.

In visualizing the commission activities one must remember that New Hampshire is a small state with less than 500,000 inhabitants and with more than fifty per cent of them in the southern half of the state. Our fiscal year begins July 1 and our first year's appropriation was for \$15,000. All but \$600 lapsed on account of inactivity. Since then the yearly appropriation has been from \$20,000 to that for this year and next of \$35,000 for each year.

The selection of the personnel of the commission was not completed until December 1931. During 1932 a survey of the state was made in an effort to ascertain the available resources for hospitalization and treatment and the number of cancer patients treated during the previous year. The commission felt its way carefully furnished aid to indigent patients through the facilities of the welfare department and in 1933 began to establish diagnostic clinics with the assistance of the established clinic or

*Summary of paper read on March 1936 in New York City before the Office of Directors of the American Society for the Control of Cancer by George C. Wilkins, M.D., of March 1936. New Hampshire member of the New Hampshire Cancer Commission.

ganizations of the state health department By November 1, 1933, there had been established eleven diagnostic clinics in general hospitals throughout the state and in 1934 this number was increased to thirteen In 1934 and 1935, 1152 patients were examined at these clinics and positive cancer found in 451, or 39 per cent.

In 1933 and 1934 the commission, through the welfare department, expended \$16,623 for the care of terminal cases and for hospitalization of other indigent cases, and in 1935 there was expended \$16,097 40 for this purpose The diagnostic clinic expense is approximately \$7,200 per year and the general administrative expense about \$5,300

In 1935 the commission, having acquired information and experience through the cooperation with other departments, took over the entire management and supervision of state cancer control In January, 1935, the commission established three treatment centers, in Manchester (Elliot Hospital), Concord (Margaret Pillsbury Hospital), and Hanover (Mary Hitchcock Memorial Hospital) At these hospitals there are available surgery, deep therapy x ray and radium The commission purchased 200 milligrams of radium and has allotted it to these three hospitals in such proportion as to augment the existing supply to 200 100 and 100 milligrams respectively in each of the three institutions designated for treatment This radium is available for free treatment of indigent patients, but may be used on other patients

The present setup and activities of the commission, which have been and are being developed after two years of study and observation, are as follows

- (a) An office in the State House with one lay member of the commission acting as secretary, assisted by one female clerk
- (b) One field nurse who had been trained for several years in an active cancer treatment clinic This nurse investigates all cases asking for aid and confers with county and town officials She makes arrangements for hospitalization and nursing care of all indigent cases She contacts each diagnostic clinic at regular intervals and follows up reluctant patients It is expected that a general follow up system will be developed soon
- (c) A comprehensive record of expenditures and an index of all cancer patients seen at clinics or cared for by the commission A copy of clinic examinations is forwarded to this office for filing A report of all radium and x ray treatments at the treatment centers is also sent each month
- (d) A monthly meeting of all members of the commission

The activities carried on are divided into four fields of work

- 1 *Conduct and Development of the Diagnostic Clinics* This plan contemplates not only the examinations of patients presenting themselves at the clinics, but definite encouragement is given each clinic group to learn more about cancer, and to become more proficient in diagnosis The greatly increased number of biopsies sent to the State Pathological Laboratory during the past two years attests to this increased efficiency Physicians are invited to attend the clinics and are especially urged to accompany their patients Closely related to diagnostic clinics are the three treatment

centers, each of these centers being also one of the thirteen diagnostic clinics In these three centers the number of operations for cancer during 1935 has not been ascertained but 410 radium treatments were given to 277 patients However, 370 of the radium treatments were given at the Elliot Hospital in Manchester In addition to the three treatment centers there are two other hospitals in the state, the Laconia Hospital and the Notre Dame Hospital in Manchester, that have deep therapy machines and competent radiologists This makes a total of five hospitals where deep therapy may be given Four hundred and sixty nine series of deep therapy x ray treatments were given to 355 patients in New Hampshire during 1935

Each fall the Cancer Commission, the directors of the clinics, the pathologists and radiologists have an all day conference and annually the radiologists meet for a separate conference

- 2 *The Care of Poor Cancer Patients* This includes investigation, transportation to hospitals for treatment, remunerating hospitals for board, care and treatment, placing terminal patients in nursing homes when necessary and supplying nursing and medical care The commission pays all of the expenses for such care but is reimbursed for fifty per cent of the expenses by towns and counties when these patients are receiving public money for support In addition to this class of patients, the commission may give the same assistance to unfortunate persons who are trying to pay their own way and are not able to assume the added expense of cancer care and treatment Money expended on this latter class of patients comes entirely from the commission funds
- 3 *Accumulation of Records*, from which may be deduced statistics of importance regarding the cancer situation in New Hampshire The New Hampshire State Board of Health has contributed much assistance from its vital statistics department and also by ruling in 1935 that cancer be a reportable disease
- 4 *Education* Pamphlets are distributed at each clinic All requests from clubs for speakers have been supplied Numerous articles regarding cancer, and emanating from the Cancer Commission, have appeared in local papers Since December 10, 1935, there have been weekly broadcasts, thirteen in all, on various phases of cancer education and information, sent out over Station WFEA in Manchester These broadcasts, either complete or in abstract, have been printed weekly in sixty newspapers Mimeographed copies of these broadcasts have been prepared and have been mailed in answer to requests The commission is cooperating with the American Society for the Control of Cancer in the preparation of a state-wide educational campaign

Owing to the fact that New Hampshire is such a healthful state to live in, we have a larger proportion of elderly people and to this fact is probably due the high incidence of cancer within the state In spite of this handicap, the commission hopes to reduce this incidence in the next few years The commission takes considerable pride in the fact that of

the 112 cancer clinics in general hospitals approved by the American College of Surgeons in the United States and Canada, the Elliot Hospital in Manchester was included in the number and of the forty seven provisionally approved hospitals the Margaret Pillsbury Hospital in Concord was included. The American College of Surgeons approved only thirty three diagnostic cancer clinics and in this group seven of the New Hampshire clinics were listed.

NEW HAMPSHIRE MEDICAL SOCIETY

HANDBOOK OF THE EARLY SIGNS AND SYMPTOMS OF CANCER

Prepared by the Committee on the Control of Cancer 1935

OBJECTS OF THE HANDBOOK

- 1 To furnish to the physician a summary of the available knowledge regarding the most important features of cancer because if cancer is recognized in its early stage and thoroughly and skillfully treated the majority of these patients should get well and in the more superficial group such as the skin and lip nearly all should get well.
- 2 To have at hand a convenient abstract for reference and as a reminder so that no patient will lose the best chances for life.
- 3 To enlist the co-operation of every practitioner of medicine in a real effort to reduce the deaths from cancer by curing the early cancer or the precancerous conditions.
- 4 To remind all physicians that a thorough physical examination on the patient's birthday and better each six months will enable him to recognize many early cancers or precancerous conditions that are now being neglected by the patient.

Committee on Control of Cancer

GEORGE C. WILKINS, M.D. *Chairman*

HOWARD N. KINGSFORD, M.D.

GEORGE F. DWIVELL, M.D. *Secretary*

CANCER OF THE SKIN

Cancer of the skin usually begins as a small painless scaly thickening or papule associated with crusts which are likely to fall off and then recur. This is followed by a warty or papillary growth associated with slight induration. It may then ulcerate with the development of hard everted edges, and a granulating base covered with crusts the removal of which causes slight bleeding.

Cancer of the skin may begin as a small, flat depressed thickening which ulcerates and enlarges.

Cancer of the skin may begin as a small pimple with persistent ulceration, and absence of inflammation.

It may begin as a cutaneous horn or may develop in a fissure or in the scar of an old burn.

Benign warts if irritated may become malignant.

A mole or wart, especially if increasing in size or beginning to form crusts or beginning to bleed must be thoroughly treated at once. Bluish black moles are especially dangerous because of the likelihood of metastasis and all of these should be removed by wide excision.

Cancer of the skin may be single or is likely to be multiple in old people who have senile keratoses.

Removal by excision electrocoagulation or irradiation should be done at once and completely. Caustic applications are dangerous.

CANCER OF THE BREAST

Cancer is one of the most common new growths of the female breast, most likely to occur about the time of the menopause but may be seen in women of eighteen to thirty and in the very old. It is not uncommon to find the growth in unmarried women. About 1 per cent occur in men.

The growth appears insidiously and usually is found by accident while bathing or drying the skin. It may be found in any part of the breast. Absence of pain in the early cases is the rule although darting pain may occur.

The presence or absence of a tumor is determined by examining the breast with the flat hand with the patient in both the sitting and in the recumbent posture. The characteristics of the tumor are best obtained by placing the patient in the recumbent posture, stripped to the waist and while gently fixing the tumor with the thumb and index finger of one hand the tumor is examined with the index finger of the other hand. The least possible manipulation should be made and with the greatest gentleness. Every solid tumor in a woman should be looked upon as malignant, until proved benign.

Early cancer of the breast usually appears as a single, hard irregular painless lump. Its hard consistency may be masked by overlying fatty tissue. It may coexist with benign tumors and chronic cystic mastitis therefore multiple tumors often lead to an erroneous diagnosis. An attempt to lift the skin over the tumor may cause dimpling or depression. Bloody discharge from the nipple may be of diagnostic import and should be carefully investigated. It may be due to a duct papilloma or a duct cancer.

All detectable cancers are fixed in the breast tissue. fixation to the skin or to the fascia of the pectoral muscle indicates advanced or late lesions. A visible tumor retraction of the nipple deformity of the breast, or ulceration of the skin suggests late cancer.

Hard painless discrete axillary nodes are confirmatory of advanced cancer. The absence of nodes does not negative the diagnosis although it indicates a more favorable prognosis. Transillumination of the breast with an appropriate light in a darkened room or an x-ray of the breast and axilla by a competent roentgenologist, will be of aid in the diagnosis of breast tumors. According to our present knowledge cancer of the breast is best treated by radical amputation and irradiation. Rapidly growing cancers in young people far-advanced cases and those which have metastasized to distant parts such as the lungs and the bones should rarely be operated upon except for the palliative removal of a large ulcerating and foul growth.

Every suspected breast tumor should be freely excised and examined clinically and microscopically. No physician should "wait for developments, or tell the patient to not bother it until it bothers you." Tumors of the breast should not be rubbed or massaged.

CANCER OF THE LIP

Precancerous and cancerous lesions of the lip may result from excessive smoking biting the lip or excessive exposure to the sun wind or cold over long periods of time such as occurs in farmers and sailors. Chronic dental infection is one of the most frequent causes.

Cancer of the lip may begin as a "fever blister" or a superficial crust fissure, ulcer or wart which may seem so simple to the patient that cancer does not enter his thoughts. Very similar lesions may have been present and may have disappeared earlier in life leading the patient to expect lesions at an older age to disappear also.

The important lesson to learn is that if a lesion of the lip does not show signs of disappearance within ten days or two weeks, it should be regarded as cancer until proved otherwise

The most distinguishing feature of cancer, though not the earliest, is the indurated edge or border which is due to the infiltrating character of cancer

With the knowledge now available, cancer of the lip like cancer of the skin, should be entirely eliminated

Disease in this area can always be recognized in its earliest stage by the patient, because the slightest gross change can be felt by the patient's tongue and can be seen in the mirror. In this early stage practically all cancers of the lip can be cured if treated skillfully and thoroughly at the beginning. Failures are due to delay, inefficient treatment, or to the application of some superficial irritating substance which causes congestion and increases the rate of growth. Silver nitrate or other escharotics should never be applied to questionable growths or ulcers

CANCER OF THE MOUTH

Cancer in the mouth as elsewhere in the body can be cured in the early stages. It can be seen and felt by the patient and the physician, and, therefore, the diagnosis can always be made early and thorough, skillful treatment should be applied at once

It is primarily a disease of elderly people but may occur in infants and children. It follows local irritation, leukoplakia, or syphilis, but may occur without any of these causes being recognized. The association with syphilis makes the prognosis less favorable

Chancres can be differentiated by finding the spirochetes. Gummas may be differentiated by biopsy. Cancer may occur associated with either of these lesions. A positive Wassermann test does not exclude cancer, should not delay treatment and a biopsy should be done

The early symptoms or signs are ulcer, induration, leukoplakia, with or without pain. The most common locations observed are the floor of the mouth, tongue, buccal surface of the cheek, soft palate and on the alveolar mucous membranes

To make the diagnosis is often difficult and commonly requires consultation. Each case is a law unto itself. The treatment cannot be standardized. The final outcome is dependent on the judgment used in planning the first attack upon the disease, and the plan will depend much upon the extent of the disease

CANCER OF THE LARYNX AND PHARYNX

The early symptoms are beginning hoarseness and local discomfort. The local discomfort may consist of a sticking sensation or a feeling of lump and tenderness during swallowing and frequently during phonation. If the vocal cords are involved, hoarseness is an early persistent symptom. If the growth does not involve the cords or is extrinsic, hoarseness will be a late symptom

The symptoms depend on the location and upon whether the lesion is an induration or ulceration or both

The responsibility of the physician lies in making an early diagnosis. In the event of suggestive symptoms developing the patient should be examined by a laryngologist experienced in detecting tumors and making biopsies. Repeated examinations are frequently necessary in early cases before diagnosis can be positive. The treatment is by surgical means, laryngofissure or laryngotomy, or by irradiation or both. Laryngeal cancer metastasizes fairly early

and patients should be examined frequently for the appearance of cervical nodes

CANCER OF THE LUNG

Cancer of the lungs or pleura is usually a metastatic growth from cancer elsewhere, but it may be primary. The earliest symptoms are cough and thoracic discomfort. If the pleura is involved, dyspnea due to fluid in the pleural cavity develops rapidly. The cough is frequently persistent and usually without expectoration unless it becomes bloody

The diagnosis can usually be made early by x-ray examination. The treatment is palliative

CANCER OF THE STOMACH

Of all the growths in the human body, carcinoma of the stomach is probably the most fatal and is probably the commonest of the internal cancers. One of the chief causes for error in diagnosis is failure of the attending physician to suspect its presence

It is essentially a disease of middle life, i.e., between forty and sixty years of age, rare, but highly malignant in the thirties

In most of the cases, premonitory symptoms are either slight or absent

There is no one striking symptom or group of symptoms by which it can be recognized as such in the early stages

The discomforts of the patient are commonplace, differing in no respect from indigestion, which can be accounted for by errors in diet, insufficient chewing of food, lack of teeth or dental infection, worry and overwork

The diagnosis is difficult or impossible from the early symptoms alone, but these indefinite symptoms that do not respond promptly to ordinary intelligent medical and dietary treatment, should suggest an immediate x-ray gastrointestinal examination which will usually determine the diagnosis

The early indefinite digestive symptoms become associated with anorexia, occasional vomiting to relieve distress, slight pallor, loss of weight and finally constant pain and a palpable tumor. Unexplained secondary anemia, with fatigue, suggests gastrointestinal malignancy

Of all diseases simulating carcinoma of the stomach, pernicious anemia and carcinoma of some other part of the gastrointestinal tract are the most confusing. Consideration of secondary symptoms and gastric ulcer may present problems in differential diagnosis

In the early stages a palpable mass is not present and gross hemorrhage is rare at any stage. Vomiting is neither an early nor a characteristic symptom. Induced vomiting to relieve distress is not uncommon in later stages. Low acidity of gastric contents suggests cancer, though free acid may be present

Any persistent or unexplained abdominal symptoms demand a careful gastrointestinal study especially by the x-rays

The treatment is surgical, and only early diagnosis can make surgical procedures advisable or successful

CANCER OF THE BOWEL

Of all the internal cancers, those of the bowel are most amenable to cure if the diagnosis is made at a reasonably early stage

Cancer of the small intestine is comparatively rare, contributing only 2 per cent of the bowel cancers

Of the remaining 98 per cent, about half are within six or eight inches of the anus, and the other half scattered throughout the colon

The most important and earliest symptom indicating the possibility of bowel cancer is the onset of

increasing constipation where none existed before or a definite and progressive increase in a previously mild constipation. Secondary symptoms may be colicky pain gas and horborygm blood in the movements loss of weight secondary anemia and digestive symptoms.

Late symptoms are due to obstruction metastases loss of blood and toxic absorption. Alternating diarrhea and constipation as well as constant diarrhea, are late symptoms. Complete obstruction may occur with remarkable suddenness. All cancers of the bowel ulcerate and as this frequently occurs early a search for occult blood in the feces is a diagnostic procedure of great value. Blood and mucus in the stool are significant, though in cancer these constitute fairly late symptoms.

Any indication of the above picture should not be disregarded and a word of warning must be given regarding treatment. It is not only justifiable but advisable to investigate first, because in early bowel cancer it is possible so to ameliorate the symptoms by prescribing mineral oil and other medicines that clinical improvement satisfactory to the patient occurs, while the growth itself is growing constantly and constantly approaching the deadline of inoperability.

Reliable diagnostic measures are not difficult to apply and should always be used in the following order

1. Digital examination of the rectum. Nine tenths of all cancers of the rectum and therefore nearly one-half of all cancers of the bowels are within reach of the finger.
2. Examination of the lower bowel with the proctoscope and sigmoidoscope. This allows inspection of six inches more of the lower bowel and also removal of biopsy specimens.
3. Barium enema and x ray examination fluoroscopically. This observation is checked with plates. Note that in cases of suspected cancer of the bowel where a complete gastrointestinal examination is contemplated the barium enema should be given first. Also methods (1) and (2) should be applied before any x ray methods are instituted.

The treatment of carcinoma of the bowel is surgical. Only in some cases of cancer of the rectum is radiation helpful and then chiefly in palliation.

Many cures result from adequate surgical treatment of cancers of the rectum and colon but this can occur only following early diagnosis.

CANCER OF THE UTERUS

Any woman who has a blood-tinted vaginal discharge bleeding spells between periods or any type of bleeding after the menopause should be examined with a very suspicious mind and all methods of diagnosis persisted in until accurate diagnosis has been made.

CERVIX

The earliest symptom is spotting usually disregarded by the patient. Excessive bleeding occurs only after cauliflower growths or destructive ulceration has developed.

Diagnosis can usually be made by inspection of the cervix through a speculum and with good lighting. Ulcers granulation tissue that bleeds freely after gentle wiping with a cotton swab or productive growths are all suspicious local indications of early cancer. When there is deep ulceration with fixation of the cervix or a large cauliflower growth palpation alone will establish the diagnosis.

In early cases the diagnosis can be accurately

made only by biopsy. The tissue should be removed from the edge of the ulcer or from the granulation tissue and placed in 10 per cent formalin solution.

Treatment of cancer of the cervix is by a combination of deep x ray therapy and radium.

UTERINE FUNDUS

Early symptoms are either a watery blood-tinted discharge or bleeding from the uterus between periods or after the menopause. In fundus cancer the bleeding is usually in spurts or at intervals though it may become continuous particularly after the menopause.

These symptoms call for an immediate pelvic examination and an examination of the cervix. If the cervix and vagina are free from disease a diagnostic curettage with pathological examination of the curettings must be insisted upon.

Diagnostic curettage should be performed under a general anesthetic and with aseptic precautions. The curettage should be gentle but every part of the uterine cavity should be covered in order that no small area of malignancy may escape detection. All curettings should be dropped in 10 per cent formalin solution and sent to the pathologist.

The treatment of cancer of the uterine fundus may be surgical plus radiation or radiation alone. This depends upon the duration of the disease the mobility of the uterus and obesity or general condition of the patient.

DIAGNOSIS OF BONE CANCER

The early diagnosis of malignant bone tumors is dependent upon the following essential factors

1. Malignant bone tumors may occur at any age.
2. Pain occurs early even before swelling or deformity localized directly to the point involved. That is there is definite localized tenderness. This may be differentiated from arthritic pains by pain or tenderness appearing above or below the joint but not in the joint. It may be differentiated from neuritis by the absence of other neurological symptoms.
3. Swelling or deformity usually without but occasionally with pulsation.
4. Roentgenographic examination. The final positive diagnosis is made only by an x ray examination. Sometimes an early lesion may require a second x ray examination after a varying interval to determine its character. An early diagnosis of malignant bone disease may mean a cure.

Be suspicious therefore of (1) all bone pains (2) unexplained bone swelling (3) atypical rheumatic pains.

CANCER OF THE BLADDER, PROSTATE AND KIDNEYS

1. Hematuria is a danger signal at all times. It is commonly due to a malignant condition of the urinary tract.

2. Painful difficult and frequent urination demands a thorough examination.

3. Rectal examination of the prostate should be a routine procedure.

4. Cystoscopy and if necessary a pyelogram should always be used to establish and confirm the diagnosis.

5. Pneumocystograms are useful in outlining the growth and in determining the degree of induration.

6. Cancer of the bladder or kidney may occur at any age but rarely before the second decade. Cancer of the prostate is rare before forty. It is however on the increase between the ages of forty and seventy.

INFORMATION ON BIOPSIES

The most accurate method for the diagnosis of malignancy is the microscopic examination of a portion of the tumor in the hands of an expert pathologist

Details for performing biopsies vary with the individual situation some are performed with the scalpel, others with the electric knife, some by one or another of several punches which are on the market, and some by curettage. In any case a living and not a necrotic part must be removed, preferably with a bit of the surrounding tissue. Merely clipping off the surface of a tumor is not adequate.

The best fixative is 10 per cent formalin solution. The tissue should be immediately placed in a volume about ten times as great as the mass of tissue removed.

The grading of tumors either for prognosis or radiation sensitivity is of academic interest but in some locations aids greatly in indicating the best method of treatment and the amount of irradiation to be used. When a malignant tumor is present, everything possible should be done to eradicate it irrespective of histological grading.

Biopsy is of value in following the course of treatment—sometimes of critical value, and also, if properly done, it is harmless. Details of the history are

of importance to the pathologist in all cases, but particularly in those in which physiological activities are likely to be superimposed in and around tumors such as menstrual hyperplasias in carcinoma of the uterus. Occasionally a clinical diagnosis of malignancy is not sustained by the microscopical picture, whereupon a consultation with the pathologist is imperative. A slight margin of disagreement in diagnosis between quickly made frozen sections and regular sections still exists. This disagreement is of immediate practical importance only if it concerns malignancy versus nonmalignancy and not if a mere name for a tumor or other condition is in question. Tissues, unless too dense, can usually be prepared in twenty-four to thirty-six hours, but the diagnosis is too serious for uncertainty to be present because of poor preparations.

To summarize biopsies are harmless if done properly, they usually settle the diagnosis but pieces of tissues must be properly chosen for this purpose. They are also necessary in many cases to follow the course of treatment. The pathologist can be depended upon to use methods of preparation of his materials to ensure the quickest reports consistent with the accuracy demanded.

There is more danger from massage or repeated manipulation in making examinations, especially in cancer of the breast, than in doing a biopsy.

ESTIMATES HOSPITALS HAVE LOST 35,000
EMPLOYEES DURING THE DEPRESSION

Faced with a demand for services greater than at any time in their history America's hospitals, because of their financial condition, are being forced to function with a personnel reduced by 35,000, according to John Glossinger, vice-president of the Kny-Scheerer Corporation.

Mr. Glossinger bases his figure on a study made by the government of 6,112,529 cases on relief which revealed that in this number there were 20,000 who previously were hospital employees. Since the total number of United States unemployed is variously estimated as between ten and twelve million people, he said he believed that his 35,000 figure is conservatively correct.

The study brought to light one fact heartening to all friends of American public health, according to Mr. Glossinger. It proved that of over six million individuals on relief, only about fifty were physicians and surgeons. This compared with one thousand lawyers, three thousand ministers and religious workers and more than twenty thousand teachers.

Mr. Glossinger stated that May has brought two opportunities to hospitals to acquaint the general public with their work and with their needs. The first is National Hospital Day, observed on May 12, anniversary of the birth of Florence Nightingale and

the other is First Aid Week, which will be celebrated throughout the country May 17-23.

COMPULSORY HEALTH INSURANCE
IN CANADA

Current reports in the newspapers are to the effect that British Columbia enacted a bill March 1, 1936, which requires participation in compulsory insurance against illness by wage workers receiving less than \$1800 annually, except for farm workers.

Exemptions may be granted for domestic servants and certain other groups.

Contributions to the fund by employers are deducted from wages paid.

Benefits cover the wage earner, his wife and children, and include medical care by physicians, free public ward care in hospitals up to ten weeks, including obstetric service. Free laboratory service and diagnostic aids are provided and there is a cash maternity benefit for women who do not seek hospital accommodations.

Actuarial opinion was secured before the passage of the bill, but the plan is evidently on an experimental basis with the probability of adjustments to assure adaptability to conditions which may affect some features of the law.

The reactions to this law will be watched with interest in the United States.

CASE RECORDS

of the

MASSACHUSETTS GENERAL
HOSPITALANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., Editor

CASE 22201

PRESENTATION OF CASE

A forty-five year old American Negro pull man porter was admitted complaining of numbness and stiffness of the neck, shoulders and both arms.

Two years before entry the patient without previous injury, gradually developed stiffness and dull pain in the posterior cervical region radiating down both shoulders to the hands particularly on the right side. The discomfort was progressive and damp weather caused some exacerbation. Several months after the onset he remained in a hospital for two months during which time he was treated by means of baking lamps with considerable improvement. At a ray at this time showed a "spot" in his spine which was said not to be tuberculosis. Thereafter he returned to work but the symptoms again returned to their previous intensity and he was unable to continue with his work. A year before entry he went to another hospital where a biopsy of a neck gland was done. This was diagnosed as tuberculosis and after a four weeks stay he was transferred to a tuberculosis sanatorium. He remained at this institution for about a month but became dissatisfied with his treatment and was therefore referred to another sanatorium. Here, after remaining on a tuberculosis ward for sixteen days he was informed that he did not have tuberculosis and was placed upon a general ward. He remained there for five months, during which period he developed anorexia and steadily lost weight. He returned home three and a half months before admission to this hospital. At about this time the pain in his neck gradually subsided and in its place there appeared a sensation of "numbness and pins and needles", especially down the right arm and on the anterior abdominal wall. Since the onset he had lost about seventy five pounds in weight and a proportionate amount of strength. For two months there was a cough productive of small amounts of white tenacious sputum, more marked in the morning. There was no blood streaking. He had no night sweats but often felt quite hot at night. There had been two attacks of "pleurisy"—one lasting for

six weeks at the onset of his illness and another in the left chest continuing only for several days nine months before entry. Up to a month and a half prior to admission the patient was ambulatory part of the time although there was some dyspnea with exertion. Thereafter he remained constantly in bed and became nervous, irritable, and slept poorly. Two days ago he became very weak and feverish.

Seventeen years before admission he had a persistent cold and for two weeks was confined to bed with rheumatism in the back.

Physical examination showed a well developed but thin, weak man who appeared chronically ill. The skin was warm and dry and over the lower end of the sacrum there was an early pressure sore. Oral hygiene was poor and the pharynx which was examined with difficulty, appeared negative. There was a 2.5 centimeter crusted wound just posterior to the right sternomastoid muscle. This was slightly tender and a small amount of yellowish pus was expressed from it. A walnut sized firm fixed, nontender mass was palpated just below the right mastoid process and several firm bean sized nodes were present in the posterior cervical region. There was marked limitation of motion of the spine in all directions in the cervical and dorsal regions. Only slight tenderness was elicited over the upper cervical region, but there was marked spasm of all the neck muscles posteriorly. There was slight scoliosis to the right in the lower cervical and upper dorsal regions. Much wasting of the chest and shoulder girdle muscles was noted. There was markedly limited expansion of the chest bilaterally. A soft fluctuant, slightly tender mass, measuring 10 by 8 centimeters, was found over the lower right scapula. The lungs were clear. The heart was normal. The blood pressure was 80/50. There was slight spasm and tenderness in the region of the left rectus muscle, most marked just below the umbilicus. No masses were felt. There was wasting and weakness of all the extremities, especially of the right arm and finger flexion was limited on this side. Deep tendon reflexes were active but slightly exaggerated in the left upper extremity. There was no Kernig sign but a right hand and a questionable left Babinski sign were elicited. Sustained ankle clonus was observed on the right.

The temperature was 99° the pulse 120. The respirations were 30.

Examination of the urine was negative. No Bence-Jones protein was found. Examination of the blood showed a red cell count of 3,600,000 with a hemoglobin of 70 per cent. The white cell count was 8,500. 83 per cent polymorphonuclears. Repeated sputa examinations were negative for tubercle bacilli. Stool examinations were negative. A Hinton test was negative.

ative The serum protein was 5.2 grams per cent. The serum calcium was 8.5 milligrams per cent and the phosphorus 3 milligrams per cent. Creamy pus obtained from the abscess cavity on the back on one occasion showed four acid-fast bacilli. An intradermal injection of 1:10,000 tuberculin showed a one centimeter erythematous area with a raised center after forty-eight hours.

An x-ray showed the left diaphragm to be higher than the right and the lung markings were increased particularly on the right side. There was a slight lobulated widening of the supracardiac shadow. The heart and liver were not enlarged. The spleen was not seen. There was a small area of bone absorption near the vertebral end of the right first rib, destruction of the anterior and right lateral portions of the eighth dorsal vertebra, and an area of destruction in the fourth dorsal vertebra. There was a large soft tissue mass about the eighth dorsal vertebra, and a well-defined area of destruction in the left eleventh rib with a pathological fracture. The skull was negative. There were fleck-like areas of destruction in the middle thirds of both humeri and areas of destruction in the left side of the sacrum and wing of the ilium, the left ischium and right transverse process of the fourth lumbar vertebra. Films a week later showed a compression fracture of the second dorsal vertebra on the right side, an area of destruction of the second vertebra and a large soft tissue mass between the spine and pharynx extending from the base of the skull to the fifth dorsal vertebra. There were now multiple small shadows throughout both lung fields with widening of the superior mediastinum, more prominently on the right.

The patient's temperature fluctuated between 98° and 103° and his pulse between 90 and 130. He became progressively weaker, developed considerable difficulty in swallowing, and died on the twenty-second hospital day.

DIFFERENTIAL DIAGNOSIS

DR WILLIAM B. BREED Now to go back over the history, we can discard at once any of the benign affairs of the back such as arthritis or rheumatism of various sorts, because as we read through the whole history we know this is a mortal disease and we must consider, therefore, mortal diseases. There is conflicting evidence, first he had tuberculosis and then he did not, then he had it, and then he did not. That history it seems to me makes one at least suspicious of tuberculosis. By that I mean there was enough evidence for such a diagnosis early in the disease to have him spend a good deal of time in a tuberculosis sanatorium. He had symptoms referable to some lesions in the spine with nerve root irritation which apparently progressed, and later on he was found to have ab-

scences presumably emanating from the spine through the neck, perhaps retroperitoneally, and into the mediastinum. The appearance of the bones and ribs by x-ray is very confusing to me, and I think it throws me off a good deal from the diagnosis of tuberculosis. But if we leave the x-ray out, in a differential diagnosis tuberculosis must come first. I believe we can very easily rule out myeloma for two reasons. Bence-Jones protein is absent in the urine and the serum protein is not elevated. I hope we shall hear something interesting from Dr. Hampton about the x-rays.

Metastatic carcinoma might perfectly well cause this x-ray picture and I am not familiar with such an appearance caused by tuberculosis. These calcium and phosphorus figures were put in, I suppose, either to substantiate or eliminate some disturbance in the parathyroid because of the x-ray picture, but certainly there is no evidence of that. There is a low calcium and a normal phosphorus level which does not mean anything except possible debility and general cachexia before death.

I approached two x-ray men in this hospital and asked them if they recognized tuberculous osteomyelitis. I personally have not seen actual pathologic fractures and destruction of bone on the basis of tuberculous osteomyelitis. They said, "I am sorry but I cannot talk to you because I know about this case." So I ran away. Now I am wondering whether there is anyone here who can give me an unprejudiced opinion on this x-ray. If Dr. Hampton knows about this case I do not want to hear anything from him unless he can refrain from giving the show away.

DR AUBREY O. HAMPTON I will tell you what I said about the case before I did know.

The patient is a Negro. That is one of the important points of the x-ray examination and furthermore he has these lesions that were described in the report as multiple areas of bone destruction. Here is one in the rib. Here is a soft tissue mass surrounding the eighth dorsal vertebra which shows bone destruction. There is also bone destruction in the anterior body of the third cervical. Here is the trachea and larynx pushed forward by a huge retropharyngeal mass. I think you can see the extension of that swelling down to the ninth dorsal vertebra.

DR BREED That can perfectly well be a cold abscess?

DR HAMPTON Yes. They do produce destruction of the anterior margins of the vertebrae without destroying the joints occasionally.

DR BREED How do you explain the pathologic fractures of the ribs and the lesions in the middle of the humeri?

DR HAMPTON There is destruction of the vertebral margin of a rib including the pedicle of the vertebra. The pedicle, the transverse

processes and even a part of the laminae in the region of the second and third dorsal vertebrae have been destroyed. Here is the transverse process of the fourth lumbar vertebra, or what is left of it, it is also destroyed. This lesion here is probably the fracture in the rib that is described and it has united. I think you can see there the displacement of the trachea forward by the retropharyngeal mass.

DR. BREED: It says that there were fleck-like areas of destruction in the middle thirds of both humeri and areas of destruction in the left side of the sacrum and wing of the ilium.

DR. HAMPTON: I think that was bone atrophy as far as I can tell from this hasty examination. He had this lesion which may well have involved a portion of the brachial plexus and you would expect to get diffuse atrophy which would produce a fleck-like atrophy of the humerus.

DR. BREED: But not destruction?

DR. HAMPTON: I cannot be sure of that.

He also had something described in the upper end of the left femur here. He has atrophy in the upper end of the left femur, so I do not know that that is actually an area of bone destruction. I do not believe it is.

A PHYSICIAN: What about that left sacroiliac joint?

DR. HAMPTON: He has atrophy of the whole side of the pelvis and this is exaggerated but there certainly appears to be destruction there.

DR. BREED: It says here 'areas of destruction in the left side of the sacrum and wing of the ilium'.

DR. HAMPTON: I think this is the area described. It is not so obvious as some of the others.

There was a note which was rather inaccurate in the record and I think we owe a clarification of this to Dr. Breed. It says "a week later there were multiple small shadows through both lung fields with widening of the superior mediastinum, more prominently on the right." That is not quite accurate. They are more than multiple, they are numerous and very fine and rather dust-like in appearance, not military exactly because they are smaller than the usual military lesion.

DR. BREED: I do not want to ask you to do any more interpreting than you feel like doing.

DR. HAMPTON: I was shown all of these films, all except the chest, and I asked if the man was a Negro. I was told that he was, and it was from this information that I was able to make the diagnosis. I do not know whether I should tell you exactly what it was. I said that this x-ray appearance can be due to this disease in Negroes, Chinamen and Scotchmen.

DR. BREED: I appreciate that. I shall have to ask you about that later.

Of course, the question comes down here as

to whether we have to make one diagnosis or two and whether the whole thing can be explained on the basis of tuberculosis, which I think he had. There is a good deal of evidence for it: the past history seventeen years previously of persistent cough and 'rheumatism' in the back, and the story of progressive spinal lesions which are confirmed by the appearance of abscesses, and nerve root pain and soft tissue masses in the mediastinum. The thing of course that defeats me a little bit is this appearance of destruction of the ribs, this moth-eaten appearance and the pathologic fractures, on the basis of tuberculosis alone.

DR. HAMPTON: There was one other error in the x-ray interpretation. The record spoke of an increase in the mediastinal shadow but we have already explained the shadow as being paravertebral. It is not the mediastinum except as it occurs behind the trachea.

DR. BREED: It is a soft tissue mass that can perfectly well be a cold abscess from the spine. I hesitate to add any other diagnosis. Of course metastatic carcinoma will produce the picture in the ribs and in the other bones but we have no other evidence for it. He may have another disease but I think I shall be bold and attribute all the symptoms and signs to one disease—tuberculosis.

DR. TRACY B. MALLORY: Are there any other suggestions? Dr. Cave, what would an orthopedic surgeon think about it?

DR. EDWIN F. CAVE: I think it is the characteristic appearance of tuberculosis and the history and x-ray findings are both consistent with it. I think it is interesting that no joint is involved. It is purely a lesion of bone and not of the joints. You usually think of tuberculosis as being a joint affair as much as a skeletal one. I think I should agree with Dr. Breed that the diagnosis is tuberculosis and nothing else.

DR. MALLORY: Dr. Bock, you actually saw the patient, will you give your impression?

DR. ARNOLD V. BOCK: We felt exactly as Dr. Breed did, that the bone lesions were not characteristic of tuberculosis, in spite of what Dr. Cave says, that they were more consistent with the picture that one might have from such a condition as metastatic carcinoma. Against that, however, was the very obvious retropharyngeal abscess extending down into the chest giving him increasing difficulty in swallowing, a condition that we thought would be very unusual except as secondary to tuberculosis of the spine. We decided on this basis that the underlying condition must be tuberculosis in spite of the queer appearance of the other x-ray findings. We finally felt that he had a military process. He reminded me very much of a patient in the Baker Memorial a few years ago who had a prolonged illness with fever and very little specific symptomatology. She had malaise, weakness and

fatigue unassociated with any febrile state. She had had x-rays of most of the skeleton and the x-ray department said she had widespread metastatic malignant disease. There had been no x-ray visualization of cervical spine though she gave a history of having distress on swallowing. The x-ray of the neck showed a lesion somewhat like the one in this case and she had a retropharyngeal abscess which had penetrated through the posterior mediastinum to the diaphragm, all due to tuberculosis, the x-ray picture in the bones generally was later interpreted as the result of atrophy from long bed confinement.

DR GEORGE W. VAN GORDER: I happened to have seen this patient in consultation, and felt that if one looked at the x-ray picture alone, the most likely diagnosis would be metastatic carcinoma. You can pick out single lesions in the x-ray which are identical in appearance to metastatic carcinoma.

But when you look at the clinical picture and realize that these bone lesions are associated with cold abscess formation and that the patient has a large retropharyngeal abscess resulting from destruction of the cervical vertebrae, then I am sure most of us would favor the diagnosis of tuberculosis in preference to carcinoma. I was wondering if any lesion could produce these signs and symptoms, such as actinomycosis, because, as Dr. Bock has said, the lesions in the bone are not at all typical of tuberculosis since they affect the bodies of the vertebrae and the shafts of the ribs rather than joint structures. If it is tuberculosis, which seems most likely, it is certainly an atypical form of the disease.

DR HAMPTON: I hoped that Dr. Van Gorder would tell you of his cases of bone tuberculosis occurring in the Chinese. We have had two other Negroes in this hospital with extensive bone tuberculosis similar to this case. Bone tuberculosis is common in Scotland. There is one other infectious disease which might produce this whole picture, coccidioid granuloma and I think that if the patient had come from California we would have strongly suspected coccidioid granuloma.

CLINICAL DIAGNOSIS

Tuberculosis of the spine, glands and lungs

DR WILLIAM B. BREED'S DIAGNOSES

Tuberculosis (miliary) of lungs, spine, ribs and long bones

ANATOMIC DIAGNOSES

Tuberculosis of the spine, multiple foci
Paravertebral and epidural abscesses, tuberculous
Tuberculous pachymeningitis

Tuberculous lymphadenitis, bronchial
Tuberculous pericarditis with synechia
Tuberculous myocarditis and endocarditis, right auricle
Tuberculosis of the ribs
Acute miliary tuberculosis, terminal

PATHOLOGIC DISCUSSION

DR MALLORY: We found at autopsy multiple tuberculous foci throughout the vertebral column. There were two cervical and three dorsal vertebrae, particularly severely involved with compression fractures, as you can see at the midpoint of the specimen there. In a great many areas pus seemed to be exuding from the vertebral column in all directions, front, back, and sides. Why there were symptoms of referred pain in some areas and not in others was rather difficult to guess from the autopsy, because it looked as though the great majority of the spinal nerves were involved. In the cervical spine there was a definite epidural abscess and the dorsal roots were bathed in pus.

The other interesting and entirely surprising feature of the autopsy, there was nothing in the clinical history to give a lead to. The pericardium was completely obliterated by an extensive tuberculous process, evidently direct invasion from a tracheobronchial lymph node. The process had first obliterated the pericardial space and then had actually invaded the wall of the heart, so that in the right auricle the tuberculous process passed completely through the musculature of the auricle and there was an actual tuberculous endocarditis, if you want to call it that, of the intima of the right auricle. There was finally a terminal generalized miliary tuberculosis. What the course of events was here, we were not able to determine from the autopsy. The lesions in the spine appeared as old as those that we found anywhere else in the body. There was no evidence of any primary tuberculous infection in the lung.

A PHYSICIAN: I should like to ask whether there was any adrenal involvement, and whether he had any evidence of amyloid disease?

DR MALLORY: Neither. The adrenals queerly enough did not show miliary tubercles.

DR GEORGE W. HOLMES: Can you tell whether the pericardial lesion was old or recent?

DR MALLORY: It was fairly old undoubtedly.

A PHYSICIAN: Were the bones of the extremities x-rayed?

DR MALLORY: No, we did not examine those. The ribs showed atypical tuberculosis.

DR CAVE: Do you think the appearance of the vertebral bodies was due to intrinsic disease or to pressure from the abscess?

DR MALLORY: Probably in part from both. Sections of the vertebral bodies showed older and younger tubercles scattered throughout and some of the lesions undoubtedly were primary.

in the vertebra. On the other hand, the vertebrae behind the cold abscesses showed erosions of their anterior margins which I am sure were secondary.

CASE 22202

PRESENTATION OF CASE

First Admission A twenty-one year old Armenian dancing instructor was admitted complaining of jaundice and fever.

For two years the patient had had many bouts of fever persisting for two to four days and occurring at about two week intervals. At the onset, while still in Armenia following a severe chill he had been treated in a hospital for what was said to be malaria. Soon after discharge he immigrated to this country. Since that time there were no chills but he had profuse perspiration following fever. He was not confined to bed during his febrile periods. Two weeks before entry he had an attack persisting for five days during which he first noticed the presence of jaundice. The icterus subsided with the pyrexia but recurred two days prior to entry when he again became feverish. His temperature had not been taken since his initial illness but he had taken quinine with each febrile spell. There was some anorexia but no abdominal discomfort, nausea, emesis, bowel irregularity or respiratory disturbance. He noted that his urine was reddish during each attack.

Physical examination showed a well developed and nourished young man with a deep icteric tint of the skin and sclerae. The heart was normal. The blood pressure was 104/80. The lungs were clear. The abdomen was soft and the liver dullness extended from the sixth rib to a point just beneath the costal margin. The spleen was not palpable. No tenderness was elicited.

The temperature, pulse and respirations were normal.

Examination of the urine showed a specific gravity of 1.026 with a trace of albumin and a positive reaction for bile. The sediment was negative. Examination of the blood showed a white cell count of 7,800, 72 per cent polymorphonuclears. The hemoglobin was 85 per cent. The stools contained bile and examination showed no blood, pus, fat or parasites. A blood Wassermann test was negative.

X-ray examinations of the gallbladder region and teeth were reported as normal.

For a month after admission the patient remained afebrile. His jaundice gradually subsided except for a single exacerbation two and a half weeks after entry. On the thirty-sixth hospital day his temperature suddenly rose to 102.5° and the jaundice again became deeper. At this time the edge of the liver became palpable and was reported to be smooth and tender. The tip of the spleen was also felt. On two suc-

ceeding days he had an irregular fever fluctuating from 98° to 102°. Several times a severe chill preceded the rise in temperature. An echinococcus complement fixation test was negative at this time. Thereafter the temperature returned to normal and on the sixtieth hospital day a cholecystectomy and a choledochostomy were done. At operation the gallbladder was found to be thickened and this process was said to extend to the common duct. The liver was small and nodular. A probe was passed through the common duct into the duodenum without difficulty. Postoperatively the patient exhibited scanty drainage of bile but otherwise responded fairly well and was discharged on the eighty-second day. No note was made of the degree of jaundice at this time.

Second Admission, six years later

Following his discharge the patient felt weak for several weeks and then gradually regained his strength. There was no recurrence of his fever, chills or jaundice and he had no further symptoms until six months before re-entry. At this time he first noted that his abdomen was slightly more prominent than usual. This abdominal swelling progressed very gradually and three and a half months later he developed pain and swelling in the left ankle. This continued for about two months and then subsided spontaneously shortly before his readmission to the hospital. He had no symptoms referable to his gastrointestinal tract.

A brother had developed jaundice at approximately the same time as the patient six years before. This persisted and, except for pruritus, was associated with no other symptoms. At the end of six months, the icterus having continued, the brother had a cholecystectomy performed. He responded poorly postoperatively and died one month later after a stormy febrile course.

Physical examination showed a poorly developed fairly well nourished man in no discomfort. There was a questionable icteric tint to the sclerae. A few shotty nodes were palpated in the right axilla. The heart was not enlarged but a loud blowing systolic murmur was audible in the pulmonary area. The blood pressure was 92/50. Both sides of the chest were dull to percussion posteriorly up to the angles of the scapulae. Few coarse rales were audible at the angle of the right scapula. The abdomen was tender and rounded. Shifting dullness and a fluid wave were elicited. The liver dullness extended from the fourth interspace to a point two finger breadths beneath the costal margin. The edge of the spleen extended two centimeters beneath the costal margin with inspiration.

The temperature, pulse and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 3,250,000 with a hemoglobin of 65 per cent. The white cell

count was 3,250, 70 per cent polymorphonuclears. A stool examination was negative. A van den Bergh test gave an indirect reaction and showed 1.7 milligrams per cent of bilirubin. A red blood cell fragility test showed hemolysis beginning at 0.38 and complete at a saline dilution of 0.28. An icterus index was 5. A liver function test showed 5 per cent retention after thirty minutes.

With a low base diet, ammonium chloride and novasurol the patient developed an adequate diuresis, lost ten pounds and was relieved of his ascites. He was discharged on the fourteenth day.

Third Admission, seven and a half years later, at the age of thirty-five.

Following his last discharge the patient had slight swelling of his ankles for about two years and there was no evident recurrence of the abdominal swelling. Thereafter he remained symptom free until the morning of his re-entry. At this time he was awakened by an agonizing nonradiating pain in his right side just under his ribs. The pain was not increased by respiratory movement or walking. An enema produced no fecal return and shortly afterward he vomited about two cups of greenish material. This was followed by four brief but severe chills. He noted a slight burning dysuria. Four hours after the onset the attack ceased abruptly.

Physical examination showed a slightly emaciated pallid man in no discomfort. The tongue was smooth and pale and the pharynx was slightly injected. The heart was not enlarged. A soft systolic murmur was heard at the apex. The blood pressure was 120/50. The lungs were clear. The abdomen was slightly distended and shifting dullness was elicited in the flanks. Liver dullness extended from the fifth interspace to the costal margin. The spleen was moderately enlarged. Rectal examination showed the presence of external hemorrhoids.

The temperature was 100.5°, the pulse 90. The respirations were 25.

Examination of the urine showed a specific gravity of 1.012 with a slight trace of albumin. The sediment contained a few white blood cells and was loaded with red blood cells. The blood showed a red cell count of 3,030,000 with a hemoglobin of 60 per cent and a volume index of 1.16. The white cell count was 3,000. A van den Bergh test showed 3.15 milligrams per cent of bilirubin. A serum cholesterol was 150 milligrams per cent. The serum protein was 5.4 grams per cent. The nonprotein nitrogen of the blood was 24 milligrams per cent. A phenol-sulphonaphthalein test gave 85 per cent excretion at the end of one hour. The venous clotting time was nine to ten minutes. The liver function was recorded as 10 per cent.

X-ray examination showed the right kidney outlines to be normal. The left kidney was a

little low in position and rather broad across its mid-portion. There was a crescentic area of calcification lying just to the right of the first lumbar vertebra and a second calcified area overlying the eleventh rib over its vertebral articulation. Except for thickening of the hilar shadows and a slightly heightened left diaphragm the chest was negative. Examination of the esophagus showed the presence of varices. An intravenous pyelogram showed prompt appearance of dye on both sides. There was an anomalous configuration of the left kidney. There was no evidence of stone. The calcified areas were evidently outside of the genitourinary tract.

The patient was treated palliatively and given parenteral liver extract. His temperature returned to normal on the second day and remained normal thereafter. The hematuria continued but lessened to 20 red blood cells per field. The patient was discharged on the ninth day.

Final Admission, two months later.

He returned to normal activity following his last discharge and four weeks before readmission he began to notice evening swelling of his ankles which was relieved by bed rest. A week later the ankle swelling persisted and his abdomen gradually became enlarged. This produced some generalized abdominal discomfort but no actual pain. Occasionally he had fleeting joint pains which were not associated with local swelling or redness. His appetite was good and his bowel movements were regular but pale yellow. His urine became scanty and dark brown in color.

Physical examination showed a slightly jaundiced, thin man in no discomfort. Dullness was elicited in both chests from the fourth ribs anteriorly and the angles of scapulae posteriorly to the bases. The breath sounds were absent here. The heart findings were not noted. The abdomen was tense, bulging, and the umbilicus pouted. There was edema of the penis and lower extremities.

The temperature was 98°, the pulse 110. The respirations were 25.

The urine contained a large amount of bile but the sediment was negative. The blood showed a red cell count of 3,570,000, with a hemoglobin of 75 per cent. The white cell count was 4,600, 91 per cent polymorphonuclears. The stools were greenish in color but otherwise negative. The blood cholesterol was 166 milligrams per cent and the serum protein 4.9 grams per cent. The van den Bergh showed 6.26 milligrams of bilirubin.

Three thousand cubic centimeters of clear amber fluid was removed by abdominal paracentesis. This showed a specific gravity of 1.010, a total protein of 0.8 grams per cent, and contained 2,260 cells per cubic millimeter, of which

2000 were red blood cells. The patient was treated with intravenous glucose repeated transfusions, mercurial diuretics, and abdominal taps with resultant diuresis of a moderate degree and a weight loss of twenty pounds. Several febrile episodes occurred the first of which was associated with a tender reddened swelling in the right Scarpa's triangle. Later rules appeared in the right axilla and subsequently there developed an area of dullness with bronchial breathing in this region. At the end of one month his temperature began to show a daily fluctuation between 98° and 100° with occasional rises to 103°. The serum bilirubin content remained unchanged at 6.85 milligrams per cent. On the forty-first hospital day the patient's temperature rose to 104° and on the following day a brawny indurated swelling appeared on the face and assumed a somewhat symmetrical butterfly appearance. The lesion spread peripherally and presented a rather sharp raised edge. The white blood cells rose to 15,000 and the temperature fluctuated between 99° and 105°. Thereafter he went rapidly downhill and died on the forty-fifth hospital day four teen years after his initial entry.

DIFFERENTIAL DIAGNOSIS

DR WYMAN RICHARDSON. The story on the first admission makes one think of paroxysmal hemoglobinuria, hemolytic jaundice and biliary cirrhosis as possible diagnoses. We might add to that the possibility of quinine susceptibility in malaria, but as we go on I think there is very little evidence for the diagnosis of malaria.

'The abdomen was soft and the liver dullness extended from the sixth rib to a point just beneath the costal margin.' The liver therefore does not appear to be large if anything it is small. The spleen is not palpable which is opposed to a diagnosis of hemolytic jaundice.

'Examination of the urine showed a positive reaction for bile.' Bile, as such would not be present in the urine from hemolytic jaundice. It is not an obstructive jaundice, however as there is bile in the stool.

'A blood Wassermann test was negative.' That is against a diagnosis of paroxysmal hemoglobinuria, also the presence of bile in the urine against that diagnosis.

'At this time the edge of the liver became palpable and was reported to be smooth and tender.' A large liver in hemolytic jaundice is also said to be quite rare.

One can question why operation was done. I assume that this patient probably had a biliary cirrhosis from the story thus far and very likely they felt that the infection was coming from the biliary tract. The cholecystectomy with drainage of the biliary tract might help to overcome that infection. I cannot see any

evidence for gallstones or any other disease that in itself requires operation. The findings at operation are not those of ordinary biliary cirrhosis which usually is associated with an enlarged liver.

'A brother had developed jaundice at approximately the same time as the patient, six years before.' The problem is whether he had the same disease that the other brother had. As far as hemolytic jaundice goes, it may be familial, of course, but the story does not suggest hemolytic jaundice and I do not see how his brother had it. In regard to the familial incidence of infectious biliary cirrhosis I have a vague remembrance that it may occur in more than one member of the family but I cannot remember, nor can I find it in any common text.

I do not know how one can percuss liver dullness in an abdomen full of fluid. I am rather surprised at that. These symptoms that appear in the second admission are the first ones of a beginning difficulty with circulation through the liver and a beginning cirrhotic liver.

'The white cell count was 3,250 with 70 per cent polymorphonuclears.' With the leukopenia this is rather strange because it shows seventy per cent polymorphonuclears. Usually leukopenia is due to reduction in neutrophils.

'A stool examination was negative.' I take it that means there was bile in the stool.

The blood findings are not very characteristic of anything. The blood smear is not described. We assume he has a beginning cirrhotic process in the liver and it would be perfectly all right to explain the blood picture on that basis. Whether it is a macrocytic anemia or not is not stated.

'With a low base diet ammonium chloride and novasural the patient developed an adequate diuresis, lost ten pounds and was relieved of his ascites.' That was about six or eight years ago. I remember about that time we found that you could produce a diuresis in cirrhosis of the liver by giving ammonium chloride and novasural, or salyrgan.

It is a little difficult to explain that attack of pain on any other basis than on the basis of liver pain. Just what the mechanism of pain is in these cases, I do not understand but we know one can get pain in catarrhal jaundice and in cirrhosis of the liver and other liver conditions without being able to explain the exact mechanism of the pain.

'The abdomen was slightly distended and shifting dullness was elicited in the flanks. Liver dullness extended from the fifth interspace to the costal margin.' The liver seems to be shifting back and forth all the time.

'The sediment contained a few white blood cells and was loaded with red blood cells.' You do occasionally get hematuria in cirrhosis of the

liver, at least in portal cirrhosis of the liver, and I am explaining the hematuria on the basis of liver disease

The blood picture seems to be a macrocytic anemia now. The white count is 3,000. The picture is perfectly correct for pernicious anemia, also for advanced liver disease. The interesting thing about the anemia of liver disease, which sometimes looks like pernicious anemia, is that it is often very difficult to treat. One would think that advanced liver disease might destroy enough of the active principle so that these patients would develop pernicious-like anemia. However, if this were so why do they not respond to liver therapy?

X-RAY INTERPRETATION

DR GEORGE W. HOLMES: There were many x-ray films, some are quite interesting. The films of the esophagus show considerable widening of the esophagus and some delay in the passage of barium through it, and the lines here, which show better in the smaller film, are quite characteristic of esophageal varices. Here is another film showing the worm-like lines of rather large varices. It is interesting that when the esophagus is full you cannot see them. They show much better when the esophagus is empty. The films taken of the stomach I think show rather prominent gastric rugae. As you would expect in this case, the stomach is high and empties rapidly into the small bowel.

In these films of the urinary tract you can see the outline of the left kidney here. It is a bit unusual for the left kidney to be lower than the right. The left kidney is larger and lower than the right and definitely abnormal in the upper pole. The kidney pelvis is displaced downward and outward. This shape of the kidney itself seems to be abnormal, as though there were a mass in the upper pole of the kidney.

DR RICHARDSON: Could it be overlying spleen?

DR HOLMES: No, I do not believe so. The spleen might push the kidney down and the small liver might allow the right kidney to be high, but I do not believe a large spleen would give you this shape or distort the kidney pelvis.

Here is the crescentic shadow described. It appears to be below and outside the kidney. I do not believe it is part of the kidney shadow.

This shadow at the eleventh rib could be due to calcification in the wall of an aneurysm. It seems to be constant and it is not part of the kidney.

We have a film of the chest which shows a relatively high diaphragm on the left. The heart shadow is slightly increased and the hilus vessels are prominent but there is nothing else.

A PHYSICIAN: Is that calcified and elongated enough to call pathologic?

DR HOLMES: No, I think it is more anatomical.

DIFFERENTIAL DIAGNOSIS CONTINUED

DR RICHARDSON: I have explained the calcified area as perhaps calcification in a hematoma resulting from the previous operation, although there was no evidence of hematoma at that time, and that is the way I am going to leave it. In regard to the kidney I am going to say it is a red herring and it is probably a congenital abnormality. Would that be consistent with the x-ray interpretation?

DR HOLMES: That is a possibility.

DR RICHARDSON: I am not going to pay any attention to it. We shall see later.

I have not paid any attention to the joint pains. I think it was a toxic reaction and partly due to swelling of the legs.

He has now, as you will see later, an increasingly low serum protein, so that he is perfectly entitled to edema anyway.

The problem of leukopenia in this patient, with cirrhosis of the liver, with large spleen is interesting. I do not know whether there is any definite relationship in these cases between the spleen and the leukopenia.

"The stools were greenish in color but otherwise negative." That is suggestive of biliary type of cirrhosis.

It is rather complicated working out every thing here and I am going to stick to what I think was the essential disease this man had. He was a young man who lived for thirteen and a half years following his first attack of jaundice. I am going to rule out all rare tropical diseases. I do not know enough about them to talk about them, and it certainly is not malaria. He has recurring jaundice with fever, jaundice that is not obstructive and associated sometimes with greenish stools. He had splenomegaly and a long chronic history. These things spell to me infectious biliary cirrhosis. It is rare to get edema in biliary cirrhosis but I am sure as the process goes on you get secondary fibrosis and rarely a cirrhotic process in the liver. All the symptoms can be explained on that basis except possibly the hematuria and this question of the kidney. I am going to say it is not an important feature in this disease. I think he died of erysipelas. I think it is quite possible that Dr. Mallory will find acute vegetations on the valves of the heart, although there is not much evidence to go on there. Dr. Mallory is very much inclined to turn up a neoplasm in these cirrhosis cases but I do not believe he is going to this time. So that I will say he has biliary infectious cirrhosis with a terminal erysipelas and a question as to whether there may be a terminal acute septic endocarditis. I think

the calcification here was from an old hematoma. As to what the kidney is going to look like I do not think I will say.

DR. TRACY B. MALLORY I think perhaps we should have given Dr. Richardson one other piece of information, which those of us who followed this patient all knew. The patient's brother died and was autopsied in this hospital nearly fifteen years ago a few months after the onset of his illness. He showed a very atrophic grossly nodular liver that could be described as either subacute atrophy or rather rapid cirrhosis. I do not know whether that makes him want to change his diagnosis.

DR. RICHARDSON I am not going to say any more. I have said too much already.

DR. MALLORY Dr. Jones you followed this patient for fifteen years and know him better than anyone else.

DR. C. M. JONES He represents a very unusual picture of chronic liver disease apparently starting with a clean cut attack of catarrhal jaundice, the brother developing the same type of hepatitis within a week. I have forgotten which came first. I believe this man was first and the brother a week later. Both of them were in the ward under the care of Dr. W. D. Smith at that time, and while on the ward the jaundice increased during the period of a month to two months. The feeling was that the symptoms were due to intrahepatic disease and that possibly if we could provide more adequate biliary drainage they might improve. I do not think we would perform the operation on a similar case now. It would be interesting to see what Dr. Vincent says. At that time we thought it wise, and in this particular instance operation was performed by Dr. Vincent and there was reduction in jaundice following that operation. The brother, who had an identical condition was operated on I think four months after the onset. He went out of the hospital after his first admission and then returned for operation because he was getting worse but the operation was followed by a relatively short survival period. At operation in each instance the liver showed what would appear to be grossly the results of a subacute yellow atrophy with regeneration. Both livers were nodular although the nodules were relatively small. This patient that we are discussing today was jaundiced for about a year if I remember correctly but it finally diminished until it no longer played a part in the picture. The next symptom of importance and what interested me most was the development of ascites and edema. He came in to see me because his feet were swollen, he could no longer give dancing lessons and it was obvious he had ascites. He was given a course with novarsol and was then free from ascites for many years. I think possibly that is the

most important point to be gained from the discussion of this case. Here was an individual with chronic liver disease undoubtedly infectious in origin, with liver damage and regeneration who subsequently developed enough hepatic insufficiency so that he developed ascites. As a rule if we have edema with it when ascites develops it is pretty close to a terminal event. In this case following rest and adequate treatment with a diuretic his ascites disappeared not to recur for at least six years, when he came in again with swelling of the abdomen. I think it is increasingly true as we watch these cases that the prognosis is very difficult to make correctly and even with marked ascites one can be more optimistic than statistics would have us believe. This man earned his living following the disappearance of ascites, until a few weeks before he came into the hospital this winter. During the past three years one other symptom has been of some interest and that is, that he had a very intractable anemia. The red count for the most part had stayed in the low three millions and it was impossible with massive doses of iron to alter it very much. I think that spells a high degree of liver insufficiency with inadequate reformation of hemoglobin. In spite of that he was able to carry on until the terminal event, namely, return of ascites and edema, and subsequently an intercurrent infection which he could not resist.

There is a case on Ward D at the present moment which is of some interest. He is now going through exactly the same cycle, ascites and jaundice and appeared to be recovering very satisfactorily until he picked up a streptococcus infection and erysipelas. He very nearly failed to survive it but is improving again at the present moment. It seems that these people with liver damage of any degree stand ordinary infections very poorly. The picture—Dr. Mallory will give us that—started with catarrhal jaundice. I think it is not fair to say infectious biliary cirrhosis because almost all liver changes that take place in relation to catarrhal jaundice are in the nature of acute yellow atrophy with regeneration leading to another type of cirrhosis, so-called toxic cirrhosis. I believe that is what he showed at autopsy.

DR. WILLIAM D. SMITH I saw this man once thirteen years ago and strangely enough I remember him probably because there were two of them. His brother was also a very interesting case. I remember that the feeling of the staff at that time was that he did have a biliary cirrhosis and although Dr. Vincent operated on him I remember Dr. Daniel Jones coming by on the ward and advising operation for exactly the same reason that Dr. Richardson gave this morning. Some cases of biliary cirrhosis with infection of the intrahepatic

ducts are questionably improved by drainage of the common ducts

I do not believe we were thinking quite so much fifteen years ago about healed acute yellow atrophy and I think in view of what we know now, and in view of the fact that the liver of the first brother to be operated on was small and nodular, one would have to consider pretty seriously healed yellow atrophy or toxic cirrhosis with portal obstruction

DR BETH VINCENT A number of years ago we explored a certain number of these infectious jaundice cases in the hope that if we found a lesion of the gallbladder we could remove it, institute drainage and favorably influence the course of the disease. Although this man lived a long time and had periods of good health we came to the conclusion that we had not accomplished anything in this case or in any of the other cases. We decided that it was not only a procedure without benefit but in certain of the cases it might be a procedure of very considerable risk, so we gave it up

CLINICAL DIAGNOSES

Cirrhosis of the liver, cause undetermined
Erysipelas of the face

DR WYMAN RICHARDSON'S DIAGNOSES

Infectious biliary cirrhosis of the liver
Erysipelas

ANATOMIC DIAGNOSES

Cirrhosis of the liver, toxic
Ascites
Esophageal varices
Icterus of the skin, marked
Erysipelas of the face
Peritonitis, acute fibrinous (sterile)
Splenomegaly
Pulmonary edema, bilateral

Operative wounds Cholecystectomy, old,
and abdominal paracentesis
Lymphadenopathy, retroperitoneal glands
Ulceration of the stomach, slight
Edema of the extremities, slight

PATHOLOGIC DISCUSSION

DR MALLORY The autopsy on this man showed an atrophic liver weighing 1100 grams and a spleen practically as big, weighing 1000 grams. The surface of the liver was very coarsely nodular and on cutting through it we found large areas of scar tissue such as we are accustomed to find in the post atrophy type of cirrhosis and do not find in the alcoholic type of atrophic cirrhosis. The findings are almost identical with those of his brother except that they were obviously of a much more chronic type. There was a slight degree of acute necrosis as well. This was localized to small groups of cells and I should be inclined to think was analogous to the central necrosis which one often sees in streptococcus infection. You could not say it was central in this case because he did not have any recognizable lobules, the normal architecture had been completely obliterated by the irregularity of the regeneration. The kidneys were entirely normal and we could find no difference between the two. I think Dr Richardson was justified in being cautious. The low position of the left one appeared to be due to the very large spleen, and the right one may well have gone up a little with the small liver. We did not find the focus of calcification. We did not know about that and did not look for it. I entirely agree with Dr Jones in the interpretation of this patient's history.

DR RICHARDSON I should like to add that, on reviewing this case, I feel that I did not pay enough attention to the sudden onset and to the lack of great enlargement of the liver, both of which are definitely against a diagnosis of biliary cirrhosis.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the Jurisdiction of the

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SUBSCRIPTION TERMS: \$6.00 per year in advance, post paid for the United States; Canada \$7.00 per year; \$8.50 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office at Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 5 Fenway, Boston, Mass.

NEW HAMPSHIRE CANCER CONTROL

The brief description of the New Hampshire State Cancer Commission and of its activities, which appears in this number of *The New England Journal of Medicine*¹ is of interest, not only to those who are directly concerned in the cancer problem, but to the whole medical profession and to the community at large. It is a good example of the advantages which are to be obtained when the medical profession itself develops a well studied plan for public health activity designed to supply needed medical service to the community. It is clear that the New Hampshire legislature has not only accepted these plans, but has supported them by appropriations of tax funds sufficient to accomplish the desired results.

In cancer control, as in many other activities of life, the methods which are efficient and practicable in one State may not be immediately adaptable to the needs of another community. Massachusetts, New York, and other States have adopted legislation intended to provide more ef-

ficient service for the indigent and low income cancer patient by very different and indeed much more expensive methods. The New Hampshire plan is worthy of study even on this account alone, and many other States may find it desirable to adopt one or another of the features of the New Hampshire plan when their legislative representatives are aroused to the necessity for providing more efficient service for the cancer patient.

In any case, it is widely recognized that education must play an important part in cancer control over and above the provision of diagnostic and treatment service. Doctor Wilkins' statement makes it clear that the New Hampshire State Cancer Commission recognizes its educational responsibilities, both as regards the public and the medical profession. A brief medical handbook designed to remind physicians of the important aspects of the common forms of cancer and of recent advances in this subject is reprinted herewith and the record of radio talks and newspaper releases sponsored by the Commission in the past year is to be commended.

PROGRESS AT MCGILL UNIVERSITY

THE recent statement concerning the proposed reorganization of the medical school of McGill University¹ raises many interesting questions for discussion. What may be considered the starting point for the change is the recognition of the wisdom of requiring one year of internship before the candidate is qualified to sit for the examination of a licensing board. The internship is required (the statement says) in twenty-eight provinces and states before license, and by the change McGill formally enters the growing group of schools who not only recognize the importance of the internship but insist that it shall become an essentially educational procedure, under the control and direction of some approved medical school. While alternatives are offered, it is expected "that in the majority of cases the postgraduate interne will be chosen as it is the most direct and economical pathway to practice."

The medical course is already long and arduous and it would seem that the addition of a year's internship would prove a serious burden but the fact of the situation is that without the insistence of boards of licensure or of schools of medicine a very high percentage of recent graduates have voluntarily spent a year or more in hospitals. The requirement of the internship by the school is then not an additional burden for most students, but the participation of the school in its control is certain to have a far reaching effect in increasing the value of the experience.

Since ordinarily the internship whether voluntary or compulsory, does take a year in

addition to the medical course, McGill has telescoped, as it were, the five years of seven and one-half months each into four years of nine months each. This raises the old question of how long the academic year should be. Why six months or eight months or ten months? Is there not a great waste of time by the long vacations? It would be helpful if there were a study of the physiological and psychological reasons for the length of the medical course and for the distribution of time. The four quarter year looks like a great saving of time, but the intervals between quarters are in the case of most students too short for the needed recreation after intense application. Perhaps the physiology and psychology of study are too little understood and such long periods of "rest" would not be needed if work were done more in accordance with scientific methods.

There has long been a tendency on the part of medical students to spend much of the summer vacation in laboratory or hospital, for as a class they are eager to learn and do not spare effort to advance in their chosen field. Much is to be said in favor of letting them have free choice in spending their time outside of the formal periods of instruction, but if by so simple a rearrangement as McGill has made, a year's time can be saved in the medical course, the change is worth considering. If the medical course can be extended to nine months why not to ten? Then it would have almost the same content as at present and, including the internship, cover only four instead of five years. If the academic course were extended two months beyond the three years of ten months each, the full medical course would be of exactly the same content as at present but would be ten months shorter.

It may be that the physiological and psychological optimum is an eight months' academic year, but perhaps it is nine or ten. There is no scientific basis for the present scheme, however convenient it may be for some persons, and the experiment at McGill will be watched with great interest. It is a much needed step in the right direction.

REFERENCE

1. Science 83: 296 (Mar 27) 1936

THE MEETING OF THE AMERICAN UROLOGICAL ASSOCIATION

Boston has been selected as the place for the thirty-third Annual Meeting of the American Urological Association, at the Hotel Statler, May 19-21, in response to the invitation of the New England Branch of the organization.

This is the largest and most active organized body of urologists in the world, with a membership of 966 active practitioners of this specialty, twenty honorary members, sixty Fellows, ten

associate members and one corresponding member.

The geographical membership list includes 383 in the North Atlantic Section, 103 in the South Atlantic Section, 287 in the North Central Section, 82 in the South Central Section and 136 in the Western Section.

That Dr. George G. Smith of Boston is President of the Association is of particular interest to New England. The Committee of Arrangements, consisting of Drs. F. H. Colby, W. C. Quimby, J. D. Barney, R. F. O'Neil, J. H. Cunningham, A. Riley, A. H. Crosbie and C. L. Deming, has been diligently at work arranging the details of the convocation.

The subcommittees are as follows: Entertainment, Drs. R. F. O'Neil, R. Chute, H. H. Howard, C. J. E. Kickham; Ladies' Entertainment, Dr. R. Chute; Registration, Drs. G. C. Prather, B. E. Greenberg, E. L. Merritt, E. P. Stone; Golf, Drs. W. H. McNeil, Jr., E. G. Ciabtree, C. S. Swan, E. J. O'Brien; Commercial Exhibits, Dr. C. J. E. Kickham, J. B. Hicks, P. N. Papas; Scientific Exhibits, Drs. R. S. Ferguson, E. R. Mintz, H. H. Ciabtree; Transportation, Drs. S. N. Vose, M. J. Hahn, Jr., B. D. Wetherell; Publicity, Drs. R. C. Graves, A. H. Crosbie, S. B. Kelley; Scientific Meetings, Drs. H. A. Chamberlain, S. B. Kelley, J. B. Hicks.

Unusual plans are under way for the entertainment of the wives and families of the members, with tours to the important historical and other attractive localities in and about Boston.

For those interested in golf, there will be a Tournament at the Woodland Country Club, Monday, May 18, preceding the Scientific Sessions, with a dinner and entertainment in the evening. Teas, luncheons and a Pop Concert by the Boston Symphony Orchestra will complete the social features. The ladies are invited to attend the annual banquet on the evening of May 20.

The American Urological Association was founded on February 22, 1902 at a meeting of the New York Genito-Urinary Society held at the residence of Dr. Ramon Guiteras, and Dr. Guiteras was elected the first President of the American Urological Association. The other officers elected as entered in the records of this first meeting are Dr. William K. Otis, Vice President, Dr. John Vanderpoel, Treasurer, Dr. Ferd. C. Valentine, Secretary, and Dr. A. D. Mabie, Assistant Secretary.

The American Urological Association has active members residing in forty-four States of the Union and residents in Canada, Cuba, France, Hawaii, Porto Rico, and South America. There are honorary members in England, New Zealand, Germany, Italy, Holland, Belgium, Austria, France, Switzerland and Scotland.

pitocin, which does not contain the blood pressure raising substance that is present in the whole extract of the posterior pituitary. In addition, the usual measures for combating pre-eclampsia should be instituted as described in a previous paper. Preparations should always be made for one or more transfusions, since these patients are frequently in considerable shock and are apt to bleed severely postpartum. If this procedure fails adequately to control the bleeding or labor does not progress so as to permit delivery within twelve or twenty-four hours, cesarean section may then be the only resort. Rarely severe and uncontrollable postpartum bleeding will necessitate hysterectomy.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 17

Berkshire

Thursday, May 21, at 4 30 P M, at the House of Mercy Hospital, Pittsfield Subject Pediatrics (Medical) — The Neonatal State Instructor J L Morse Melvin H Walker, Jr, Chairman

Bristol North

Wednesday, May 20, at 7 30 P M, at the Morton Hospital Taunton Subject Ophthalmology and Otolaryngology (a) The Major Hazards in Diagnosis of Diseases of the Eye, Ear, Nose and Throat as Seen in General Practice (b) Special Treatment in Acute Medical and Traumatic Diseases of the Eye Emergencies Arising in the Treatment of the Ear, Nose and Throat. Instructors W P Beetham and C H Ernlund Arthur R Ciandell, Chairman

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as a result of certain surveys made by certain Foundations, sociological and pseudosociological groups and certain political groups the idea has been fostered and has grown that a considerable proportion of the population suffers habitually from improper or inadequate, medical care

"However these surveys do not in any instance tell us what medical care this part of our population lacks. They do not tell us whether many or any of these people seek medical care and cannot get it. It is probably true that there are isolated sections where people find it difficult, or even impossible, to get medical attention. It is certainly not true that this applies to even a moderate percentage of the population of the United States

"It has been shown that State Medicine in other countries has not decreased the incidence of contagious disease has not improved the health of the people and has not decreased the amount of loss of time due to illness as well as has been done in the United States without State Medicine

"In England the per capita daily loss of time due to illness has increased 38 per cent. In Germany it has more than doubled. In the United States it has remained stationary for a decade. State Medicine in European countries has never been brought about in response to any demand by the medical profession or any demand by the people who supposedly lack medical care. State Medicine has always been proposed by and passed by the leaders of some political group to serve some political purpose."

In conclusion Dr Johnson stated that, "Until such time as the work of this committee shall be completed and their report and recommendations shall have been received it would be distinctly unwise for the State of Maine to pass any legislation along these lines or to accept any legislation or any proposal along this line from the Federal Government."

The preliminary announcement of the Annual Meeting of the Maine Medical Association shows that it will be held at Rangeley Lakes June 21, 22, and 23. The first meeting of the House of Delegates will be held the evening of the twenty first

The morning of the twenty-second will be devoted to sectional conferences and the afternoon to scientific papers

The afternoon session on the twenty third will be devoted to a symposium on Cancer sponsored by the Cancer Committee of the Maine Medical Association.

The following papers will be presented
"Introduction Cancer in Maine" by Dr J W Scannell, Chairman of Maine Medical Cancer Committee.

"Tumors Defined and Classified" by Dr J Gottlieb Pathologist, Central Maine General Hospital

"Carcinoma of the Breast Its Early Diagnosis Prognosis and Treatment, by Dr C M Robinson Portland.

Carcinoma of the Pelvis Routine Examination Symptoms, Diagnosis and Treatment, by Dr M Rildon Bangor

Carcinoma of the Gastro-Intestinal Tract Its Early Symptoms Diagnosis and Treatment, by Dr E H Risley Waterville

Pathology of Carcinoma of the Breast Pelvis and Gastro-Intestinal Tract, by Dr A. H Morrill, Director Diagnostic Laboratory Augusta

"X Rays in Diagnosis of Malignant Tumors" by Dr Forrest B Ames Bangor

"Radium in the Treatment of Carcinoma, by Dr William Holt, Portland

"X Ray Therapy in the Treatment of Malignancy" by Dr S A Wilson Lewiston.

Discussion of the Cancer Symposium by Dr Elliott C Cutler and Dr Soma Weiss of Boston

There will be one speaker at the annual banquet on the night of June 23

Dr Frederick Thayer Hill of Waterville is the President Elect for the coming year

E H RISLEY M D

BOSTON'S MENINGITIS MORTALITY

With the recent report of two more deaths from cerebrospinal meningitis in Boston, the total number is now forty since the first of the year

SOCIAL SECURITY BOARD GRANTS \$1,323,021 TO THREE NEW ENGLAND STATES

The Social Security Board announced May 8 1936 that U S Treasury checks totalling \$1,323,021.92 have been sent to three New England States with approved public-assistance plans. These checks represent the Federal share of the States expenditures for assistance to their needy aged during the three months ending June 30 1936

The New England States receiving checks the amounts granted, and the estimated number of persons to be aided under the plan according to data submitted by the States are shown in the following table

State	For Assistance to the Aged	
	Amount of check	Estimated number of persons to be aided
Massachusetts	\$1,026,711.92	27,974
Connecticut	221,812.50	8,000
Vermont	74,497.50	4,309
Total	\$1,323,021.92	40,274

LORD HORDER SAID

It is possible nay easy to see a great number of patients and yet not see their diseases

Science like nature never proceeds by leaps

The human brain is the best machine of all.—Dwt
Letin New York State Medical Society

RECENT DEATH

LULL—HENRY CUSHMAN LULL, M D, formerly of Boston died at his home on Brook Street, Kingston, Massachusetts, May 3, 1936 Dr Lull was a native of Kingston, Massachusetts, the son of George W and Helen Cushman Lull, and a direct descendant of Thomas Cushman one of the Mayflower group who settled in Plymouth

He practiced in Boston for many years and had an office on Tremont Street Dr Lull was eighty seven years of age at the time of his death and left no surviving relatives

OBITUARY

FREDERICK DANFORTH McALLISTER M D

Frederick Danforth McAllister, M D, was born in Lawrence, the son of John G McAllister, M D a Lawrence physician, on October 2, 1872, and died at the Lawrence General Hospital on March 17, 1936, twelve hours following an operation for an acute gangrenous gall-bladder

He was graduated from the Lawrence High School in 1890, Amherst College in 1894, and Harvard Medical School in 1898 His internship was at the Worcester City Hospital, where he worked with a staff of eminent physicians to whom he looked back with much pleasure, and whose influence undoubtedly was of great aid in his later professional life

On December 29, 1899, he was elected a candidate for house physician for six months beginning January 1, 1900, at the Lawrence General Hospital, then located on Methuen Street

On May 28, 1900, he was elected to membership on the Medical Staff of the Lawrence General Hospital

At the opening of the present Lawrence General Hospital in 1903, on the Russell Estate, he began to carry a three months' surgical ward service, and performed this annual duty up to the time of his death

Dr McAllister was noted for his good judgment and sound knowledge of diagnosis and treatment, including operative procedure He was another of those physicians, on the Medical Staff of the Lawrence General Hospital, of whom it could be said always that the patient's interests were perfectly safe in his hands

Dr McAllister was Secretary of the Medical Staff from 1923 until he died

His life was upright as should become a professional man, and the Medical Staff of this Hospital hereby expresses a feeling of loss at his untimely death

He was a member of the Lawrence Medical Club, a Fellow of the Massachusetts Medical Society, American Medical Association and American College of Surgeons

His immediate surviving relatives are his widow, a daughter, a brother and two sisters

Your committee closes this memorial with a quotation furnished by his brother, Rev Frank B McAllister, and attributed to John Brierley

"May we not say of death itself that it is the final and effective remedy? On the physical side it is kindly Nature's way out of an impossible situation It is heroic surgery When the forces of disease have prevailed against her ordinary methods of healing, she dissolves in this way a combination that has become simply painful Nothing has been destroyed What has happened is that the arrangement of particles round a hopelessly weakened center has to come to an end, leaving these particles free, for a new and sounder grouping"

GEO B SARGENT, M D,

V A RIFE, M D,

J FORREST BURNHAM, M D

Committee Medical Staff,

Lawrence General Hospital

NOTICES

AN OMISSION

In the list of certified Massachusetts Psychiatrists from which the news item "The Certification of Massachusetts Psychiatrists" which appeared on page 956 of our issue of May 7, was taken the name of Dr Riley H Guthrie did not appear Dr Guthrie is duly certified as a Psychiatrist

REMOVAL

LOUISA PAINE TINGLEY M D, announces the removal of her office to 416 Marlborough Street Boston, Telephone Kenmore 0822

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, DEPARTMENT OF BIOLOGY AND PUBLIC HEALTH

ANNOUNCEMENT OF A SPECIAL PUBLIC HEALTH COURSE

A special course of training will be offered this year from June 4 to July 3, inclusive for men and women interested in public health work The course will be given as part of the training now being offered to students in residence at M I T under the Federal Social Security Act.

Instruction will be given in the following subjects Public Health Administration, Epidemiology, Vital Statistics, Communicable Diseases and Public Health Problems

The work in Public Health Administration will include the organization and activities of municipal, county, state and federal health agencies public health surveys, organization of public health campaigns, and the use of the city and rural health appraisal forms

The course in Communicable Diseases will consider the biology of disease and the theories of immunity Special instruction will also be given in the organization and conduct of the community program against tuberculosis

In Epidemiology the sources of infection, modes of

spread of disease the methods employed in studying and controlling epidemic diseases and the lessons to be learned from analyses of specific epidemics will be considered

Vital statistics will consider the sources of statistical information, methods of collection computation of rates, tabulation graphical presentation analyses and interpretation.

Under Public Health Problems special assignments will be made for study analyses and group consideration Current public health problems discussed in the professional journals and daily press will also be presented and discussed

Classes will be held daily from 9 A M to 12 00 M. and 2 to 3 P M exclusive of Saturdays and Sundays

The registration fee is \$5 00 Tuition fee \$20 00 (Total \$25 00)

Inquiries should be addressed to the Department of Biology and Public Health Massachusetts Institute of Technology Cambridge Mass Registration material will be sent on request

UNITED STATES CIVIL SERVICE EXAMINATIONS

Medical Officer (Specialist in Venereal Disease Control)

Medical Officer (Specialist in Cardiovascular Renal Disease)

\$3 800 a Year

Applications must be on file with the United States Civil Service Commission at Washington D C., not later than May 25 1936

The United States Civil Service Commission announces open competitive examinations for the positions named above Vacancies in these positions in the field and in positions requiring similar qualifications will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement transfer or promotion

REPORTS AND NOTICES OF MEETINGS

SOUTHEASTERN MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

The spring meeting of the Southeastern Massachusetts Association of Boards of Health was held in Hyannis on Wednesday April 22 with some thirty members present representing fifteen towns of the district. The principal speaker was Dr Gaylord W. Anderson of the State Department of Public Health and his subject Milk Borne Epidemics

Dr Anderson addressed his remarks directly to the health officer outlining the principles of prevention and emphasizing the necessity of the pasteurization of milk using through his paper the simile of the steamship without the customary safety precautions life boats life preservers special details of construction etc It might make its voyages for a while without accident but should one occur there

would be criticism and the question would be asked "Why was not this prevented?"

It is true that milk borne epidemics are not common in fact they might be termed rather rare but when they do occur they attract widespread attention and there is regret that means of prevention have not been taken In communicable diseases as in the case of the steamship we should profit by the unfortunate experience and take precautions against future repetition of the disaster It is one of the duties of a board of health to protect the public, and to effect this it should become better acquainted with the causes of diseases

There are three general classes into which milk borne diseases may be divided based on the mode of transmission. First there are diseases of the cow e.g., tuberculosis and here the speaker complimented the Cape for its pioneer work in the prevention of tuberculosis in its cows Secondly the cow may be infected from man and thirdly there are cases in which the cow is not involved the infection coming from man directly or through unsanitary conditions in the handling of the milk.

The principal diseases of the cow which may be communicated through milk are tuberculosis and undulant fever The former through the elimination of infected cattle has almost reached the vanishing point in localities in which only tuberculin tested cows are permitted. Cape Cod as has already been noted is a leader in requiring this precaution Undulant fever is not at all common but is likely to attract much more attention when more generally recognized. It is now widespread, but is not diagnosed in the majority of cases It could be controlled by cutting off the supply of milk from "diseased" cows but there are several obstacles If carried out to the letter it would be likely to cause a shortage of milk. The testing of the cows to determine whether they are infected would be exceedingly difficult. Even if the cow is infected, its milk may not contain the specific germ If it does this may prove to be an intermittent rather than a constant condition Then again just what the effect on man may be is not certain. Some human beings readily contract the disease, but in other cases small doses of infected matter seem to result in immunization. These facts suggest some of the difficulties in any program of prevention due to the cow

Forty two cases of undulant fever were reported last year in the state, but this is by no means the full number for physicians are not yet at all familiar with it while in its milder forms it is likely to attract little attention Comparatively few of the cases are fatal but debilitating effects of the disease may last for a long time Medical authorities are now busily at work trying to solve some of these problems Meanwhile pasteurization of milk furnishes an important step toward reasonable safety

In the second group cows become infected with some diseases through contact with man septic sore throat scarlet fever and diphtheria among them Milk which is such a good food for man and ani

mals, is equally nourishing to many of the lower organisms and disease germs multiply rapidly in it. Communities using a milk infected with septic sore throat for example, develop many cases, and there have been some startling outbreaks. A number of local ones were noted by Dr Anderson, one of which was in a town of 4,000 which developed 900 cases with 48 deaths. In another instance, 25 persons used the milk from an infected cow. Of these, 18 became sick and two died, while members of the group carried the infection to two other towns, one of them forty miles distant from the place of original infection.

"Now what are the chances of prevention here?" queried the speaker. To take cultures of the milkers and handlers, is not practicable, and might after all tell only part of the story. Bacterial analysis of the milk would not reveal the presence of the germ early enough to prevent infection, while examination by a veterinarian, although good in principle is too cumbersome, since a daily examination may be necessary. There is only one way to be sure in cases like these, namely, to pasteurize the milk.

What is true of septic sore throat applies practically to scarlet fever, and this demands the same measure of general protection, pasteurization. So far as Massachusetts is concerned milk borne diphtheria is rare with no cases in the past ten years, but it is *more of a problem in some other places*.

In the third group are maladies, communicated to the milk by human beings, among which are typhoid and dysentery, with some septic sore throat and scarlet fever. There are occasional outbreaks of typhoid due to the use of raw milk, the presence of a carrier or some unsanitary procedure, such as neglect in the disposal of sewage, failure to protect the water supply used for washing utensils or carelessness on the part of individuals.

Theoretically, the ordinary measures of prevention should care for these troubles, but there are a number of practical difficulties. A person may be affected mildly by typhoid, or may just be coming down, or indeed be a carrier, without being aware that he has had the disease. Cultures are very variable and in fact are not always reliable. Back of all this as a method of prevention is the health education of the people, whereby the food handler may eliminate all risks from personal carelessness or from unsanitary conditions. With milk it is absolutely necessary to have clean cows, clean milkers, and clean handling into clean bottles. And then, as a superimposed protection, pasteurization. This is not, as it is sometimes improperly characterized, the cleaning up of dirty milk, but the safeguarding of milk against possible infection through factors not always otherwise to be controlled. It is not a substitution for sanitation, but is a reasonable means of prevention of various communicable diseases that are due to the use of raw or contaminated milk. "Make sure by pasteurization," said Dr Anderson in conclusion.

The round table discussion by the health officers, which usually closes these meetings, was based at this session on a question by the secretary, Mr

George F Crocker, Jr, who is district milk inspector. It concerned the attitude which the health board should take toward a new milk distributor, who seeks to establish himself in a place already well supplied with milk. After considerable discussion it was the consensus that, if the requirements with which the law surrounds such an application are completely fulfilled, and they should be for every town interested, the board of health has no option if the milk comes up to the standard. It is then purely a commercial question, and should be considered by the local chamber of commerce or official business organization.

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at 4 30 P M, May 25, 1936, in the Amphitheatre of the Children's Hospital, Boston, Mass. Program 1. An Identical Twin Presenting a Bicuspid Pulmonic Valve. Dr Harry Dietrick. 2. Two Cases of Idiopathic Hypertrophy of the Heart with Recovery. Dr Mark I Makler. 3. Arachnodactylia. Dr Hyman Green. 4. A Case for Diagnosis. Dr Henry F Keever. 5. Behavior Difficulties in Children Who Have Attended Heart Clinics. Dr Bronson Crothers. 6. Some Cases of Transposition of the Great Vessels. Dr Paul W Emerson. 7. A Definite Clinical Syndrome Associated with Enlargement of the Heart in Infants and Young Children. Dr M A Kugel (Mt Sinai Hospital, New York).

All members of the New England Heart Association and interested physicians are cordially invited to attend.

JAMES M FAULKNER, M D, *Secretary*

AMERICAN UROLOGICAL ASSOCIATION

PROGRAM

TUESDAY, MAY 19, 1936—9 00 A M 12 30 P M

Surgical Procedures in Neurodynamic Pathology of the Upper Urinary Tract. William P Herbst, Washington, D C.

The Present Status of Renal Sympathectomy. Thomas E Gibson, San Francisco, California.
Discussion. Lawrence R Wharton, Baltimore, Maryland.

Hypernephroma. Lawrence T Price, Richmond, Virginia.

Irradiation and Malignant Renal Disease, Effect of Irradiation on the Acquired Single Kidney. Arbor D Munger, Lincoln, Nebraska.

Hemorrhagic Cyst of the Kidney. J Dellinger Barney, Boston, Massachusetts.

Discussion. Archie L Dean, Jr, New York City.

An Experimental Study of Injuries of the Upper Urinary Tract. W Calhoun Stirling and A Lands (by invitation), Washington, D C.

Diagnosis and Treatment of Trauma of the Kidney. Austin H Wood, Baltimore, Maryland.

Discussion Nathaniel P Rathbun Brooklyn New York
Miley B Wesson San Francisco California.

Renal Atrophy Robert E Cumming Detroit, Michigan.

The Atrophic or Hypoplastic Kidney F G Harrison, Philadelphia, Pennsylvania.

Discussion William F Braasch Rochester Minnesota
Elmer Hess Erie Pennsylvania

THURSDAY MAY 19 1936—2 00 P.M. 5 30 P.M.

The Cord Bladder Definition Treatment and Prognosis When Associated with Spinal Cord Injury Donald Munro Visiting Surgeon for Neurosurgery the Boston City Hospital, Boston Massachusetts. (By invitation)

The Diabetic (Cord) Bladder Richard D Gill Wheeling West Virginia.

The Technic of Suprapubic Cystotomy for Drainage Montague L Boyd Atlanta, Georgia

Discussion Paul A Ferrier Pasadena California
Irving Simons New York City

The Ureteral and Renal Complications of Carcinoma of the Cervix Roger C Graves Charles J E. Kichham and Ira T Nathanson (by invitation) Boston Massachusetts

Vascular Obstruction of the Ureter in Children. Meredith F Campbell New York City

Supernumerary Ureters with Extravesical Openings Henry Dawson Furness New York City

Discussion Roy B Henline New York City
Fletcher H Colby Boston, Massachusetts

Demonstrations

A New Cystometer Devised to Minimize the Present Difficulties David W MacKenzie and Sidney Beck (by invitation) Montreal Canada

An Improved Filiform Guide Floyd C Hendrickson Canton Ohio

Transurethral Prostatotomy for Relief of Prostatic Abscesses and Acute Obstructive Prostatitis with an Electro-Prostate Gideon Timberlake, St. Petersburg Florida.

WEDNESDAY MAY 20 1936—9 00 A.M. 12 30 P.M.

The Relationship Between the Chemical Composition of Renal Calculi and Associated Bacteria James T Priestley Rochester Minnesota.

A Study of Recurrence Following Operations for Nephrolithiasis Francis Patton Twinem New York City

Factors Determining the Management of Ureteral Stones an Improved Method of Their Cystoscopic Removal. Thomas D Moore Memphis Tennessee

Discussion Fuller Albright Boston Massachusetts
Linwood Keyser Roanoke Virginia.

Cystitis Emphysematosa N L Burrell Springfield Ohio

The Treatment of Incrusting Alkaline Cystitis Alexander Randall and Edward W Campbell Philadelphia, Pennsylvania.

Discussion William E Stevens San Francisco California

Further Developments in the Surgery of the Prostate Joseph F McCarthy New York City

Mortality in Prostatic Surgery Harry C Roelnick and Lester A. Riskind (by invitation) Chicago Illinois

Discussion Gilbert J Thomas Minneapolis Minnesota
I G Duncan Memphis Tennessee
Nathaniel G Alcock Iowa City Iowa

The Founding of the American Urological Association with Tribute to Its Founder Colin Luke Bett New York City

WEDNESDAY MAY 20 1936—2 00 P.M. 5 30 P.M.

President's Address

Dr George Gilbert Smith Boston Massachusetts

The Ramon Gutierrez Lecture The Influence of Infection of the Lower Urinary Tract and Reproductive Organs on the Kidneys with Special Reference to Lithiasis and Hydronephrosis Mr H P Winsbury White London England

Discussants Hugh Hampton Young Baltimore Maryland
Hugh Cabot Rochester Minnesota
J Dellinger Barney Boston Massachusetts
Henry G Bugbee New York City William E. Lower Cleveland Ohio

Business Meeting. (To follow)

Banquet 8 00 P.M.

THURSDAY MAY 21 1936—9 00 A.M. 12 30 P.M.

Cocaine Absorption in the Urethra and Bladder a Report on Quantitative Determinations. Ernest Rupel and R. N Harger (by invitation) Indianapolis Indiana.

Incontinence in the Male and Female with a New Operation for Its Relief. Oswald Swinney Lowalely New York City

A Histo-Pathological Study of the Female Bladder Neck and Urethra David W MacKenzie and Sidney Beck (by invitation) Montreal, Canada

Discussion Alfred I. Folsom, Dallas Texas
Thomas J Kirwin New York City

X Ray Therapy in the Treatment of Bladder Tumors. Albert E Bothe Philadelphia, Pennsylvania

Infiltrating Carcinoma of the Bladder J A Campbell Colston and W F Lendbetter (by invitation) Baltimore, Maryland

The Grading of Bladder Tumors Major Raymond O Dart, Army Medical Museum Washington D C (By invitation)

Five-Year End Results in the Bladder Tumor Registry Russell S Ferguson New York City Chairman of the Carcinoma Registry Committee of the American Urological Association

Discussion Benjamin S Baringer, New York City

Enterovesical Fistula Charles C Higgins Cleveland, Ohio

Primary Carcinoma of the Seminal Vesicle Andrew McNally and Frank M Cochems (by invitation), Chicago, Illinois

Discussion James F Balch, Indianapolis, Indiana

THURSDAY, MAY 21, 1936—2 00 P.M. 5 30 P.M.

Heminephrectomy Its indications and Limitations Elmer Hess, Erie, Pennsylvania

Resections of the Kidney Benjamin S Abeshouse and Albert E Goldstein, Baltimore, Maryland

Unsuccessful Plastic Operations for Hydronephrosis John K Ormond, Detroit, Michigan

A Simple Method for Doing Nephropexy Charles M McKenna, Chicago, Illinois

Discussion William C Quinby, Boston Massachusetts Edwin Bee, New York City

How Prevalent Are Smegma Bacilli? Their Alleged Importance as a Confusing Factor in the Examination of Urine for Tubercle Bacilli by the Centrifugal and Smear Methods Howard S Jeck and Charlotte Hanley (by invitation) New York City

Impotence and Masturbation from the Urological Point of View Max Huhner, New York City

The Surgery of Genital Elephantiasis (nontropical) Ernest M Watson, Buffalo, New York

Discussion Winfield W Scott, Rochester New York, David M Davis, Philadelphia, Pennsylvania

NEW ENGLAND PHYSICAL THERAPY SOCIETY

ANNUAL MEETING

The Annual Meeting of the New England Physical Therapy Society will be held at the Hotel Kenmore, Boston, on Wednesday evening, May 20, 1936, at 8 o'clock

PROGRAM

Business Meeting

- Reports of Officers
- Reports of Committees
- Election of Officers

Scientific Program

Injection Treatment of Varicose Veins, Technique and Results (Motion pictures will be shown) DeWitt G Wilcox, M.D., Professor Emeritus of Gynaecology, Boston University Medical School

Discussion Herbert G Dunphy, M.D., Member Surgical Staff, Boston City Hospital and Newton Hospital

Question Period

The Council will meet promptly at six o'clock
Informal Round Table Dinner at six thirty o'clock
As this is the last program to be given by the So-

ciety until October it is hoped that all members will make a special effort to be present

Members of the medical profession are cordially invited to attend

WILLIAM D McFEE, M.D., *Secretary*
Boston, Massachusetts

TRUDEAU SOCIETY

A meeting of the Trudeau Society will be held on Thursday, May 21, at 4 P.M., at the North Reading State Sanatorium, North Wilmington, Mass. Dr. David Zacks of the Chadwick Clinics will speak on Asymptomatic Tuberculosis. Drs. Earle C. Willoughby, Rufus R. Little and Anna H. Maxwell will discuss Treatment of Tuberculosis by Means of Collapse Therapy in Children under Seventeen Years of Age. Dinner will be served at 6 30 P.M.

MOSES J. STONE, M.D., *Secretary*

THE NEW ENGLAND OBSTETRICAL AND GYNECOLOGICAL SOCIETY

The eighth spring meeting of the New England Obstetrical and Gynecological Society is to be held on Thursday, May 28, 1936, at Providence, R.I. The following program has been arranged

Following the morning and afternoon hospital activities, the Society dinner will be held at the Squantum Club

MORNING PROGRAM

Registration at Rhode Island Medical Society Library, 106 Francis Street

Providence Lying-In Hospital

9 10—Inspection of hospital

10 10 30—Management of 100 cases of Placenta Praevia at the Providence Lying In Hospital Dr. John G. Walsh

10 30 11—Treatment of Heart Disease complicating Pregnancy and Labor in 609 cases at the Providence Lying In Hospital Dr. Frank T. Fulton

11 15 11 45—Treatment of Premature Infants with demonstration of an inexpensive oxygen box. Drs. Buffum and Lord

11 45 12 15—Deduction to be drawn from 108 Maternal Deaths at the Providence Lying In Hospital Dr. E. S. Brackett

1 00 — Luncheon. Guests of Providence Lying In Hospital

Rhode Island Hospital

9 11—Operating clinic. Drs. Sweeney, Burton and Gynecological Staff. There will also be available for those who wish to see them, other operations by the general surgical service

11 00—Dry clinic in the Peters House Auditorium, Rhode Island Hospital

11 11 30—Presacral nerve resection. Report of cases with lantern slides. Dr. George W. Waterman

11 30 12 15 — Panhysterectomy vs. supracervical hysterectomy with report of a series of cases. Dr. Thomas W. Grzeblen

Discussion by Drs. Waterman and Clarke

- 12 151st 45—Gonorrhea in the Female Dr John F Murphy
12 45 — Luncheon as guests of the Rhode Island Hospital

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY MAY 18 1936

Monday May 18—

- 18 A.M. 7 P.M. 30 P.M. The American Urological Medical Society Hotel Statler
4 P.M. Surgical Lecture at the Peter Bent Brigham Hospital Amphitheatre by Dr K H Glantz

Tuesday May 19—

- American Urological Association Hotel Statler
10 A.M. Boston Dispensary 5 Bennet Street Boston. Clinical Diagnosis of Jaundice Dr Howard M. Clute
9:30 A.M. Massachusetts General Hospital Thoracic Clinic. Ether Dome
11:30 A.M. Massachusetts General Hospital Nerve Eye Conference Out Patient Department
1 P.M. South End Medical Club 654 Centre Street Boston
4 P.M. Pediatric Ward Visit Massachusetts Eye and Ear Infirmary

Wednesday May 20—

- American Urological Association Hotel Statler
8 A.M. Massachusetts General Hospital Grand Rounds. Orthopedic Department
9:30 A.M. Boston Dispensary 5 Bennet Street Boston Hospital Case Presentation Dr B J Thannhauser
11:30 A.M. Clinico Pathological Conference Children's Hospital
1 P.M. Surgical Lecture at the Peter Bent Brigham Hospital Amphitheatre by Dr K H Glantz

Thursday May 21—

- American Urological Association Hotel Statler
8 A.M. Massachusetts General Hospital Circulatory Clinic Ward F
9:30-9:30 A.M. Clinico, Surgical and Orthopedic Staffs of the Children's Hospital at the Children's Hospital
9:30 A.M. Boston Dispensary 5 Bennet Street Boston. Social Service Case Presentation Miss Edith Canterbury
9:30 A.M. Massachusetts General Hospital Neurological Conference Ether Dome
12 M. Massachusetts General Hospital Clinico Pathological Conference

Friday May 22—

- 9:30 A.M. Boston Dispensary 5 Bennet Street, Boston Newer Aspects of Diabetes Dr Reginald Fitz
1 P.M. Massachusetts General Hospital Clinical Meeting of Staff of the Children's Medical Service Ether Dome
12 M. Massachusetts General Hospital Urological Conference Out Patient Department

Saturday May 23—

- 9:30 A.M. Boston Dispensary 5 Bennet Street Boston Hospital Case Presentation Dr B J Thannhauser
10 A.M. 1 P.M. Staff Rounds at the Peter Bent Brigham Hospital. Conducted by Dr Henry A Christian.

Open to the medical profession
Open to Fellows of the Massachusetts Medical Society

May 15—Boston University School of Medicine Surgical Clinic, Boston City Hospital See page 901 issue of April 30

May 18—Springfield Medical Association 8:30 P.M. at the rooms of the Springfield Academy of Medicine 20 Maple Street. The Development of Medicine in the United States, 1776-1896 Dr Henry E. Sigerist.

May 18—The American Neisserian Medical Society See page 411 issue of April 16

May 18, 20, 25—Surgical Lectures at the Peter Bent Brigham Hospital by Dr K. H. Glantz. See page 307 issue of May 7

May 19—The South End Medical Club See page 908 issue of May 7

May 19-21—American Urological Association See page 1014

May 20—New England Physical Therapy Society See page 1016

May 21—Trudeau Society See page 1016

May 25—New England Heart Association See page 1014

May 28—New England Obstetrical and Gynecological Society See page 1016

May 31 June 1—International Cardiological Meeting Royat (Auvergne) Assembly of Physiologists Pathologists and Therapists See page 154 issue of April 9

June 4 July 3—Massachusetts Institute of Technology Department of Biology and Public Health See page 101—

June 15 19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory Baltimore Md.

June 16 July 28—Summer Course in Bacteriology See page 385 issue of February 20

June 29 July 11—Hospital Administration See page 36 issue of May 7

September 1935—First International Conference on Fever Therapy See page 1325 issue of December 26 1935

September, 1935—First International Congress of Sanatoria and Private Nursing Homes. See page 30 issue of April 16

September 7 10—International Union against Tuberculosis See page 554 issue of March 12

October 19 23—Clinical Congress of the American College of Surgeons. See page 180 issue of January 23

DISTRICT MEDICAL SOCIETY

PLYMOUTH DISTRICT MEDICAL SOCIETY

May 21—Lakeville State Sanatorium

G A. MOORE M.D. Secretary

167 Newbury Street, Brockton.

BOOK REVIEWS

National Medical Monographs. Diseases of the Chest J Arthur Myers 285 pp New York National Medical Book Company Inc.

The author of this book has been connected with the Lymanhurst School in Minneapolis for the past fourteen years. He has had an opportunity there to study the problem of childhood tuberculosis in 12 000 children. This work has given him a wide reputation and in 1934 the National Tuberculosis Association presented him with its Trudeau Medal. Therefore anything that Dr Myers writes on the subject of tuberculosis has the stamp of authority.

The present volume consists of 360 small pages, 200 of which are devoted to tuberculosis. The author writes in outline form with summaries at the end of each chapter. He makes his points with unusual clearness. Any student of the tuberculosis problem who has not read Dr Myers previous works should hasten to read this latest summary of his views in former publications particularly in his books entitled "Tuberculosis Among Children" and "The Child and the Tuberculosis Problem" the author has covered much of the same ground. The present volume deals with adult as well as childhood tuberculosis and takes up artificial pneumothorax treatment in addition to other phases of the general problem. It also shows certain changes in the authors view point.

In the opinion of the reviewer this discussion of tuberculosis represents the authors best work and

is in every way a masterly production. This does not mean that everyone will agree with his opinions, and probably the majority of critics will feel that he has failed as yet to prove his favorite thesis—that a first infection with tubercle bacilli sensitizes an individual toward later reinfection without producing an appreciable immunity. However, most readers will agree with Myers that infection with tubercle bacilli should be avoided at all ages. Again, all will not agree that this necessarily means handling cases of tuberculosis in the hospitals as if they were cases of acute contagious disease. There will be debate also as to the degree of risk assumed by doctor and nurse in caring for the patient ill with tuberculosis.

The second part of the book attempts to cover, in 160 small pages the problems of "Pneumonia Suppurative Conditions of the Bronchi, Lungs, and Pleurae Tumors within the Thorax, Massive Collapse, Foreign Bodies, Spontaneous Pneumothorax, and Pulmonary Embolism Diseases Due to Other Mouldlike Bacteria, True Moulds, and Yeast-like Fungi, and Diseases and Conditions Caused by Inhalation of Dust." The author gives a good summary of the high spots of present opinion on these problems but so short a discussion is of little value to either student or practitioner. The book hardly deserves the title, "Diseases of the Chest."

Individual Exercises Selected exercises for individual conditions. George T. Stafford, Harry B. DeCook, and Joseph L. Picard. 111 pp. New York: A. S. Barnes & Company. \$1.00.

This paper-covered book of some 100 pages is designed chiefly for laymen and women. The Preface urges that before these exercises are taken, the individual should first place himself in the hands of his physician and obtain a correct diagnosis of his condition. Once this is made the authors believe that the individual himself can then select his exercise program from the sets described in the book. There follows Chapter I on "The Need for Exercise in Present-Day Society" and in subsequent chapters there are dissertations on Blood Pressure, Constipation, Digestive Disorders, Foot Disturbances, Heart Disturbances, Hernia, Infantile Paralysis, Kidney Disorders, Knee Disturbances, Malnutrition, Mental Disorders, Posture, Ptosis, Neurasthenia and Scoliosis. With each dissertation sets of progressive exercises are suggested.

The authors have not escaped certain pitfalls which are always met when diseases and lesions are discussed with the laity by other members of the laity. The authors have had much contact with physicians and appear to be men especially well trained for the important positions which they hold. Under infantile paralysis, for example, this difficult subject of muscle training would be better left to physicians to describe. There is definite danger of too much dogmatism in the description of knee disturbances and under posture no special attention is paid to the method of correcting the prevailing faults of body mechanics. Scoliosis is in the review-

er's opinion a disease in which there is much danger for over- as for underexercise. There is the possibility that a well-kept and fairly rigid curve will increase if the spine is made too flexible. Chapter IV is entitled "Maintaining Health or Keeping Physically Fit" and follows a proposed health scale which includes a check consisting of (A) a personal health check of twenty points and (B) health habits of twenty points, with the opportunity for a check six months after the exercises are started. It is a bad idea but probably hardly allows for the facts of human nature.

Chapter V, which comprises a little more than the book, is made up of 100 exercises with illustrations and fairly easily grasped in.

The advice is constantly given that the individual should consult their physician for a diagnosis. We believe that the physician should prescribe at least the type of exercises and should be the one to watch the only the corrective effect, but the effect on the patient's general condition.

As a calisthenic manual, this book will be useful for the average man or woman who does not require careful medical supervision.

Radium Treatment of Skin Diseases, New Growths of the Eyes, and Tonsils F. Williams. 118 pp. Boston: The Stratford Company. \$2.00.

This little book is a summary of the work of the pioneers in radium therapy. Dr. Williams began experimenting with radium in 1900, after its discovery by Madame Curie. He separated the beta rays from the gamma rays, found out what screening was necessary, the beta rays and demonstrated that gamma rays passed through the body sufficiently to be detected on a fluorescent screen. His first clinical use was in a case of psoriasis where he found that the gamma rays destroyed the lesions, but the beta rays were necessary.

Over a period of thirty years the writer has been using radium in skin diseases, new growths of the skin, spring catarrh of the conjunctiva, neoplasms of the eyelids, opacities of the cornea, catarrh of the enlarged tonsils. The technique used in these conditions is described, together with the results. Sufficient data are not given to show what per cent of the cases treated for a disease showed improvement or were cured.

This book is excellent as a report of what a man has been able to do with radium. The methods of treatment of skin cancer and the conditions are not detailed enough to teach another how to use radium. The reviewer does not agree with all the writer's statements or with some of the methods of treatment and wonders if sufficient attention has been given to newer methods which have been developed. He finds it difficult to explain how Dr. Williams can cure cataracts when so many radiologists have found that they are quiescent.

The New England Journal of Medicine

VOLUME 214

MAY 21, 1936

NUMBER 21

CLINICAL CONSIDERATIONS IN REGARD TO ETIOLOGY, CHARACTERISTICS AND PROGNOSIS OF ESSENTIAL HYPERTENSION AT DIFFERENT AGES*

A Review of 224 Cases

BY ROBERT S. PALMER, M.D.,† AND EDWARD G. THORP, M.D.†

DURING the past five years we have attempted to find early cases of essential hypertension in hospital and private practice and by means of periodic health examinations of supposedly normal people. It is our purpose to compare these early cases with moderately advanced and late cases encountered and followed over the same period of time.

In declaring a case mild, moderate or severe, we have been influenced by the height of the blood pressure, the absence, or presence and amount of organic cardiovascular change and the response to treatment. A blood pressure not over 180 mm of Hg systolic or 115 diastolic, marked variability, usually with one or more observations of normal blood pressure (not over 140 systolic, 100 diastolic), relative freedom from organic change in the cardiovascular system, indicated a mild or early case. A blood pressure of 180 to 230 systolic, 115 to 130 diastolic, variable and with a fairly favorable response to sedatives and rest, with none to a moderate degree of organic cardiovascular change indicated a moderate case. A very high blood pressure of over 230 systolic and over 130 diastolic, variable, but usually above these figures and as a rule not falling lower than these figures with rest and sedatives and showing marked organic cardiovascular change, indicated a severe case. There were all gradations from mild to severe.

Cases may also be graded according to intensity, acceleration or rapidity of progress from the slow typical benign essential hypertension of middle life and beyond lasting ten or even twenty years to the rapidly fatal so-called malignant hypertension lasting a few weeks to not over two years. The latter occurred in this series only under fifty two years of age more commonly in females. Again we have observed all gradations in intensity.

This series of 224 cases includes none of primary renal disease. There was one case of

coarctation of the aorta, one case of adrenal cortical adenoma, two "causes" of essential hypertension always to be considered. No cases of paroxysmal hypertension due to pleochromatic medullary tumors have been recognized. There were 118 males 106 females. At earlier ages males predominate since the majority of our early or mild cases were found by periodic health examination of either exclusively male or predominately male groups.

Excluding the patients with coarctation of the aorta and adrenal cortical adenoma, there was one case of a male aged twenty two years, thought to be the mild benign type who died suddenly after swimming, of unknown cause, and a fourth patient, the nature and the severity of whose disease was not certainly determined. The remaining 220 were graded as follows, mild or early 79, moderate 69, and severe 72. Table 1 indicates the percentage incidence of etiological factors.

TABLE 1
ETIOLOGICAL FACTORS (PER CENT)

	Family History of Degenerative Disease	Obesity	Nervous Instability	Endocrine Abnormalities (Female)
Mild	52.1	45.3	68.0	90.9
Moderate	63.3	69.2	86.3	88.3
Severe	70.0	67.7	75.5	96.0

The incidence of a family history of degenerative vascular disease is definitely greater in cases graded moderate or severe. This may be interpreted as representing constitutional susceptibility in current medical terminology as X or intrinsic factor, more regularly present in the moderate or severe cases. The absence of this factor in almost half of the mild cases suggests that many of them may have been simple vasomotor instability and not true early essential hypertension. To date we do not know of any certain way to distinguish between benign vasomotor instability with elevations of the blood pressure in young male adults except by observation. Observation unless very tactful,

From the Medical Clinic of the Massachusetts General Hospital.

†Palmer, Robert S.—Assistant in Medical, Massachusetts General Hospital. Thorp, Edward G.—Assistant in Medical, Massachusetts General Hospital. For records and addresses of authors see "This Week's Issue" page 1053.

has the disadvantage of producing in some of these individuals a high blood pressure phobia, in itself disquieting and occasionally, we suspect, being partly responsible for the precipitation of symptomatic essential hypertension in susceptible individuals

The most constant factor in the etiology of essential hypertension is a familial disposition though it is not clear how strong the family history must be to be significant since as Allan¹ points out, hypertension may be present in as high as 40 per cent of the adult population. The chance is considerable that any individual may have a hypertensive family history. Nevertheless Ayman² has shown that the children of hypertensive parents have a much greater chance of showing elevated blood pressures than the children of nonhypertensive parents. On the whole the best guide to a diagnosis of potential essential hypertension is a strong family history of degenerative vascular disease.

Obesity is likewise more prominent in the moderate and severe groups. Whether obesity is present because the average age of these cases is older, whether obesity is a related cause, or whether finally it is an effect of the disease, is not clear. If one considers essential hypertension as a constitutional irritability or instability of the sympathetic-adrenal system, a chronic emergency as it were, and recalls the stimulating or mobilizing effect of the sympathetic adrenal system on carbohydrate metabolism, particularly when mental or emotional stress without motor discharge is the exciting cause, one can see at least theoretically, how obesity might develop as an effect of, rather than a cause of this disease. Obesity in essential hypertension conceivably may be the result of a functional endocrine disturbance analogous to that of pituitary basophilism.

Undue nervous instability is present in quite a high percentage of all cases, varying from consciousness of uncomfortable inner tension, through a variety of complaints indistinguishable from those of so-called functional nervous diseases without hypertension, including phobias, exaggerated fears, anxiety attacks. A small percentage suffered more or less serious nervous breakdowns. While it is often difficult to judge how much of the functional element is induced by fear of blood pressure, nevertheless, nervous symptoms often precede and lead to the finding of the blood pressure. Occasionally unusual situational difficulties paralleled the onset of the elevated blood pressure. However, nervous tension is very likely at most a precipitating cause since its occurrence is actually greater in a control group of patients without hypertension undergoing hospital study.³

Endocrine abnormalities or dysfunction are the most commonly associated factors in essen-

tial hypertension of females if the menopause is included in this category. Naturally, the menopause is the rule in females over forty-five years with essential hypertension. On the other hand, in the younger group of seven females under thirty-six years of age with severe hypertension only one had had no abnormality of periods or of pregnancy. Two had had abnormal catamenia. Four had suffered from toxemia of pregnancy. Of twelve females aged thirty-six to forty-five with severe hypertension, four had suffered actual or probable toxemia of pregnancy. Two had had abnormal periods, four had experienced an early menopause. Only two showed no obvious abnormality. Abnormalities of catamenia or of pregnancy, and the glandular reorganization at the menopause are significantly associated with essential hypertension in females. Among females, chronic pyelitis may be associated with severe hypertension. This was noted in two of the seven females with severe hypertension under thirty-six years of age.

When this series is arbitrarily divided according to age, some interesting facts are brought out.

There are fifty-seven cases under thirty-six years of age. Most of these (forty-six) are males since many were discovered by periodic health examinations in exclusively male or predominately male groups. The largest proportion of mild cases are in this group (thirty-seven males, two females). They are free from organic change. The blood pressure is variable, often normal, is readily controlled by rest or sedatives. In many of these cases the diagnosis is probably vasomotor instability, not true essential hypertension. Cases of this sort, and at older ages as well, are known to regress spontaneously and fail to recur over many years. Vasomotor instability with frequent observations of elevated blood pressure is common in young male adults. The blood pressure may be as high as 180 systolic, as pointed out above. An uncertain or tentative diagnosis of high blood pressure in some instances, conditions the patient to anxiety in regard to blood pressure and in susceptible persons may be instrumental in precipitating or hastening the onset of the disease. The diagnosis of essential hypertension is made when they do not regress but show definite progress toward higher blood pressures and irreversible organic change. We feel that therapeutic efforts at this point are likely to be most effective. Only two females at this age with mild or questionable hypertension have been observed, both found by periodic health examination. What the incidence of early, variable, mild hypertension or vasomotor instability of this type is among females we do not know, due to the fact that we have not had the opportunity of submitting to periodic health examination a

large enough number of young adult females. Our experience with clinical cases of essential hypertension in young adult females on the other hand, leads us to expect a serious often the malignant form of the disease.

Six cases under thirty six years of age (four male, two female) were graded moderate duration differed from the mild cases in having higher pressures variable and responding favorably to rest and sedatives but failing to return to normal. Organic changes were absent or slight in degree and not symptomatic.

There were ten cases of severe hypertension (three male and seven female) in this group under thirty six years. The blood pressure had been known to have been present for weeks up to fourteen years, average 3.7 years. Organic cardiovascular change, usually of marked degree, was present in all. Congestive or anginal failure or loss of reserve was present in four hypertensive encephalopathy or cerebral accident occurred in three. Three were untraced. Four died, one of unknown cause, one of cerebral accident, two of uremia. The point of great interest is that seven of ten severe cases were females. Four were designated malignant because of edema of the optic nerves, and the rapid course of the disease, five months to 27 years. Three of these were females.

Of patients aged thirty six to forty five years there were thirty three (eleven males twenty two females). Included in this group was the patient with an adrenal cortical adenoma which was removed without notable effect on the blood pressure. The others were graded eleven mild or early, six moderate fifteen severe.

Of the eleven mild or early cases four were females, seven males. Seven of these were discovered incidental to a periodic health or other routine examination. Of the six graded moderate, five were females. Of the fifteen severe cases, twelve were females. Five had cardiac asthma, congestive or anginal failure, or milder loss of cardiac reserve. Five suffered a cerebral accident or attacks of hypertensive encephalopathy. One had arteriosclerotic gangrene and showed glycosuria. Three were untraced. Nine have died cause unknown four, cerebral accident three, probable uremia one, postoperative one. Excluding the postoperative death seven females died, and one male. Four of these severe cases were called malignant, three of them females. The course was relatively short in three of these. In the fourth the malignant phase came at the end of thirteen years' known hypertension. It is apparent that mild or moderate hypertension occurs at this age in females but that when one sees hypertension clinically at this age, in females, it is likely to be severe or malignant. As pointed out above, abnormal

catamena or toxemia of pregnancy are often found in the past history.

We have studied 134 patients over forty five years of age. One case was unclassified as to severity. Approximately 22 per cent (twenty nine cases) were mild, 42 per cent (fifty seven cases) were moderate, 35 per cent (forty seven cases) were severe. Hypertension was discovered by routine examination in ten of the mild group, four of the moderate, two of the severe. One death in the mild group was due to carcinoma. Two deaths among the moderate group were related to associated diseases, allergic asthma and rheumatic heart disease respectively. This group corresponds to the usual series of cases diagnosed essential hypertension females predominate almost two to one (forty-seven males, eighty seven females), the course is long relatively benign, the mortality is somewhat higher among males.

Over forty five years of age there were forty seven with severe essential hypertension. Twenty three of these had congestive or anginal heart failure. Eleven had hypertensive encephalopathy or cerebral accident. There were twenty nine deaths of undetermined cause twelve actual or probable coronary thrombosis six, congestive heart failure four, cerebral accident four, uremia two. One patient died postoperatively. Excluding this death the mortality was 20.89 per cent. In this group the mortality for males was 23.4 per cent for females 19.54 per cent. There were five cases of malignant hypertension, one was aged fifty two, two were fifty and one each forty-eight and forty seven. Three were females, two males.

TABLE 2

DURATION OF BLOOD PRESSURE AND SYMPTOMS						
Severity	Classification	No of Cases	Average Duration in Years	Duration Five Years or Over	Duration Ten Years or Over	
Mild	Under 36	24	2.7	10		
	36 to 45	9	4.5	8		
	Over 45	20	3.9	7	1	
	All ages	53	3.9	20	1	
Moderate	Under 36	6	2.7	1		
	36 to 45	6	4.0	2		
	Over 45	54	7.8	37	17	
	All ages	66	7.0	40	17	
Severe and Malignant	Under 36	10	3.8	3	1	
	36 to 45	15	5.7	6	3	
	Over 45	45	5.9	19	8	
	All ages	70	5.6	28	12	

Table 2 shows the average duration of the blood pressure in those cases followed over a longer period than the original observation in the various groups classified according to age and severity of the disease. The number of

cases in which the blood pressure lasted over five and over ten years is indicated. Inspection of these figures shows that the cases graded moderate have the longest course. Probably this is due to the fact that the malignant cases are characterized chiefly by an intense rapidly progressive short course. The short duration of the mild cases at all ages is presumably due to early observation in the course of the disease. Of interest is the large number of cases lasting over five years and the considerable number lasting ten or more years. Three patients in this series were known to have had abnormally high blood pressure over twenty years. These figures attest the fact that in general, essential hypertension pursues a long and benign course in most instances, a probable average of about ten years.

It is apparent that hypertension occurs at all ages and exhibits all gradations of severity and of intensity. At earlier ages our series is characterized by special selection of young adult males among whom an elevated blood pressure is frequently a sign of vasomotor instability, not true essential hypertension. When we have encountered elevated blood pressures clinically in women under forty-five years of age we have often found the rapid intense process known as malignant hypertension, the most severe form of the disease. Malignant hypertension has not occurred over fifty-two years of age in this series.

The severe cases of hypertension over forty-five have as a rule resulted from a long slowly progressive course. We are aware of the increased mortality rate of those with hypertension as compared with normal human beings and our mortality figures attest this fact. However, our prognosis must be based on the stage of the disease in which we see the patient and not on the findings in an exclusively late stage group such as those reported by White⁴ almost 90 per cent being over fifty years of age, the majority already having serious irreversible cardiovascular changes.

The experience of White⁴ and Lewis⁵ indicates that essential hypertension is commoner in males. We believe their figures are due to special selection, in that essential hypertension is more severe in males over forty-five years and it is for the late effects of hypertension that

they are consulted. Our figures and the weight of the evidence^{6, 7} indicate that essential hypertension at middle life and beyond is significantly greater in women though its course is more benign as compared with that in men.

Review of the clinical observations in 224 cases of abnormally high blood pressures at different ages followed for varying periods during the last five years suggests these conclusions:

1 Essential hypertension often exhibits an early variable stage, responding readily to simple medical measures, difficult to distinguish from vasomotor instability and simple emotional or functional disorders.

2 The primary factor in the etiology of essential hypertension is constitutional susceptibility.

3 Important precipitating or aggravating factors are nervous or emotional strain and in females abnormalities of catamenia, toxemia of pregnancy, the menopause and, possibly, pyelitis.

4 Beyond forty-five years of age the disease appears to be more serious among males, but under forty-five years the severest form of essential hypertension, especially the malignant phase of the disease, in our experience is more common in females.

5 The average known duration of essential hypertension in the usual case, not in the malignant phase, is four to eight years but cases lasting ten years are not infrequent and occasional cases lasting twenty years are seen.

6 Our findings stress the importance of early diagnosis for the purpose of therapeutic intervention before late irreversible changes have taken place.

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ASTHENIA HYPOPHYSOPRIVA

Neuromuscular Symptoms Due To Alterations In The Pituitary

BY BERNARDO A. HOUSSEY, M.D.†

ASTHENIA is one of the most interesting symptoms of pituitary insufficiency it always occurs in the toad and though in a lesser degree, in the rat, it manifests itself in man in the course of pituitary cachexia and is also seen, with varying frequency, in other species. It is well marked in the advanced stages of severe forms of pituitary insufficiency consisting with general and metabolic symptoms and with modifications of behavior in animals and of mental reactions in man. It seems to be the result of a general nutritive change, which principally affects the central nervous system but also affects the chemical reactions of the muscles. The toad is the animal *par excellence* for the observation and analysis of this phenomenon.

Experimental pituitary insufficiency

Dogs—After removal of the pituitary gland in dogs some symptoms appear immediately, others do not occur until later. The former described by Vassale and Sacchi,¹¹ are depression, apathy, tameness, docility and passivity, sleepiness, fibrillary muscular contractions, rigidity of the hind legs, arching of the back, halting gait, sometimes tonic-clonic convulsions during which death may occur, anorexia with occasional vomiting, frequently polyuria and polydipsia, rapid and progressive wasting. The following symptoms have been observed by many investigators: (1) the depression, apathy or indifference is very frequent in the first days after operation^{11, 22, 4} 31, 32, 46, 47, 117, etc., although in our experience it varies considerably in degree, (2) a lowering of temperature is not rare^{47, 41, 51, 109, 117, etc.} particularly in the fatal cases, (3) lethargy or somnolence are very common and at times extreme but are transient, (4) loss of weight or cachexia—^{24, 31, 41} have not been very marked in our observations except in cases with polyuria and anorexia, (5) motor symptoms, i.e. contractions, rigidity of the neck, fibrillary twitches, curving of the back, hanging of the head, usually do not occur if the operation has been performed with care. The defecatory attitude, associated with apathy, low temperature and low blood pressure, followed by coma and death which Cushing and his collaborators consider typical of the cachexia of pituitary insufficiency is also produced by lesions in the neighborhood

of the pituitary⁵⁷ or by tubular puncture which does not touch the pituitary.⁷ We can definitely state from wide experience that these symptoms are observed more often and with greater intensity (particularly the convulsions and motor symptoms) when tubular lesions occur or when blood clots are left in the sella turcica while there is only slight depression (inconstant in puppies) and sleepiness, and slight loss of appetite if the pituitary is removed skillfully with minimum trauma.

The late symptoms that is to say those occurring when the dogs have recovered from the first operative effects, are more interesting. Caselli²² observed psychic depression, in that the dogs were apathetic, quiet, patient, their intelligence dull and their gait slow. Crowe, Cushing and Homans⁷ observed adiposity and genital atrophy and often psychical depression with inactivity and somnolence, although certain of their dogs played ceaselessly and many were irritable. Aschner² mentioned slight depression in the adult with a decrease though never a complete suppression of the sexual impulse, puppies were quiet, moved little and had sluggish tempers. Ascoli and Legnani² mentioned the psychical and physical weakness, Koster and Geesink⁴⁶ and Reichert²² described loss of vivacity. Since 1912 we have found that some animals are apathetic and sleep much of the time, being patient and little responsive to stimuli (either pleasant or unpleasant) but others retain their vivacity and like to play. There are many intermediate degrees between these two extremes.

In general the hypophysectomized animals are docile, tame and quiet, and easily trained to remain immobile. The intense degree of depression may be observed also in certain dogs with tubular lesions, while others of these may become irritable, savage and wild, or on the contrary very timid.¹⁰⁰

Although the tameness and docility are frequent and significant in hypophysectomized animals, one cannot speak of real asthenia or cachexia as occurring in all of the animals. Nevertheless, from time to time even when in apparently good condition, they may spontaneously or as a result of some infection, trauma or fasting become anorectic, apathetic and progressively cachectic, dying in a marasmic condition with or without hypoglycemia. In other similar cases death may suddenly occur in hypoglycemic or repeated epileptoid convulsions.

†Houssey, Bernardo A.—Professor of Physiology, Faculty of Medical Sciences, University of Buenos Aires, 1912. No record and address of author see "This Week's Issue," page 946, issue of May 7.

¹Maloney⁷ found a marked hypoglycemia which he considered the cause of death; sugar produced an improvement in the condition of the animal.

The conditioned reflexes were studied by Kriaschew⁶⁸ in two dogs. He found that they behaved in an infantile fashion and showed a general diminution of excitability and a diminished electrical excitability of the skin. Conditioned reflexes were produced by different stimuli (cutaneous, auditory and visual), but there were certain peculiarities, (1) irradiation was diminished, e.g., only the stimulated paw responded instead of the reaction becoming generalized, (2) the response ended directly the stimulus was removed, which is contrary to what occurs in normal animals, (3) there was a rapid disappearance of the conditioned reflex. Cortical co-ordination was weak and the sexual reflexes, cries, etc., were absent. The higher nervous activities seemed to become fragmentary with almost complete independence of the cortical centres and their reflex function. A histological study was made five and a half years after the operation (removal of the pituitary and lesion of the tuberal region) revealing pathologic degenerative changes in the cortex and hypothalamus.

Horsley,⁴⁰ in two dogs five to six months after hypophysectomy, observed that there was hyperexcitability of the motor cortex to faradic stimulation, which produced a severe tetanus followed by protracted and severe epilepsy (the most prolonged seen in dogs), with rapid clonic spasms (24 per second). This epilepsy ended "by the occurrence of a tremendous spasm, instead of a gradual dying out of the clonic spasm."

Pituitary insufficiency in animals produces an increased sensitivity to anesthetics, to blood sugar lowering agents (insulin, phlorhizin, etc.) and to blood pressure lowering agents (histamin, bleeding, etc.). Hypophysectomized dogs are extremely sensitive to the toxic action of chloralose. Our mortality for the first week after operation dropped from 75 per cent to 15 per cent when, in 1932, we substituted ether for chloralose anesthesia. (On the other hand animals treated with thyroid or thyrotropic hormone require a larger dose of chloralose than normally.) Two out of ten hypophysectomized dogs showed grave symptoms with only 30 Mgm of morphine hydrochloride per Kgm body weight subcutaneously, and one died (di Benedetto, unpublished).

Rats—Hypophysectomized rats are weak, unsteady, and less active, they lose weight and become cachectic. They grow prematurely senile according to Smith¹⁰⁷⁻¹⁰⁸. Koyama⁶⁷ found asthenia lessened muscular turgidity and later cachexia. The loss of activity has been recorded graphically by Richter and Wislocki.^{96*} Implantation of the pituitary gland corrects

all the symptoms.¹⁰⁷⁻¹⁰⁸ Alkaline extract of bovine anterior pituitary lobe immediately tends to restore the strength, muscular tone and turgidity of the tissues in all cases, so that within ten days of its administration the characteristic myasthenia of hypophysectomized animals disappears.³⁷⁻³⁸ The gonadotropic extract, however, does not alter these symptoms.³⁸ Asthenia is not caused by ablation of the posterior lobe¹⁰⁹ or by partial hypophysectomy.

Other species—Hypophysectomized cats, some time after the operation, feed well but are apathetic and less playful than are normal cats.⁷⁷ Rabbits may appear cachectic within a few days⁹⁸⁻⁹⁹ or improve and appear normal for some time, but later again become indolent¹¹⁰ or even cachectic.

The hypophysectomized ferret cannot be distinguished from the normal except for being somewhat lethargic.⁴⁸ Hypophysectomized chickens usually die in forty-eight hours, sometimes in convulsions, those which survive are not quarrelsome though they will still fight.⁴⁷

Toads A neuromuscular syndrome appears in hypophysectomized amphibians some weeks after operation and gradually becomes worse terminating in death.* It is necessary to differentiate this syndrome from certain initial or early symptoms which may occur.

The initial symptoms are rare and are due to lesions of the nervous system at operation, the animals become enormously distended owing to urine in the paralyzed bladder, they become parietic, with the legs abducted, sometimes they have opisthotonos with infrequent movements at other times there are tonic and tonoclonic convulsions. Most animals with these symptoms die in a few days, but a small number recover.

On the other hand hypophysectomized toads (or toads from which the principal lobe has been removed) always become asthenic or adynamic at a later stage. The asthenia makes its appearance in from ten to fifteen days after total hypophysectomy. When only the principal lobe is removed it occurs a little later, although more than half of the animals have asthenia by the end of the third postoperative week. Death occurs three to thirty days after the appearance of the asthenia, most of the toads dying between four and seven weeks after operation†. This is rarely observed in toads with lesions of the infundibulotuberal region (10-15 per cent in two of our groups). The asthenia of

*This has been observed in *Leptodactylus ocellatus* to 11 in *Bufo arenarum* Hensell 23 32 and in *Bufo d'Orbigny*, *Ceratophrys ornata* and *Hyla* sp 62 63.

†In our experience exceptional cases developed no asthenia and survived for three or even five and a half months. Anatomical examination of these disclosed that though the principal lobe had been removed the neuro intermediate lobe was conserved and showed certain peculiarities. In a few places in the *pars intermedia* there were groups of two to six acidophilic and basophilic cells. It is possible that in these animals the neuro intermediate lobe probably the *pars intermedia* took over the metabolic functions of the absent glandular lobe.

*Tuberal lesions (with section of the pituitary stalk) produce a decrease in spontaneous movements alternating with cycles of activity lasting nine to eighteen days.⁹⁵

the latter preparations was in consequence of secondary destructive lesions of the principal lobe of the pituitary.^{64, 70}

After asthenia has developed certain minor remissions and relapses are to be noted but the general course is downwards terminating in death. The first symptom to appear is an al-

since reactions with rapid, forceful movements to other stimuli are still possible.

Later in the course of the asthenia the resting posture and the gait alter. When at rest the head is held lower, the legs more abducted and the muscles more flaccid than is the case in normal animals. All movements are slow and

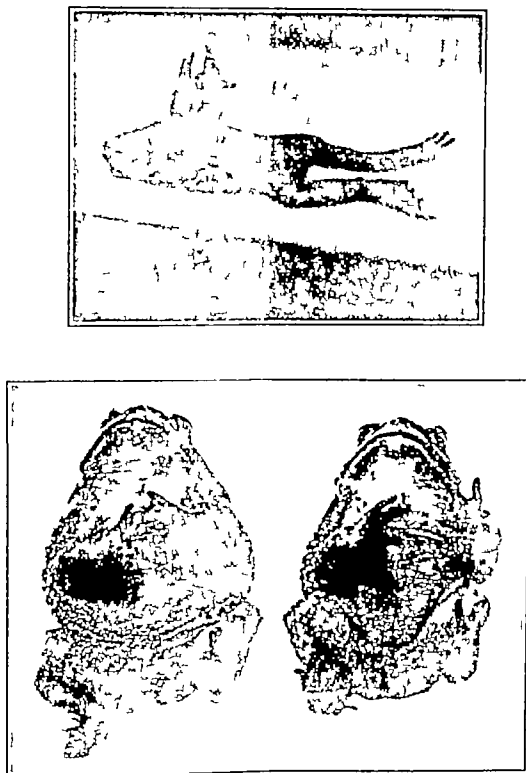


FIG. 1.

Asthenia hypophysopriva in the toad showing typical postures and the loss of the righting reflex.

teration in the postural reflex whereby the normal position is regained when the toad is placed on its back. At first the animal is able to turn over in a few seconds but as the asthenia progresses it remains longer and longer on its back with the four legs flexed and contracted on the body or, more rarely, extended. (Fig. 1) Grotesque, catatonic movements may be observed. After some minutes the animal succeeds with some difficulty in righting itself. The failure of this postural reflex is not due to paralysis,

progression is effected by crawling instead of by the normal jumping. The croaking reflex, however, persists. As the asthenia and adynamia progress the lack of movement becomes so complete that only the heart beats give signs of life.

Convulsions may be observed during any stage of the asthenia. They resemble those of strychnine and even more closely, those due to insulin. The hind legs kick together or separately, the fore legs cross each other, there are tonic

spasms separated by clonic ones or by periods of paralysis. These convulsions are usually observed in 3 to 10 per cent of the preparations, but in one group they reached 50 per cent. Feeding (with ox or frogs' meat or frogs' liver or worms) aggravates the convulsions and causes them to become more frequent.

The asthenic symptoms may be prevented by implantation or injection of the principal lobe of the toad, or of the neuro-intermediate lobe. The latter is less active as are also both mammalian anterior and posterior lobes.^{52 53 56 60 114} If the asthenia and convulsions are not very severe these injections or implantations will cure them. They will also prevent or counteract the toxic effect of insulin.⁶⁰ On the other hand the asthenia is not checked or cured by glucose, adrenin or cortin, indeed, the adrenals of asthenic toads fifty days after operation have the same amount of adrenin as have the controls.^{52 53 58}

The asthenia is due to metabolic alterations which affect the central nervous functions first and later, to a lesser degree, the muscular. That this is so is proved by the following facts: (1) The first sign is an alteration of the postural reflex which occurs even while movement is forceful, sensitiveness is preserved and the gait is normal. (2) The convulsions occur together with the asthenia, their origin is central because they cease in either limb when the mo-

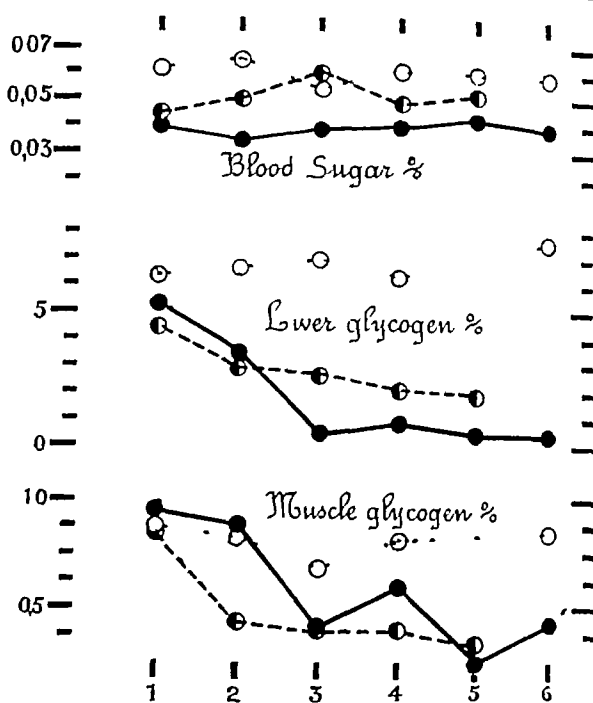


FIG 2

The average values of blood sugar, liver glycogen and muscle glycogen determinations in several groups of toads.

Dotted lines—Normal toads

Solid lines—Toads in which the glandular lobe of the hypophysis had been removed

Broken lines—Similar preparations treated with daily implantation of one glandular lobe

Abscissae—Time in weeks

Ordinates—Mgm glucose per 100 cc blood and Mgm glycogen per 100 Gm of tissue

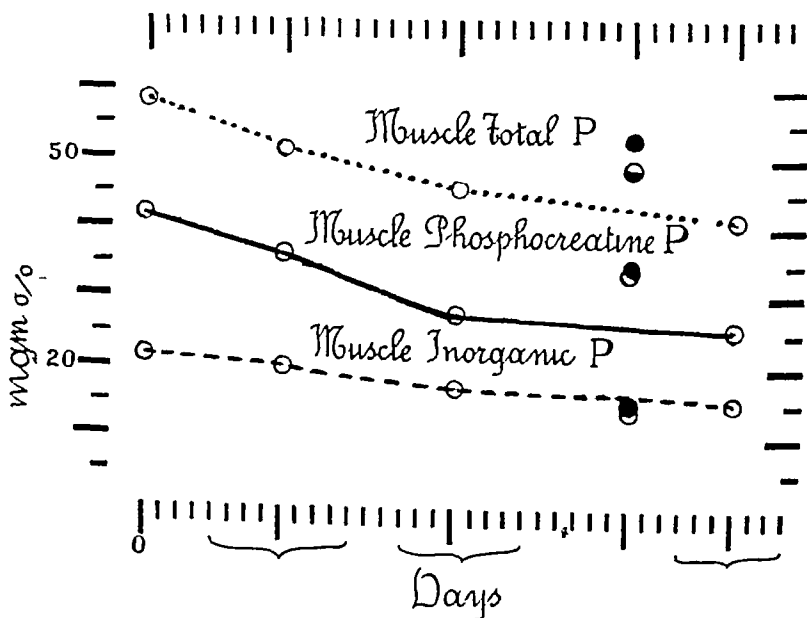


FIG 3

The average values of determinations of the total phosphorus, phosphocreatine phosphorus and inorganic phosphorus in the gastrocnemius muscles of several groups of toads.

O Hypophysectomized toads

● Hypophysectomized toads treated with daily implantations of the principal lobes of toads for three to nine days

● Hypophysectomized toads treated with daily injections of alkaline extract of bovine anterior lobe (0.5 cc containing 0.1 Gm) for eight to sixteen days

Abscissae—Time in days

Ordinates—Mgm P per 100 Gm muscle

for nerves are cut. (3) There is a more rapid fatigue in the reflexes following acid (Houssey) or electrical stimulation,²⁵ and the reflexes disappear altogether in severe asthenia.²⁵ (4) Centripetal stimulation of the sciatic nerve causes, besides the rapid fatigue of the crossed reflex, rise and instability of the rheobase. (5) There is a quite exact correlation between the appearance of these changes and the asthenia. (6) The muscular and nervous chronaxie is normal except for an increase in both rheobase and chronaxie of the muscles when the asthenia becomes extreme.⁵ (7) When the asthenia is well developed the ergographic curve* of the gastrocnemius, on stimulation of the sciatic gives 74 to 80 per cent of work in the hypophysectomized and 86 to 95 per cent in those with le-

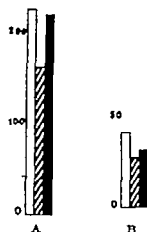
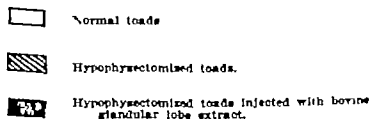


FIG. 4

The average values of determinations of A.H.R. and muscle glutathione in several groups of toads recorded as Mean per 100 Gm. tissue.



sions of the tuber, as compared with that given by craniotomized animals.^{23 26 24 27}

The general and muscular metabolic changes have been studied, but those of the central nervous system have not. The alterations occurring in hypophysectomized toads, or in those with out the anterior lobe can be prevented or corrected (partly or entirely) by mammalian anterior pituitary lobe or by the principal lobe of the toad, the posterior mammalian lobe and the neuro-intermediate toad lobe have a less effective action.† The metabolic changes which have been found are as follows: (1) The blood sugar is slightly lowered.^{28 29} (Fig. 2) (2) The glycogen decreases earliest, and to the greatest extent, in the liver.^{28 29} later in the heart²⁶ and finally, but to a lesser degree in the muscles.^{28 29} (Fig. 2) (3) The phosphocreatine (and also the total phosphorus) of the muscles is lowered, particularly during the second

Load 100 Gm. one maximal (faradic) stimulation per second for ten minutes.

†There are not only less active but also more toxic

week, the inorganic phosphorus is much less affected.³⁰ (Fig. 3) (4) The muscular and hepatic glutathione diminishes.²⁹ (Fig. 4) (5) The resting muscular lactic acid is normal⁹ but it increases less during tetanus than in the controls.³⁰ (Fig. 5)

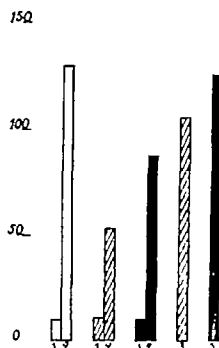
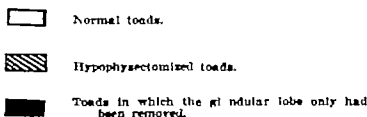


FIG. 5 The average values of 4 determinations of lactic acid in the muscles of several groups of toads under different experimental conditions recorded as Mean per 100 Gm. of muscle.



1. Resting muscle
2. Contracting muscle
3. Contracting muscle in hypophysectomized preparations which had received implantations of two or three toad glandular lobes

Neuromotor and psychic changes in man

Pituitary cachexia or Simmonds' disease is seen in patients with serious destructive lesions of the pituitary.* The symptomatology has been reviewed by Graubner,³¹ Calder,³² and Silver,³³ who have gathered together and analyzed several dozen published cases. The principal symptoms noted and somewhat variously described by a number of authors include the following: a progressive wasting which may lead to extreme emaciation, loss of the hair and changes in the skin, marked muscular weakness, asthenia and even intense adynamia, mental weakness, apathy or indifference or mental changes varying from stupidity to intense excitement and sometimes alterations of personality, states of collapse, giddiness and fainting fits, an appearance of premature senility, loss of appetite, digestive upsets, sexual changes particularly amenorrhea, frigidity and impotence, lowered B.M.R. and lessening of the specific dynamic action of foods, lowering of body temperature and blood pressure, hypersensitivity to insulin,

*There is a smaller number with cerebral or tuber lesions (see Pend. Revi. 1933, 10).

sometimes convulsions and sleepiness, and even coma and death^{1 4 9 13 15 17 18 19, 20 23 29 35 39 43 54 66 69 71 72 75 82 88 94 102 104 105 111 113 115 118 121 etc}

In many cases of the polyglandular endocrine insufficiency of Claude and Gougeot the pituitary hypofunction no doubt plays the leading part

In patients in whom the pituitary has been removed the following symptoms have been observed: indolence, extreme psychic changes, sleepiness, immobility, lowered temperature, etc.¹⁵ Various cases suffering from pituitary insufficiency and even cases of myasthenia gravis¹⁰⁰ have been improved with whole or anterior pituitary lobe^{1 14 17 18 23 25 26 61 65 76 92 94 112 etc}. Falta³⁹ has noted apathy and mental symptoms in cases of dystrophia adiposogenitalis. In cases of pituitary infantilism there is a persistence of the infantile mentality.

Soon after the discovery of acromegaly, attention was drawn to the frequency with which it was accompanied by mental changes.^{10 16} Brunet found them in ten of the thirty-eight cases described in the thesis written by Souza Leite under the direction of Pierre Marie. Brunet differentiates those symptoms which are typical of the disease (weakening of the intellect and memory, apathy, somnolence, obtuseness) and those due to mental degeneration from hereditary or other causes (misanthropy, hypochondria, melancholia, suicidal mania). Mark,⁶¹ an English doctor, made an interesting study of his own symptoms noting in particular the asthenia, feeling of tiredness, loss of energy, etc. Atkinson⁵ has made a summary of all the literature on the subject.

Cushing²⁸ declared that a large number of the patients with pituitary disease show mental irregularities of one or another nature. From the etiologic point of view there are two types: (1) those in which there is involvement of the temporal or frontal lobes or other areas due to invasion by or pressure from the tumors, (2) those where there is increase, alteration or insufficiency of the secretion. Patients with pituitary overactivity suffer from inability to concentrate, indecision, and psychasthenic states. If the illness originates in childhood there is a low grade of intelligence. In cases of pituitary insufficiency there can be all stages of mental change from light psychoses to extreme mental alteration. Some patients with pituitary disease have epilepsy.

Many investigators attribute a leading rôle to the diencephalon since analogous symptoms occur in cases with lesions of the third ventricle or cerebral peduncles and, above all, in encephalitis lethargica. According to them there are lower and higher psychic centres,^{21 34 74} and centres for the affections, impulses, desires, and

nutritive or vegetative functions.⁷² Cases of tumor of the third ventricle or tumors causing pressure on the diencephalon according to Camauei¹⁹ are characterized by apathy, mental confusion, an indifferent or masklike face, loss of memory, anorexia, sluggish sexual impulses, incoherence and confused states, flight of ideas, etc.

A certain number of cases of pituitary tumor collected by Salmon¹⁰⁰ show sleepiness but the experimental⁴⁶ and clinical data^{20 36 73} indicate that this is due to the concomitant diencephalic lesions. The phantastic theory put forward by Zondek and Bier (1932) concerning the existence of a pituitary hypnotic hormone has no serious chemical basis.

Certain diencephalic lesions can give rise to epileptic convulsions⁸³ which have been observed in human beings,⁸⁰ and lead some investigators to believe there is an epileptogenic centre.¹⁰¹

Pituitary asthenia and the adrenals

Pituitary insufficiency always causes atrophy of the adrenal cortex* (particularly of the internal layers) in the rat and less frequently in the dog. It has been observed in human hypopituitarism but has not been proved to exist in the toad.

Because of this, some investigators think pituitary cachexia is due to the accompanying adrenal insufficiency. Evans, Meyer, Pencharz, and Simpson^{37 38} observed that certain anterior pituitary extracts (but not the gonadotropic one) prevented or corrected the adrenal cortical atrophy and simultaneously the asthenia in hypophysectomized rats, with the result that the muscular force, tone and turgidity were surprisingly improved. These authors failed to obtain equivalent results by the use of cortin, although others have done so, e.g., Atwell⁶ found that the asthenia and lowered temperature were improved and there was a partial recovery of spontaneous activity, without, however, any alteration in the atrophy of the adrenals. Perla⁶⁰ found that there was an increased resistance to the toxic action of histamine, Baird, Cloney and Albright⁸ found disappearance of the extreme sensitiveness to cold, and Kalk⁶³ was able, by using cortin, to improve a case of human pituitary cachexia which had been resistant to anterior pituitary extracts. Cortin also seems to diminish the high postoperative mortality in hypophysectomized chickens⁴⁷ but I have not found any benefit from its use in the asthenia of toads.

Injection of anterior pituitary extract does not prolong the life of adrenalectomized rats,³⁴ dogs or toads (Houssay and Leloir, unpublished).

Grollman and Firor⁴⁴ draw attention to the

*See our paper⁵² (with detailed bibliography) on the functional relations between the pituitary and the adrenals.

similarity between the symptoms of pituitary cachexia and chronic adrenal insufficiency. They were able to improve cases of the latter with anterior pituitary extract but not with adrenal cortical extract* thus giving rise to the supposition that the adrenal insufficiency causes some pituitary alteration leading to hypofunction which is manifested by stoppage of growth, reproductive incapacity and lowered temperature.

Certain cases of pituitary basophilism have shown asthenia, and extreme weakness. Cushing¹⁰ suggests that these symptoms have an adrenal origin.

GENERAL SUMMARY

In the advanced stages of confirmed pituitary insufficiency there is a neuromuscular asthenic syndrome which occurs constantly in tensely and characteristically in the toad, during certain stages in the rat, and in a less marked form and not so constantly in the dog. It is very well developed in human cases of pituitary cachexia.

The syndrome seems to result mainly from functional changes in the central nervous system, the peripheral motor changes playing only a secondary rôle. Evidence for this is given by (1) the experimental analysis carried out in the asthenic toad, (2) the early and marked alteration in the postural and phasic reflexes in these toads, while the motor nerve and muscular excitability is still normal, (3) the coexistence of convulsions of central nervous origin with the asthenia, (4) the association with mental alterations in human cachexia and the changes in behavior of other animals, (5) the lowered blood pressure and hypodynamic vascular reactions. (See our lecture on, Hypophysis and Blood Pressure.)

The functional changes seem to have a metabolic origin since they coincide with general nutritive changes (decrease of blood sugar and glycogen, increase of sensitivity to insulin, decrease of the endogenous nitrogenous catabolism, etc.).

Adrenal insufficiency which occurs frequently in cases of pituitary insufficiency probably increases the asthenia but it is not certain, nor even likely, that the asthenia has an exclusively adrenal origin. Cortin does not correct asthenia hypophysopriva as does the anterior pituitary extract. It is more probable that there is a direct metabolic action of the pituitary hormone. On the other hand the actions of the adrenals and pituitary on the carbohydrate metabolism have a certain similarity (the glyco-genetic action, etc.) and anterior pituitary extract has a diabetogenic activity in adrenalectomized toads.

Pituitary asthenia therefore appears to be due to general nutritive changes which principally affect the function of the central nervous system.

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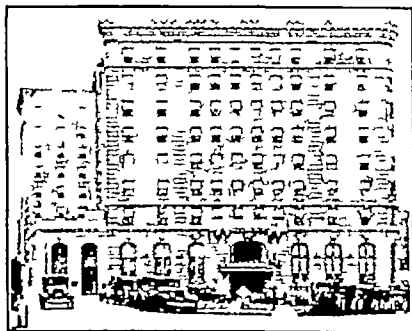
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DR CHARLES S BUTLER, *Treasurer*DR WILLIAM R MORRISON, *Chairman,
Committee of Arrangements*

THE ONE HUNDRED AND FIFTY-FIFTH ANNIVERSARY

Monday, Tuesday and Wednesday, June 8, 9, and 10, Hotel Kimball and
Municipal Auditorium, Springfield, Mass

EXTENSIVE preparations are being made to assure all the members of our State Medical Society and their families, one of the most enjoyable and instructive Annual Meetings ever held in the western part of Massachusetts



HOTEL KIMBALL

The beautiful city of Springfield, its doctors, nurses and hospitals, will welcome every individual member of the medical fraternity to the celebration of the Three Hundredth Anniversary of the founding of the City.

Your State Officers and the Committee of Ar

rangements have received splendid co-operation from the Editors of *The New England Journal of Medicine* and from the doctors of Springfield headed by Dr. Allen G. Rice.

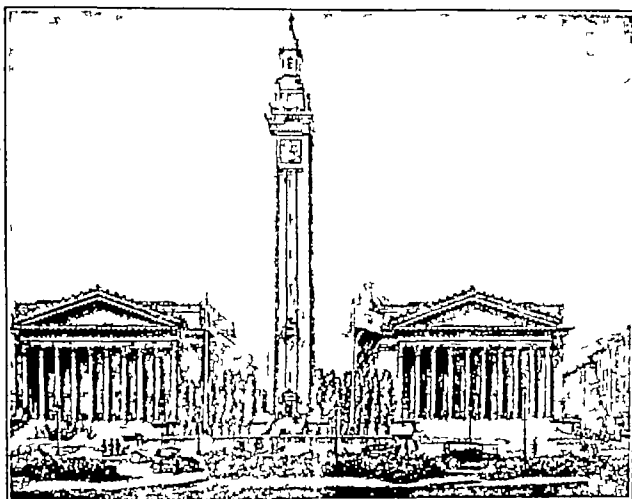
An elaborate program is to be presented at the Section Meetings as well as at the Scientific Exhibits. A larger Commercial Exhibit will be presented than has ever been shown before. Fifty booths in this group will demonstrate the latest medicines, apparatus and aids to modern medical and surgical practice.

The new Springfield Auditorium makes an ideal building to house the Section Meetings as well as the Scientific and Commercial Exhibits.

Headquarters for our convention will be at the Hotel Kimball, Chestnut Street, Springfield and here the Cotting Luncheon, Annual Dinner, course, as well as the Annual Meeting and Dinner will be held.

A good-fellowship room will be maintained at the Hotel Kimball, for the benefit of our members and guests. Refreshments will be served after the Shattuck Lecture.

Let's all get together on June 8, 9, and 10 for a first-rate good time in Springfield.



AUDITORIUM

CITY HALL

The Auditorium will house our Exhibits and Section Meetings

STANDING COMMITTEES

Of Arrangements

W R Morrison Horatio Rogers W S Bur
rage, R P Stetson, A Thorndike Jr

On Publications

R I Lee Homer Gage R B Osgood R M
Smith, F H Lahev

On Membership and Finance

D N Blakely G C Cauer J E Fish H F
Newton, H Q Gallupe

On Ethics and Discipline

David Cheever W D Ruston S F McKeen
A C Smith R L DeNormandie

On Permanent Home

R B Greenough C G Moxter J M Birnie,
C S Butler, E C Miller

On Medical Education and Medical Diplomas

Reginald Fitz C H Lawrence C A Spar
row E S Calderwood, A S Begg

On State and National Legislation

C E Mongan F E Jones, A W Marsh
A S Begg, D L Leonberger

On Public Health

Dwight O Hara G N Hoeffel G D Hender
son S C Dalrymple H L Lombard

On Malpractice Defense

F G Balch, E D Gardner, F B Sweet,
R P Watkins, A W Allen

LOCAL SPRINGFIELD COMMITTEES

General Local Committee of Arrangements

Allen G Rice Chairman H L Smith T S
Bacon

Publicity Committee

R S Mace

Ladies' Committee

W A R Chapin

Historical Committee

G L Schadt

Scientific Committee

Frederick D Jones.

Hobby Exhibit Committee

E P Bagg, Jr

Committee on Clinics

F K Dutton Springfield Hospital, George
B Corcoran, Mercv Hospital Frederic Hagler,
Wesson Hospital

Sports Committee

Richard A Rochford

Transportation Committee

Alfred M Glickman

AIDS TO THE COMMITTEE OF ARRANGEMENTS

Barnstable

Edward F Gleason, Frank E Draper, Harold F Rowley

Berkshire

John C Roe, Ira M Dixon, Norman B McWilliams

Bristol North

W O Hewitt, A R Crandell, W H Allen

Bristol South

Curtis C Tupp, Emery C Kellogg, John C Corrigan

Essex North

Arnold P George, Howard W Rogers, Carl H Eidam

Essex South

Scott W Mooring, Albert E Parkhurst, Nathaniel P Breed

Franklin

F A Millett, Chauncey V Perry

Hampden

This District is furnishing the Aids for the Section Meetings

Hampshire

Lawrence N Durgin, Thomas F Corriden, Stephen Brown

Middlesex East

Ira W Richardson, E M Halligan, F Morton Lee

Middlesex North

John H Lambert, Frederick P Murphy, Brendan D Leahey

Middlesex South

Harold Q Gallupe, Norman M Hunter, Dudley Merrill

Norfolk

J S H Leard, Herbert L Johnson, H M Landesman

Norfolk South

J E Knowlton, F N Manley, H S Reid

Plymouth

S Alexander McLean, Loring B Packard, Samuel W Goddard

Suffolk

J P Monks, G Kenneth Coonse, Elizabeth DeBlois

Worcester

Joel M Melick, John A Maroney, James T Brosnan

Worcester North

C B Gay, E A Adams, L M DeCicco

SECTION MEETINGS

Horatio Rogers, of the Committee of Arrangements, has been appointed to have general supervision of all Section Meetings

The following Springfield physicians have been appointed to aid the various Section Chairmen in conducting the Section Meetings at the Springfield Auditorium

Dermatology and Syphilology

J B Tober

F D Davis

Medicine

A S Johnson

M Millman

Obstetrics and Gynecology

A F G Edgelow

A P Barney

Pediatrics

C Jurist

M F Gaynor

Radiology and Physiotherapy

A J Horrigan

R T Powers

Surgery

M J Bachulus

A A Palermo

Tuberculosis

A Peters

W F Hoyt

GENERAL INFORMATION

A Bureau of Information will be maintained at the Registration Desk on the stage of the *Municipal Auditorium*. There will be a private telephone at the Bureau for the reception of calls for attending physicians. Physicians expecting to receive calls should leave proper information with the attendant.

Registration—Fellows are requested to register at the Auditorium as soon as they arrive and to get their tickets for the Annual Dinner and for the Wednesday luncheon. The charge for the Annual Dinner will be \$1.00 to those who are not in arrears and the Wednesday luncheon will be without charge to those whose dues have been paid.

The Scientific Exhibits are all located in the Main Hall of the Auditorium. See page 1042 for list of Scientific Exhibits.

The Commercial Exhibits are all located in the

Main Hall of the Auditorium See page 1043 for list of Commercial Exhibitors

A special *Historical Medical Exhibit* has been prepared by the Local Committee of Arrangements, and will be found in Booth 71 in the Main Hall of the Auditorium.

The *Hobby Show* will be in Room C of the Auditorium

Section Meetings will be held in the Mahog any Room and the Lower Section Room of the Auditorium.

At the *Hotel Kimball* there will be held

- 1 The Supervising Censors' Meeting
- 2 The Council Meeting
- 3 The Annual Meeting of the Society
- 4 The Annual Dinner
- 5 The Cotting Luncheon
- 6 The Wednesday Luncheon
- 7 The Shattuck Lecture
- 8 The Annual Discourse

A *Good Fellowship Room* will be maintained by the Society on the second floor of the Hotel Kimball. The members are cordially invited to make use of this room.

Light refreshments will be served here after the Shattuck Lecture.

THE ANNUAL DINNER

Fellows wishing to sit together at the dinner please send their names to Dr W R Morrison, Chairman of the Committee of Arrangements, 8 Fenway, Boston, at the earliest possible moment, and proper reservations will be made

Tickets for the dinner should be obtained at the Registration Desk in the Auditorium

HOBBY EXHIBIT

HOBBYITES Opportunity hereby knocks at your door Send tangible evidence of your mechanism of escape to the Annual Hobby Show at the June Meeting of the Massachusetts Medical Society in Springfield It may prove helpful if not ornamental

Notice of your intentions should be sent to E P Bagg Jr, 207 Elm Street Holyoke Mass Exhibits should be sent to

Mr George M Blair Custodian Municipal Auditorium, Springfield, Mass Plainly marked for the Massachusetts Medical Society, not later than June 6

The Society will defray the cost of exhibition, including insurance, provided values are stated, but not the cost of transportation

TRANSPORTATION

Daily Bus will shuttle between Kimball Hotel and Auditorium beginning at eight thirty in the morning

Busses will leave Kimball Hotel at eight thirty for Wesson Memorial Mercy, Shrine, and Springfield Hospitals returning from these hospitals at noon

Monday Bus will leave Kimball Hotel at 3 45 P M for the Springfield Country Club for those who wish to play golf, returning in time for the evening meeting

Maps Small maps will be at the Registration Desk showing the locations of hotels, Auditorium, and hospitals.

Parking Spaces Reserved near Kimball Hotel and Auditorium

Get a wind shield sticker at the registration desk.

HISTORICAL EXHIBIT

Grouped about six illustrated panels, will be placed old instruments, cases saddle-bags, etc having to do with the progress and development of the practice of medicine Will those having any such in their possession kindly write to Dr George L Schadt, 44 Chestnut Street, Springfield Massachusetts All objects lent for this exhibition will be insured, guarded by a watchman, and exhibited under glass

This exhibit will be found in Booth 71.

GOLF

A Kickers Golf Tournament has been arranged by the Local Committee under the chairmanship of R A Rockford This tournament will be played over the beautiful course of the Springfield Country Club at four o'clock on Monday afternoon, June 8

It is hoped that all golfers regardless of their ability, will enter this tournament The more players, the more fun

A bus will leave the Hotel Kimball at 3 45 P M for the Country Club, for the convenience of those who wish to play They will return in time for the evening meeting at the hotel

Players will have to pay their own greens fees, and may at their own expense have dinner at the Club

The prizes, which have been donated by the Springfield Druggists' Association, will be awarded at this dinner

Gordon M Morrison of Boston has also collected some additional prizes that will be presented at the same time

THE COMMITTEE ON POSTGRADUATE INSTRUCTION

This committee plans to have a luncheon on Monday June 8 at 12 30 o'clock in Springfield during the meetings of the Massachusetts Medical Society The details of the luncheon will be announced

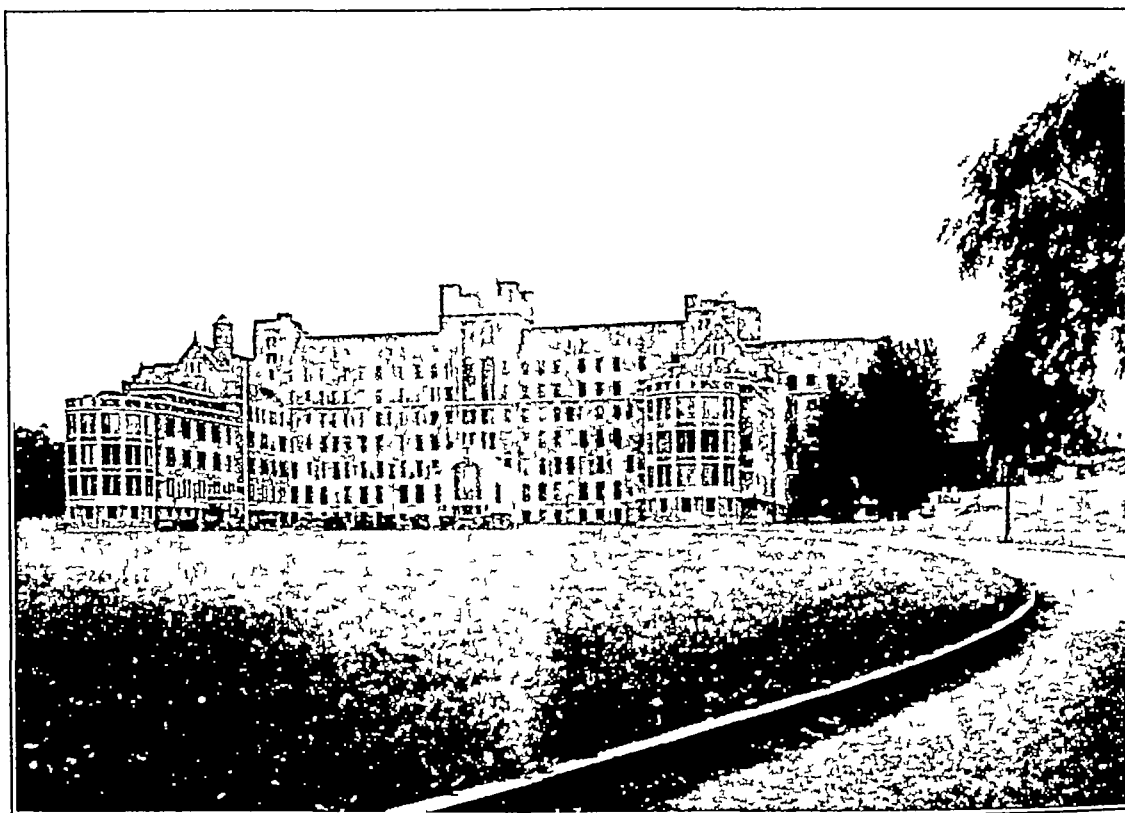
HOSPITALS OF SPRINGFIELD

THE SPRINGFIELD HOSPITAL, 759 Chestnut Street

Originally started as the City Hospital in 1869 on the Boston Road, this institution was incorporated as The Springfield Hospital in 1883 and established on its present site in buildings dedicated and opened for the reception of patients on May 4 1889. The original capacity of approximately fifty beds was increased according to the demands until 1932 when the new building accommodating 323 beds was opened.

In this modern building services are provided in medicine, surgery, cancer dermatology diabetes, gynecology, psychology, neurology, ophthalmology, orthopedic surgery, otolaryngology, pediatrics, bronchoscopy, syphilis and urology

returned from the Cuban war. In the course of years it was gradually expanded until it can now adequately accommodate 330 patients and fifty babies. The hospital is conducted by the Sisters of Providence, Roman Catholic. Services are provided in medicine, surgery, cancer, dermatology, orthopedics, otolaryngology, pediatrics, ophthalmology, diabetes, gynecology, neurology, obstetrics and urology. Special departments: out-patient, school of nursing (est 1900), dietetic, x-ray, clinical and pathological laboratories, physical therapy, electrocardiograph, cancer clinic and organized library. Patients are admitted without regard to creed, race, color or financial resources. St. Mary's Maternity Hospital (fifty beds) is under the same management as The Mercy Hospital. Approved for standardization



THE SPRINGFIELD HOSPITAL

Special departments: out-patient, school of nursing (est 1892), social service, dietetic, physiotherapy, basal metabolism, electrocardiograph, cancer clinic, organized library, x-ray, clinical and pathological laboratories. The services of the hospital are given without regard to race, creed, color or pocketbook. This is a private, charitable organization controlled by a board of trustees. The hospital is approved for standardization by the American College of Surgeons, approved for general internship by the American Medical Association and is a member of the American Hospital Association.

Endowment \$1,476,535.04—value of grounds, buildings and equipment \$2,802,423.60. Patients admitted during 1935—5462; average daily number of patients 215; Internes—9.

THE MERCY HOSPITAL, 233 Carew Street

This hospital was opened in 1896 with a capacity of thirty beds and just in time to be of great benefit in caring for the American soldiers who

returned from the Cuban war. In the course of years it was gradually expanded until it can now adequately accommodate 330 patients and fifty babies. The hospital is conducted by the Sisters of Providence, Roman Catholic. Services are provided in medicine, surgery, cancer, dermatology, orthopedics, otolaryngology, pediatrics, ophthalmology, diabetes, gynecology, neurology, obstetrics and urology. Special departments: out-patient, school of nursing (est 1900), dietetic, x-ray, clinical and pathological laboratories, physical therapy, electrocardiograph, cancer clinic and organized library. Patients are admitted without regard to creed, race, color or financial resources. St. Mary's Maternity Hospital (fifty beds) is under the same management as The Mercy Hospital. Approved for standardization

Value of grounds, buildings and equipment \$917,000.00. Patients admitted during 1935—5028; average daily number of patients—200; Internes—4.

HEALTH DEPARTMENT HOSPITAL, 1414 State Street

The first hospital was opened in 1899 with a bed capacity of twenty-four. Accommodations were gradually increased until the new Isolation Hospital was opened in 1931 with a capacity of ninety-six beds. Since 1934 the bed capacity in this new building has been equally divided between tubercular patients and those with other communicable diseases. The City of Springfield now has a municipal hospital for communicable diseases which is second to none and the city government should be congratulated on the far-sightedness shown in providing this accommodation.

tion Approved for standardization by the American College of Surgeons
Patients admitted in 1934—781 average daily number of patients—48 Internes— (one at a time)

CITY HOSPITAL 1400 State Street

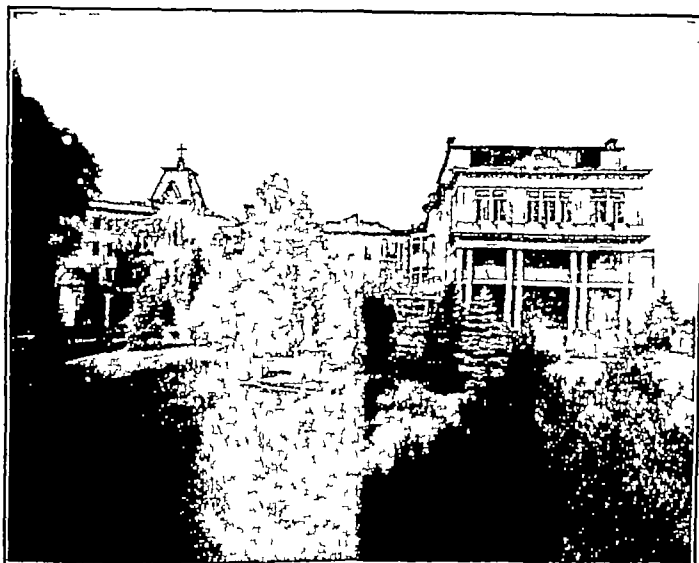
A municipal hospital opened by the City of Springfield in 1906 to provide services in chronic and incurable diseases. It is conducted primarily for the indigent of the city at public expense. In 1933 an arrangement was made where by the bedridden patients were cared for in a

Admissions during 1935 were 2748—average daily number of patients 78 Internes—3

Approved for standardization by the American College of Surgeons approved for internship by the American Medical Association in 1935 and is a member of the American Hospital Association

WESSON MATERNITY HOSPITAL 120 High Street

A specialized hospital opened in 1903 as a result of the generosity of Daniel Baird Wesson this hospital provides services for maternity cases only Special departments outpatient and infant



THE MERCY HOSPITAL

chronic ward at The Springfield Hospital. In 1934 it had a capacity of 108 beds

Five hundred and nineteen patients were admitted in 1935 and it had a daily average of sixty eight patients Internes—none

WESSON MEMORIAL HOSPITAL, 140 High Street

In 1900 the Hampden Homeopathic Hospital was presented by Daniel Baird Wesson to his attending physician Dr. John H. Carmichael. The bed capacity of this hospital was twenty.

In 1906 again through the generosity of Daniel Baird Wesson the present building was erected as a memorial to his wife Cynthia Maria Hawes, and the name changed to the Wesson Memorial Hospital.

This is a general nonsectarian hospital of 120 beds and provides services in medicine surgery cancer dermatology diabetes gynecology neurology ophthalmology orthopedics otolaryngology pediatrics and urology. Special departments outpatient dietetic x-ray pathological laboratory physiotherapy and bronchoscopy.

ing school of nursing (est. 1900) and postgraduate school of nursing

Bed capacity 62 bassinets 66. Patients admitted in 1935—1491 Average daily number of patients—49 Internes—2

Approved for standardization by American College of Surgeons and is a member of the American Hospital Association

SHRINERS HOSPITAL FOR CRIPPLED CHILDREN 518 Carew Street

A specialized hospital. Services are limited to the rehabilitation of crippled children whose families are unable to pay. The expense of running this hospital is provided by the Shriners.

Special departments outpatient and x-ray and pathological laboratories. Was opened on February 21, 1925 with a capacity of fifty beds. Patients admitted during the year 1935—400. Approved for standardization by the American College of Surgeons and is a member of the American Hospital Association.

PROGRAM

MONDAY MORNING—JUNE 8

9 15 o'clock

Mahogany Room, Municipal Auditorium,
Springfield

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Officers of the Section

Dr Harvey P Towle, Boston, *Chairman*
Dr Rudolph Jacoby, Boston, *Secretary*

- 1 *Bismuth Ethyl Camphorate Clinical Observations on a New Oil Soluble Bismuth in the Treatment of Syphilis*
Dr Francis M Thurmon, Boston

- 2 *"Mycoses" Fungus Diseases of the Skin and Internal Organs*
Dr J H Swaitz, Boston

- 3 *"Nevi" A Plea for Early Treatment Illustrated by lantern slides*
Dr Joseph Muller, Worcester

- 4 *Industrial Dermatoses Illustrated by lantern slides*
Dr Lotus Schwartz, New York (By invitation)

- 5 *"The Doctor and Early Syphilis"*
Dr Edward C Sullivan, Springfield

NB There will be a round-table discussion at luncheon at the Hotel Kimball at 12 45 if enough are interested Will those who plan to attend this luncheon please notify the Secretary, Dr Rudolph Jacoby, 270 Commonwealth Avenue, Boston, as soon as possible

MONDAY AFTERNOON—JUNE 8

2 00 o'clock

Lower Section Room, Municipal Auditorium,
Springfield

SECTION OF OBSTETRICS AND GYNECOLOGY

Officers of the Section

Dr Charles J Kickham, Brookline *Chairman*
Dr Raymond S Titus, Boston, *Secretary*

- 1 *Ante-Partum Hemorrhage*
Dr Edward A Schumann, Philadelphia
Professor of Obstetrics, University of Pennsylvania School of Medicine Surgeon in Chief, Kensington Hospital for Women Obstetrician and Gynecologist, Philadelphia General Hospital
Discussion Dr Louis E Planeuf, Boston, and Dr Foster S Kellogg, Boston
- 2 *Menorrhagia and Metrorrhagia of Benign Origin in Women Under Forty-Five*

Years, with Plea for More Conservative Treatment

Dr Frederick L Good, Boston Professor of Obstetrics, Tufts College Medical School Surgeon-in-Chief, Gynecological Service, Boston City Hospital Gynecologist, St Elizabeth's Hospital
Discussion Dr Arthur F G Edgelow, Springfield, and Dr Edward L Kicham, Boston

3 *Hospital Puerperal Sepsis*

Dr George M Shipton, Pittsfield Obstetrician, House of Mercy Hospital, Pittsfield Consulting Obstetrician, Fairview Hospital, Great Barrington
Discussion Dr John C Fisher, Boston and Dr Joseph W O'Connor, Worcester

MONDAY AFTERNOON—JUNE 8

2 30 o'clock

Mahogany Room, Municipal Auditorium,
Springfield

SECTION OF RADIOLOGY AND PHYSIOTHERAPY

Officers of the Section

Dr Philip H Cook, Worcester, *Chairman*
Dr William G Curtis, Wollaston *Secretary*

- 1 *The Limitations of the Roentgen Method of Diagnosis*
Dr Harvey W Van Allen Springfield Radiologist, Springfield Hospital
Question period
- 2 *Birthmarks and Their Treatment*
Dr J Harper Blaisdell, Boston Dermatological Staff, Massachusetts General Hospital
Discussion by Dr E Lawrence Oliver, Boston
- 3 *The Value of Physical Therapy in Certain Physical Conditions*
Dr Claude Payzant, Boston Director of Physical Therapy at Quiney City Hospital
Question period

MONDAY EVENING—JUNE 8

8 15 o'clock

Ballroom, Hotel Kimball, Springfield

THE SHATTUCK LECTURE

By Dr George Blumer, New Haven, David P Smith Clinical Professor of Medicine, Yale University Medical School
Subject *Trichinosis, with Special Reference*

to Changed Conceptions of the Pathology and Their Bearing on the Symptomatology

Light refreshments after the lecture in the Good Fellowship Room

TUESDAY MORNING—JUNE 9

9 00 o'clock

Lower Section Room
Municipal Auditorium, Springfield

SECTION OF SURGERY

Officers of the Section

Dr E Parker Hayden, Boston *Chairman*
Dr Frederick S Hopkins, Springfield *Secretary*

1 *The Necessity for Use of Splints at Certain Stages in the Treatment of Infections of the Hand, with a Demonstration of Some Newer Types*

Dr William E Browne, Surgeon in Chief
Second Surgical Service, Carney Hospital, Boston

' Discussion Dr Torr W Harnier Boston

2 *Conditions in and About the Hip Joint*

Dr R. Nelson Hatt, Chief Surgeon
Shriners' Hospital for Crippled Children, Springfield

Discussion Dr George W Van Corder Boston

3 *Some Considerations of the Problems of Wound Healing*

Dr Mont R Reid, Professor of Surgery
University of Cincinnati College of Medicine Cincinnati

Discussion Dr Fred B Sweet Springfield
Dr Arthur W Allen Boston

4 *The "Cord Bladder," Definition Treatment and Prognosis When Associated with Spinal Cord Injury*

Dr Donald Munro, Visiting Surgeon for
Neurosurgery, The Boston City Hospital, Boston

Discussion Dr James A Seaman Springfield

5 *Roentgen Ray Findings in Diaphragmatic Hernia*

Dr Joseph H Marks, Roentgenologist
The Truesdale Hospital, Fall River
Discussion Dr Philemon F Truesdale Fall River

TUESDAY MORNING—JUNE 9

9 00 o'clock

MEDICAL CLINICS

Springfield Hospital

- 1—Dr L D Chapin, Pneumonia
- 2—Dr A S Johnson, Fatigue Syndrome Associated with Low Blood Chloride

3—Dr O J Menard, Masked Hyperthyroidism

4—Dr B Rabinovitz, Diabetes in Children

5—Dr W G Watt, Skin Diseases

6—Dr W W Williams, Spermatology

7—Dr J A Whitner, Presentation of Neurological Cases

Wesson Memorial Hospital

Lecture Room in Nurses' Home

1—W A Daniels, DDS, Minor Oral Surgery

2—Dr F P Brown, Pneumococcus Antigen in the Treatment of Selected Pneumonia Cases

3—Dr Archer Hurd, Nasal Ionization

4—Dr H F Budington, Acute Myelogenous Leukemia

5—Dr H C Goodwin, Multiple Sclerosis

6—Dr N A Pokorny

(1) Atypical Chondrodysplasia

(2) An Unusual Complication of Measles

7—Dr C J Spaid, Aleukemic Leukemia

8—Dr H L Jackson, Unusual X Ray Findings

9—Dr H W Van Allen, Radium for Excessive Uterine Bleeding

10—Dr L J Smith, Placental Extract for Measles Modification

Mercy Hospital

1—Dr T F Rilev, Recent Advances in Contagious Diseases

2—Dr F M H Ziter, Non Tuberculous Infections of Lung

3—Dr M F Gaynor, Rheumatic Fever

4—Dr P M Moriarty, A Case of Diabetes Complicated by Pneumonia and Lung Abscess

5—Dr M Millman, Peripheral Vascular Disease

6—Dr J E Dwyer, Renal Function Tests

7—Dr J Z. Naurison, Coronary Thrombosis

TUESDAY MORNING—JUNE 9

10 00 o'clock

Library, Hotel Kimball, Springfield

ANNUAL MEETING OF THE SUPERVISING CENSORS

TUESDAY MORNING—JUNE 9

10 30 o'clock

Ballroom, Hotel Kimball, Springfield

ANNUAL MEETING OF THE COLON

Followed by the Cotting Luncheon to Connors

Should the Council meeting be prolonged, the Councilors will reconvene for an adjourned meeting

Notices of the meeting with the order of business will be mailed to Councilors on June 1, 1936

TUESDAY AFTERNOON—JUNE 9

2 00 o'clock

Lower Section Room Municipal Auditorium,
Springfield

SECTION OF MEDICINE

Officers of the Section

Dr William D Smith Boston, *Chairman*

Dr Laurence B Ellis, Boston, *Secretary*

1 *Some New and Unfamiliar Industrial Poisons*

Dr Alice Hamilton, Assistant Professor
of Industrial Medicine, Emeritus, Har-
vard Medical School

Discusser To be announced later

2 *The Use and Abuse of Transfusion in Medical Practice*

Dr Alice V Bock, Henry K Oliver Pro-
fessor of Hygiene, Harvard University

Discusser Dr George R Minot, Boston

3 *Newer Conceptions of Liver Disease and Their Relation to Treatment*

Dr Chester M Jones, Assistant Professor
of Medicine, Harvard Medical School

Discusser Dr S J Thannhauser, Boston

4 *Sodium Chloride Therapy*

Dr Allen S Johnson Springfield

Discusser Dr Allan M Butler, Boston

5 *A General Practitioner's Views on the Treatment of Angina Pectoris*

Dr John Spioull Haverhill

Discusser Dr Laurence D Chapin,
Springfield

TUESDAY AFTERNOON—JUNE 9

5 00 o'clock

Mahogany Room, Municipal Auditorium,
Springfield

PUBLIC RELATIONS COMMITTEE

Symposium on Medical Economics

Round Table Discussion to be opened by Dr Charles E Mongan, President of the Massachusetts Medical Society

All members of the Medical Profession are cordially invited to attend

TUESDAY EVENING—JUNE 9

7 00 o'clock

Hotel Kimball, Banquet Hall

THE ANNUAL DINNER

Fellows wishing to sit together at the dinner please send their names to Dr W R Morrison, Chairman of the Committee of Arrangements, 8 Fenway Boston, at the earliest possible moment, and proper reservations will be made

Tickets for the dinner may be obtained at the Registration Desk in the Auditorium

WEDNESDAY MORNING—JUNE 10

9 00 o'clock

Lower Section Room, Municipal Auditorium,
Springfield

SECTION OF PEDIATRICS

Officers of the Section

Dr George P Hunt, Pittsfield *Chairman*

Dr James M Baty, Belmont and Boston, *Secretary*

Panel Discussion on

"Rheumatism and Rheumatic Heart Disease in Early Life"

Dr John Lovett Morse, Boston, Leader

Dr Eli Friedman, Boston

Dr Hyman Green, Boston

Dr T Duckett Jones, Boston

Dr Tracy B Mallory, Boston

Dr Oliver H Stansfield, Worcester

Dr Paul D White, Boston

WEDNESDAY MORNING—JUNE 10

9 00 o'clock

Mahogany Room, Municipal Auditorium,
Springfield

SECTION OF TUBERCULOSIS

Officers of the Section

Dr Donald S King, Boston, *Chairman*

Dr Olin S Pettingill, Middleton, *Secretary*

1 *Presentation of a Case History of Pulmonary Tuberculosis in an Infant and in a Child With Discussion of Treatment*

Dr Clement A Smith, Children's Hospital, Boston

2 *Presentation of a Case History of Pulmonary Tuberculosis in an Adolescent With Discussion of Treatment*

Dr Roy Morgan, Superintendent of
Westfield State Sanatorium

3 Presentation of a Case History of Pulmonary Tuberculosis in an Adult With Discussion of Treatment

Dr John B Hawes, 2nd, Boston

Discussion

Dr Edward D Churchill, Professor of Surgery at the Harvard Medical School will discuss the cases from a surgical standpoint

Dr Hugh F Hare Roentgenologist Middlesex County Sanatorium will discuss the features of the X Ray films in these cases.

Ample time will be left for general discussion

WEDNESDAY MORNING—JUNE 10

10 00 o'clock

SURGICAL DRY CLINICS

Springfield Hospital

- 1—Dr W O Wilder Urological Cases
- 2—Dr W F Hoyt Chest Cases
- 3—Dr H R Wheat Fractures
- 4—Dr W A R Chapin Anesthesia
- 5—Dr F B Sweet Cancer of Large Intestines.
- 6—Dr E L Davis To be announced
- 7—Dr F D Jones Microprojection
- 8—Dr A D Rood Extirpation of Larvnx

Wesson Memorial Hospital

Lecture Room in Nurses' Home

- 1—Dr F H Baehr
 - (1) Removal of Separated Upper Epiphysis of Radius.
 - (2) Case of Cavernous Hemangioma.
- 2—Dr J R Agnew Problems in Appendicitis
- 3—Dr E U Dillnback
 - (1) Bilateral Tumor of Adrenal
 - (2) Postoperative Tympanites
- 4—Dr G deN Hough Spinal Metastases from Thyroid
- 5—Dr M F Hosmer Thyroidectomy in Angina Pectoris
- 6—Dr F Hagler
 - (1) Arterial Embolectomy
 - (2) Femoral Hernia Repair
- 7—Dr A A Palermo
 - (1) Congenital Absence of Right Pelvic Adnexa
 - (2) Case with Diagnostic Difficulties
- 8—Dr L H Doolittle
 - (1) Pyonephrosis.
 - (2) Unusual Urological Problems
- 9—Dr E T Smith and Dr M. Poliak Unusual Case of Intestinal Bleeding
- 10—Dr W O Wilder Gigantic Hydro-nephrosis

Shriners' Hospital

- 1—Dr R N Hatt Congenital Defects and Birth Injuries.

Mercy Hospital

- 1—Dr F P Boyd Treatment of Small Varicose Veins.
- 2—Dr J P Derby Fractures of Lower Extremity
- 3—Dr E W Beauchamp Tubercular Spine
- 4—Dr R A Rockford, Dr J H Lussier, Dr G B Corcoran Three Cases of Regional Ileitis
- 5—Dr C F Lynch Evulsion of Scalp
- 6—Dr C L Furcolo
 - (1) Hirschsprung's Disease.
 - (2) Progressive Skin Gangrene
- 7—Dr J H Lussier Transplant of Severed Tendons.

Operative Clinics every morning at eight o'clock at Mercy, Shriners' Springfield and Wesson Memorial Hospitals.

WEDNESDAY NOON—JUNE 10

Ballroom Hotel Kimball

ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY

Business of the Annual Meeting

Address by the President

WEDNESDAY AFTERNOON—JUNE 10

1 00 o'clock

Ballroom Hotel Kimball, Springfield

THE ANNUAL DISCOURSE

By Dr Reginald Fitz, Boston, Director of the Evans Memorial, Wade Professor of Medicine Boston University

Subject *From Cow Path to State Road*

At the close of the Annual Discourse, luncheon will be served in the Ballroom to those who have obtained tickets

COMMITTEE ON LADIES' PROGRAM

Chairman, Dr W A R Chapin

Co Chairman, Mrs James A Seaman

Mrs. T S Bacon Mrs R S Benner, Mrs J M Birnie Mrs L D Chapin, Mrs J B Comins, Mrs G B Corcoran Mrs J E Dwyer Mrs F Hagler Mrs M F Hosmer, Mrs C F Lunch Mrs A. G Rice, Mrs F B Sweet

SOCIAL CALENDAR FOR THE LADIES

MONDAY JUNE 8

3 P M 5 P M—Tea Details to be announced

8 15 P M—Shattuck Lecture by Dr George Blumer New Haven Ballroom Hotel Kimball

TUESDAY, JUNE 9

10 A M—Tour of surrounding country, including college towns of Amherst, Northampton and South Hadley (about thirty miles) Bus leaves Hotel Kimball at 10 A M

Noon—Luncheon at the Springfield Country Club, to meet the wives of the Presidents of the District Medical Societies Golf Tournament at Springfield Country Club after luncheon

Tour of Springfield museums for those not playing golf

7 00 P M—Dinner, at Hotel Kimball Tickets at \$1.25 each to be purchased when registering at the Hostess desk

8 15 P M—Speaking after Massachusetts Medical Society Dinner, Hotel Kimball, Banquet Hall

WEDNESDAY, JUNE 10

10 A M.—Bus leaves Hotel Kimball for visit to Springfield hospitals

SCIENTIFIC EXHIBITS

Booth
No

- 4 a *High-Voltage X-Ray Treatment of Cancer of the Skin* By Richard Dresser Boston, and Charles E. Dumas, Worcester
- b *Hodgkin's Disease of the Bone* By Richard Dresser and Jack Spencer, Boston
- 5 *Therapy of Cancer of the Breast* From the Palmer Memorial Hospital By Charles L. Swan, Herbert Adams, Leonard S. McKittick, E. Ross Mintz and Shields Warren, all of Boston
- 6 *Leaflets and Charts Illustrating the History, Growth and Service of the Library, Together with Representative Selections of Books* By C. F. Painter, Librarian, H. R. Viets, F. T. Hunter, L. Davis, President, and J. F. Ballard, Director, Boston Medical Library
- 15 *Pathology of Abortion*, demonstrated by A. T. Hertig and H. H. Michals From the Departments of Obstetrics and Pathology of the Harvard Medical School, and the Pathological Laboratory of the Boston Lying-in Hospital By Frederick C. Irving, Boston
- 16 *Gross Pathological Specimens* By Frederick D. Jones Springfield

- 17 *Pyelograms Charts and Urological Specimens* From the Genito-Urinary Service of the Boston City Hospital By Herbert H. Howard, Boston
- 44 *The Aniline Dye Treatment of Burns* By R. H. Aldrich, Boston
- 45 *The Anemia of Iron Deficiency* By C. W. Heath and G. A. Daland, B.S. From the Thorndike Memorial Laboratory, Boston City Hospital
- 46 *Pneumonia and Pneumococcal Infections Demonstrating the Up-to-Date Serum Treatment, the Newer Types of Pneumococci, the Problem of Pneumonia in Families* From the Thorndike Memorial Laboratory, Boston City Hospital By Maxwell Finland, Boston
- 55 *The Pathology and Treatment of Infantile Hydrocephalus* Demonstrating a new instrument and new operative technique From the Neurological Unit, Boston City Hospital By Tracy J. Putnam, Boston
- 56 *Cystometry and Tidal Drainage in Cord Bladders* From the Neurological Unit, Boston City Hospital By Donald Munro, Boston
- 57 *Plastic Surgery Exhibit Showing the Repair of Deformities of Various Kinds Including Contractures from Burns, Congenital Deformities, including Harelip and Cleft Palate Traumatic Deformities, Various Malformations of the Jaws, Deformities of the Nose, Deformities Resulting from Carcinoma of the Jaw* By V. H. Kazanjian, Boston
- 61 *Pathology of Rheumatic Fever* From the House of the Good Samaritan By Edward F. Bland, Boston, and John R. Mote, Boston
- 62 and 63 *'Knee Flexion Contracture Treated by Skeletal Traction* By G. E. Haggart, the Lahey Clinic, Boston (See Room A for the remainder of the Lahey Clinic Exhibit)
- 64 *Lobar Pneumonia*—epidemiology, the laboratory diagnosis and treatment of Lobar Pneumonia, with demonstration of Neufeld typing Illustrative charts By the Massachusetts Department of Public Health
- 65 *Public Health and Flood Danger* Interesting features and experiences brought out by the recent floods By the Massachusetts Department of Public Health
- 66 *Water Supply—with a model town layout* By the Massachusetts Department of Public Health

67 and 68 *Some Essential Features in the Diagnosis and Treatment of Fractures* By Frederic J. Cotton Boston

69 *Infections and Injuries of the Hand, New and Improved Methods of Splinting* From the Carney Hospital Boston By William E. Browne Boston

70 *Gastric Surgery* By William R. Morrison in collaboration with G. Kenneth Mallory, Myrtille M. Canavan, Charles F. Branch, Boston

Room A.—Moving Pictures 1 Diabetes 2 Cancer of the Rectum 3 Subtotal Thyroidectomy, 4 Endocrinology By the Lahey Clinic, Boston

Room B.—Moving Pictures Recent Advances in Endoscopy By E. B. Benedict Boston

MEETINGS OF THE COUNCIL

The Annual Meeting, Tuesday, June 9, 1936 at 10:30 o'clock, in the Ballroom, Hotel Kimball. *Note Change of Time*

Other stated meetings in John Ware Hall Boston Medical Library 8 Fenway at noon on the first Wednesdays of October and February

CENSORS' MEETINGS

The Censors for the several districts will meet for the examination of applicants for Fellowship on the first Thursdays of May and November

The Censors for the Suffolk District will examine applicants residing in that district and also applicants who are non residents of Massachusetts

Applicants for Fellowship should apply to the Secretary of the District Society of the district in which they reside (have a legal residence) at least two weeks before the date of a given examination, taking with them their diplomas

TREASURER'S NOTICE

Assessments, payable in advance should be paid to the District Treasurer, or, in the case of non residents, to the Treasurer

Assessments were due January 1st. For the convenience of Fellows who have not yet paid, such assessments will be received for the Treasurer at the Registration Desk in the Springfield Auditorium

SECRETARY'S NOTICE

All communications as to membership especially changes of residence and address should be sent to the Secretary who keeps a constant

ly corrected official list of the Fellows and their addresses

Fellows are requested to see that their names and addresses are entered correctly in the Annual Directory and when they move to notify the Secretary. The Directory will be sent only to paid up Fellows

THE JOURNAL

The New England Journal of Medicine, the official weekly organ of the Society, will be sent only to Fellows who have paid their assessments and to such Retired Fellows as may apply for it. Address communications to the Managing Editor of the Journal, Dr. Walter P. Bowers, 8 Fenway Boston

Society Headquarters
8 Fenway, Boston

COMMERCIAL EXHIBITS

The Commercial Exhibition at the Annual Meeting in Springfield will be comprised of forty-seven different exhibiting companies. The Committee of Arrangements takes more than ordinary pride in this announcement as it is the largest number of commercial exhibitors to attend a meeting of the Society. This exhibit, together with the booths for Registration and Information and the many scientific exhibits, will occupy the main floor of the Municipal Auditorium where the meetings are to be held.

It is difficult to visualize the practice of medicine and its specialties being carried on without the aid of commercial drug, biological and medical supply houses. Their importance to our profession is manifold: their contribution to the success of our meeting is obvious. In each of the booths occupied by a commercial exhibitor are contained useful therapeutic or diagnostic agents—all of which are worthy of the inspection and consideration of the attending physicians. In some instances displays will consist of finished products ready for clinical use. In others the processes of manufacture will be demonstrated to give the visiting physicians a better understanding of the intricate problems which have been overcome to provide standardized, reliable and readily available materials.

The co-operation between commercial laboratories and academic centers has resulted in untold benefits to every living being. Only by means of commercial development have many of the discoveries of science become of practical value to the vast majority of physicians and through them to mankind at large.

Regardless of your principal interests or specialties you will find much to attract your fancy among the commercial exhibits. We urge each and every Fellow attending the Meeting to visit this important display.

COMMERCIAL EXHIBITS

Booth
No.

1—General Electric X-Ray Corporation, Chicago

Manufacturers of x-ray and electro-medical apparatus will display shock proof x-ray apparatus, x-ray films and equipment including "Maximar" unit for x-ray therapy.

2—Thayer McNeil Company, Boston

Will again exhibit their Plastics for men, women and children, including several smart new models in their modified Plastics for women. The latter footwear has proved extremely popular with those who desire a dressy shoe that will help prevent, rather than correct, foot troubles. In addition to the full Plastic with its flexible shank, the Saf-T-Arch shoe, with a rigid shank, will be shown.

Mr Percy Thayer will be in charge

3—W B Saunders Company, Philadelphia and London

These publishers will exhibit a complete line of their 300 or more books. Outstanding among these will be Christopher's new "Textbook of Surgery", the new "Mayo Clinic Volume", Berens' work on "The Eye and its Diseases", Levine's work on "Heart Disease", the Graduate Fortnight of the New York Academy of Medicine on "Respiratory Diseases", Hinman's "Urology", Rehfuess and Nelson's "Medical Treatment of Gallbladder Disease", Eusterman and Balfour's "Stomach and Duodenum", and many new editions and standard works of unusual clinical value.

Mr J W Schnepf will be in charge

7—Dentists and Surgeons Supply Company, Springfield, Mass

Will display wood furniture for physicians' offices, the Vim Sheftel Colorimeter and surgical instruments.

Representatives Messrs Libby, White and Clarke

8—Gerber Products Company, Fremont, Michigan

Gerber's new method of shaker cooking will be explained. There will be illustrations and charts of this new process and samples open for inspection.

Booklets and leaflets will be available, some suitable for distribution by physicians while others are for professional use only.

Mr Howard Signor will be in charge

9, 10—E F Mahady Company, Boston

This exhibit will include a showing of the latest Burdick Physical Therapy equipment, Mahady Catgut, Baxter's Intravenous Solutions in Vacoliter Dispensers, and other new items of interest to the profession.

Messrs Kammerer Hartnett, and Graves will be in attendance

11—Mellin's Food Company Boston

The selection of Mellin's Food as a milk modifier enables the physician to have at hand an effective means for making diet adjustments to meet the needs of the individual infant without sacrificing nutritional requirements.

12—Einst Bischoff Company, New York City

Will exhibit their pharmaceutical specialties which are distributed through the drug trade. Their many products fill a wide range of professional needs.

Representatives Dr H H Newcomb and Mr L N Hosbach

13—S M A Corporation, Cleveland, Ohio

Will detail the significant resemblances of S M A to breast milk Smaco Carotene (Pro-Vitamine A), both plain and combined with Columbia and Zucker vitamin D concentrate.

Mr R E Esty will be in charge

14—H G Fischer Company, Inc, Chicago, Illinois

Will demonstrate electro-therapeutic equipment. A feature will be the new Fischer Short Wave high frequency apparatus, also the new Fischer 60 88 Universal shock proof diagnostic x-ray.

Representatives Messrs Wilson and Smyrl

18—Lee De Forest Laboratories Represented by New England X-Ray Corporation, Boston

This exhibit will consist of Short Wave therapy apparatus. The New England X Ray Corp will also show products of the Standard X Ray Co of Chicago, the largest exclusive manufacturers of x-ray equipment in the country.

19—Bard-Parker Company, Inc Danbury, Connecticut

Will feature the new Rib Back blade, an outstanding advance over the old flat detachable blade. A complete line of stainless steel Renewable Edge scissors, BP Germicide and instrument sterilizing containers will also be shown.

20—Mead Johnson and Company, Evansville, Indiana

Will feature in their display the new 'Percomorph' group of products. Mead's Oleum Percomorphum, 50 per cent in liquid and in capsule form, and Mead's Cod Liver Oil Fortified with Percomorph Liver Oil.

21 22—Davies, Rose and Company, Ltd, Boston

Will feature the well known Pil Digitalis (Davies, Rose) and Trethylene, a purified tri-chlorethylene for inhalation, and other therapeutic preparations.

Representatives Messrs Fleming, Purinton and Moulton

23—The C V Mosby Company, St Louis Mo

Will exhibit their complete line of medical publications among which will be many new books of laboratory methods, clinical medicine, surgery, and various specialties. A few of the titles are Clendenen's "Methods of Treatment", Crossen's "Diseases of Women", Hansel's "Allergy of the Nose and Paranasal Sinuses", Hertzler's "Thyroid Gland", and Marriott's "Infant Nutrition".

Mr W Dobson will be in charge

24—The Arlington Chemical Company, Yonkers, N Y

Will have a display and demonstration of pollens and proteins with a free diagnostic pollen outfit for any particular botanical area—each set containing sufficient material for testing one hay fever patient. A group of their pharmaceuticals will also be exhibited.

Dr J H Frazer will be in attendance

25—M & R Dietetic Laboratories Inc., Columbus, Ohio

Will display Simlac, a completely modified milk for infants deprived of breast milk. Splinate a spinach concentrate in both powder and tablet form will also be displayed. Mr J J Krancer will be in charge

26—Crosbie Macdonald Boston

Crosbie-Macdonald who for over twenty five years have been serving members of the Massachusetts Medical Society in their insurance needs will be ready to explain the various forms of insurance. Representatives Messrs. Crosbie and Macdonald.

27—The E L Patch Company Boston

Will exhibit the leading medicinal specialties in the Patch line. The E L Patch Company is an old New England Pharmaceutical House, having served the Medical Profession for nearly fifty years. Their exhibit will be of interest and educational value to all physicians.

28—Middlewest Instrument Company, Chicago Illinois.

In this exhibit demonstrations and metabolism tests with the Jones Motor Basal Metabolism will be featured. This unit contains no water and requires no calculation in the determination of the basal metabolic rate. Representative Mr Leon Reiner

29—Winthrop Chemical Company, Inc New York City

Will exhibit among other preparations the new Winthrop products Driedol (Crystalline Vitamin D) in Propylene Glycol, the new non oily antirachitic Devegan antienkorrethic specific Eripal Hypnotic Eripal Soluble in travenous anesthetic and Cyclobis bismuth antisyphilitic. Representatives Messrs McCormack and Lebar

30—E R Squibb and Sons New York City

Will present the complete line of Squibb vitamin glandular arsenical and biological products and specialties as well as a number of interesting new items. Squibb representatives will be on hand to furnish information. Mr Percy S Braund will be in charge

31—Tailby Nason Company, Boston

The Giant Cod and photographs of the Lofoten Fisheries in Norway will be an interesting part of the exhibit of Nason's Palatable Cod Liver Oil

32—Kellogg Company Battle Creek Michigan

While enjoying a cup of Kellogg's Kaffee Hag Coffee you can see the display of other Kellogg products All Bran Pep Bran Flakes Wheat Krumbles, Corn Flakes Rice Krispies Whole Wheat Biscuit Wheat Krispies and Whole Wheat Flakes. Miss Regina Gabriel will be in attendance

33—Coca Cola Company Atlanta, Georgia

It is planned to serve Coca Cola complementary from this booth the Coca Cola Company

recognizing that "The Pause That Refreshes" will be enjoyed by guests and visitors at the meeting

34—Lea and Febiger, Philadelphia

Will have on display Hawes and Stone's Treatment of Pulmonary Tuberculosis, Graham Singer and Ballou's "Surgical Diseases of the Chest" Duncan's "Diabetes and Obesity" together with other new editions of well known medical publications. Representative Mr Walfred Larson

35—The De Vilbiss Company Toledo, Ohio

Manufacturers of medicinal atomizers, will have on display a complete line of atomizers and vaporizers for home and professional use. A prominent feature will be the recently developed De Vilbiss Nasal Guard which prevents any excess pressure in the nasal passages during prescribed self treatment. Representative Mr E. Manning.

36—Surgeons' and Physicians' Supply Company, Boston

Will show the new Compres Short Wave Diathermy Apparatus the McKesson Acumeter a new instrument for measuring the acuity of hearing and the McKesson metabolism outfit. Surgical instruments with many new and novel items will also be shown

37—Nestle's Milk Products Inc New York City

Will display Lactogen Hyvac and Nestle's Food. A copy of an attractive new book on Infant Nutrition will be available to every interested physician who visits this booth. Representatives Messrs Goggin and Burrows

38—Petrologar Laboratories, Inc Chicago

Will distribute samples and information on the five types of Petrologar. Two of those Petrologar Plain and Petrologar Unsweetened are entirely without added medication. The other three, Petrologar with Phenolphthalein Petrologar with Milk of Magnesia and Petrologar with Milk Cascara are supplied to meet the indicated requirements. Representatives Messrs Akin Tarplin and Gray

39—Pomeroy Company Inc New York City

Will show Pomeroy Frame Trusses Artificial Limbs Orthopedic Appliances Sacro-Iliac and Lumbo-Sacral Supports Foot Plates Elastic Stockings and a variety of supporting belts. Representatives Messrs Lockwood and Bates

40—Billnuber Knoll Corporation Jersey City New Jersey

Will exhibit their newer preparations Theocalcin for relieving dyspnea and edema in heart disease Dilaudid hydrochloride a powerful analgesic for pain relief in surgery and obstetrics cancer and terminal tuberculosis as well as a cough sedative Bromural a non-barbiturate sedative and hypnotic and Metrazol a cardiorespiratory stimulant. Representatives Messrs Moore and Parker

41—Horlick's Malted Corporation, Racine, Wisconsin

Will demonstrate the advantages of Horlick's Malted Milk in the liquid diet, notably in cases of tuberculosis and other wasting diseases, pneumonia, peptic ulcers and acidosis. It is a dependable food in infant feeding.

42—Lepel High Frequency Laboratories, Inc., New York City

Will exhibit their Ultra Short Wave Machine which combines five valuable modalities in the one unit. They will also exhibit their Quartz Mercury Ultraviolet Lamps. All these units are accepted by the Council on Physical Therapy of the American Medical Association.

43—H J Heinz Company, Pittsburgh

Will display their Tomato Juice, Breakfast Cereals and Strained Foods prepared especially for infant and convalescent feeding. Their revised edition of Nutritional Charts contains Vitamin, Mineral and Food Composition Charts and new sections on daily requirements and food allergy.

Miss Meredith Moulton will be in attendance.

47—Daylight Fluoroscope Corporation, Cambridge Mass

The Daylight Fluoroscope is a portable x ray proof fluoroscope which can be used in the operating room without the necessity of a dark room or in the ward or home. Can be used with any type of x ray apparatus.

The observer never looks in the path of the direct ray, but is protected against both direct and secondary rays.

Particular fields of usefulness—fractures and foreign bodies, especially of extremities.

48—Sandoz Chemical Company, New York City

Will display many of their more recently developed products, among which are Cal glucon, Gynergen, Digilanid, Scillaren and Bellergal.

49—The Medical Protective Company, Wheaton, Illinois

Will have representatives thoroughly trained in professional underwriting to discuss medical insurance problems. The most exacting requirements of adequate liability protection are those of the professional liability field. The Medical Protective Company have special facilities for this work.

50—Philip Morris & Co Ltd Inc., New York City

Will demonstrate the method by which it was found that Philip Morris cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than cigarettes in which glycerine is employed.

51—Lederle Laboratories, Inc., New York City

Pollen Antigens Lederle, will be featured in this display which will also include highly refined Globulin Modified Antitoxins 1 cc Solution Liver Extract Immune Globulin (Human) for measles and other specialties.

Representatives Messrs Folsom and Caso

52—Libby, McNeill and Libby, Chicago, Illinois

Will present a graphical demonstration by means of photomicrographs of homogenization an outstanding advance in the science of infant feeding and special adult diets. By this process the food cells are "exploded" to release more nourishment for easy digestion while all coarse fibers are reduced to tiny particles.

Representative Mr Kelly C Brown

53—McNeil Laboratories, Philadelphia

Will show their American Medical Association Council accepted products and other specialties, including Digitalis Duo-test Lubricant, Rosebud Vaginal Tampons, Umbilical Dressings and "Individuals". Founded in 1879 McNeil Laboratories are well known among members of the medical profession from coast to coast.

54—The Macmillan Company, Publishers New York City

Will have on display among their new books Irving's "Textbook of Obstetrics", Kappers Huber Crosby's "Comparative Anatomy of the Nervous System", Johnson's "The True Physician", Houston's "The Art of Treatment", Cabot and Dicks' "The Art of Ministering to the Sick", and many other important publications.

Representative Mr J S Crossman

58, 59—Smith, Kline and French Laboratories Philadelphia

Will demonstrate by means of samples and literature their Benzadrine Inhaler, a potent vasoconstrictor which reduces congestion in the nasal passages promptly and without irritation, thus providing an effective and pleasant medication for head colds, sinusitis and hay fever.

Representatives Messrs Wallace and Hayward, Jr

60—Campbell X-Ray Company, Boston

Will exhibit new models of x ray apparatus also of short wave diathermy and electrosurgical appliances.

Table A

Sterisol Ampoule Corporation Long Island City, N Y

Manufacturers of prepared Dextrose and Saline solutions in PYREX containers hermetically sealed. These PYREX containers are available in 250 cc, 500 cc and 1000 cc sizes. Each container is a dispensing apparatus in itself. A complete range of Dextrose and Saline solutions as ordinarily administered is available.

Table F

The Cheney Chemical Company, Cleveland Ohio

Are desirous of drawing attention of the Medical Profession to the outstanding advantages of their products. Quantitative accuracy and the highest grade in quality are assured. Care is taken to safeguard the interests of

the physician while manufacturing products at as low a cost as possible. The doctors' satisfaction is our interest and we cordially invite all physicians to attend our booth

MEETING OF DIPLOMATES OF THE NATIONAL BOARD

There will be a luncheon of the Massachusetts Diplomates, of the National Board of Medical Examiners, on Tuesday, June 9 from 12 to 2 P.M. at the Hotel Highland Hillman Street Springfield, Mass

Diplomates will be present from every Medical District in Massachusetts. It is hoped that all Diplomates, attending the Annual Meeting of the Massachusetts Medical Society will make a special effort to attend

Details of this meeting will be announced

MASSACHUSETTS MEDICO LEGAL SOCIETY

There will be a meeting of the Massachusetts Medico Legal Society in the Hotel Kimball Springfield, Mass., on Tuesday June 9 from 2 to 4 P.M.

TUFTS MEDICAL ALUMNI LUNCHEON

The annual luncheon of the Tufts Medical School Alumni Association will be held Monday, June 8 at 12 30 P.M. at Hotel Highland, Springfield. Graduates of the School attending the annual meeting of the Massachusetts Medical Society on this date are cordially invited to be present. The speakers will be Dean A. Warren Stearns, Dr. Abraham Myerson, and Mr. Oscar J. Mareil of the graduating class. The chairman of the committee on arrangements is Dr. Francis P. Boyd of 10 Chestnut Street, Springfield.

NEW ENGLAND ALUMNI—DINNER MEETING

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE
COLLEGE OF PHYSICIANS AND SURGEONS
BALTIMORE MEDICAL COLLEGE, BALTIMORE

Annual dinner at Hotel Highland, Springfield, Tuesday, June 9 at 12 30

Dr. M. W. Harrington (B. M. C. 1901)

Dr. M. F. Hosmer (P. & S. 1914)

Dr. A. H. Riordan (U. of M. 1915)

Springfield Committee.

VITAMIN D AND TRICHINOSIS PATIENTS

Doses of vitamin D may be a means of preventing death and providing relief in trichinosis if further experiments by Drs. Franklin D. Barker and Wayne W. Wantland, Northwestern University zoologists, prove successful.

The larvae of the worms make their way from the digestive tract to the muscles. As it does with all foreign substances that enter the muscles the body encloses these parasitic worm larvae with a coating of calcium as a protective measure. It takes from ten to fifteen months to do this. In the meantime, according to Dr. Wantland "It seems quite probable that the more general symptoms of trichinosis—muscular pains, fever, etc.—are in part at least, due to toxic products formed by the breaking down of large amounts of muscle tissue together with waste products of the larvae. Thus a continuous inoculation of the infected host with toxins occurs."

Vitamin D in the form of irradiated ergosterol definitely hastens the calcification of the trichina cysts in the muscle fibers during the critical stage of trichinosis in rabbits. It is hoped to accomplish the same results with the use of the vitamin in higher animals and eventually in man.

Making use of the property of vitamin D to stimulate calcium absorption from the intestine and calcium deposition in the body as is done in rickets, calcification of cysts containing the parasitic larvae has been brought about in from five to six weeks.

Dr. Barker and Dr. Wantland are now trying to determine whether the calcified cysts in the muscle fibers have any deleterious effect on higher animals.

There is a possibility that the particles in the tissues may cause a decrease in efficiency.

It is pointed out that it is significant that the majority of deaths from trichinosis occur from four to six weeks after infection during that period immediately preceding or during the earlier stages of cyst formation. It would seem that if cyst formation and subsequent calcification could be hastened this would shorten the critical period in trichinosis and more quickly terminate the disease. The treatment of trichinized rabbits with irradiated ergosterol apparently has a definite therapeutic value. It still remains to be tested in human cases of trichinosis.—*Science*, May 1, 1936.

RED MEN THRIVE

The erstwhile vanishing Indian now has a birth rate that is probably the highest in the world. The figure of 48 per 1,000 cited by Dr. Clark Wissler of Yale would be more than three times the urban birth rate for the whole United States. The death rate for the Indians has been declining since 1890, whereas the births are as numerous as they were at the beginning of the nineteenth century, almost 150 years ago. By now says Dr. Wissler the tribal existence has adjusted itself to the shock of reservation life.—*New York Times*, May 4, 1936.

THE LIABILITY TO INSANITY

The probabilities of going insane are three times greater if a man is a bachelor than if he is married and if he be divorced his chances are greater still.—*Bulletin*, New York State Medical Society.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT, M D

TRACY B MALLORY, M D, *Editor*

CASE 22211

PRESENTATION OF CASE

A twenty-nine year old white American businessman was admitted complaining of shortness of breath and swelling of the abdomen.

The patient was perfectly well until a year and a half before admission, at which time he contracted "flu". His illness was associated with a temperature of 105° and sharp bilateral pleuritic pain which radiated anteriorly and posteriorly and was greatly aggravated by inspiratory movements. There was no sore throat, joint pain or cough. He remained in bed for three weeks but for the succeeding two months had considerable dyspnea with exertion. This gradually subsided and he remained well until two months prior to entry, when he again noted shortness of breath. The dyspnea increased and was excited eventually by such slight activity as walking a short distance during which he would be compelled to stop and rest for a few minutes. At this time he began also to have chilly sensations in the afternoon and consulted a physician who advised bed rest. He did not follow these instructions and four weeks ago his abdomen began to increase in size. He became progressively weaker and noted that when bending over his neck seemed to "fill up". He was admitted to a hospital where he remained for one week and was said to have had fever at that time. While there the abdominal swelling disappeared but after he returned home it promptly recurred. He reentered the hospital and soon developed sore throat and fever. The dyspnea was unchanged but he noted a "pulling" sensation beneath his sternum with deep inspiration. For two days before entry he coughed up a small amount of bloody sputum. His average weight was 145 pounds and at the time of his admission was 155 pounds.

Physical examination showed a pallid dyspneic man lying flat in bed. There was distention of the neck and hand veins, which persisted to a less degree when the patient sat upright. Venous pressure in the hands was found to be 20 to 25 centimeters of water. The retinal veins pulsated markedly with some relationship

to respiratory movements. The pharynx was injected and the tonsils were swollen. Small discrete cervical nodes were noted. The heart was said to be enlarged to the left and the right border of dullness extended 5 centimeters to the right of the midsternal line. The apex impulse was palpated and shifted with change in position of the patient. Other characteristics were not recorded. The sounds were distant and of poor quality. A friction rub was audible along the left border of the sternum. The blood pressure was 105/85 and a definite paradoxical pulse was observed on the sphygmomanometer. A pleural friction rub was heard over the right chest anteriorly and posteriorly. At the right base posteriorly there was dullness to flatness up to the sixth rib. In this region the breath sounds, tactile fremitus, and vocal resonance were diminished. The liver edge extended three fingerbreadths beneath the costal margin and there was a questionably enlarged spleen. The abdomen was distended and both shifting flank dullness and a fluid wave were elicited.

The temperature was 101°, the pulse 120. The respirations were 25.

Examination of the urine was negative. The blood showed a red cell count of 4,900,000 with a hemoglobin of 80 per cent. The white cell count was 9,400, 71 per cent polymorphonuclears. The sputum was mucoid, chocolate colored odorless, and negative for tubercle bacilli and amebae. Detailed examination demonstrated the presence of many bacteria of different types, large numbers of red blood cells, and many large macrophages with ingested red blood cells and blood pigment. Stool examinations were negative. A Hinton test was negative. The nonprotein nitrogen of the blood was 31 milligrams and the plasma protein was 5.6 grams. A tuberculin test was negative. An electrocardiogram showed a diphasic T₁, with late inversion of T₂ and T₃. There was a tendency toward low voltage. Q₄ was present and T₄ was upright. Seven hundred cubic centimeters of amber-colored fluid was removed by a right chest tap done shortly after entry. This had a specific gravity of 1.010, contained 30,000 red blood cells and 4,900 white blood cells, of which 91 per cent were polymorphonuclears. No tumor cells or bacteria were found. Culture showed no growth. A blood culture was negative.

An x-ray examination showed normal position and motion of the left diaphragm and a clear left lower lung field. The right lower lung field was dull and the outline of the diaphragm was obliterated at its lateral portion. The upper border of dullness was well defined and projected laterally and slightly downward from the hilus. There were several small areas of increased radiance in the lateral portion of this dullness and a large area of radiance close to the heart. The heart was slightly displaced

to the right and appeared somewhat enlarged. The remainder of the right lung field was less radiant than the left and there was a thickened lateral pleura extending up to the apex. Films taken after the thoracentesis showed very little sign of change. Two days later the amount of fluid had increased. A film taken with a Bucky diaphragm showed some apparent narrowing of the right lower lobe bronchus. Films of the skeletal system were negative.

The patient's temperature fluctuated between 98° and 103° and his pulse between 80 and 120. Venous pressure determinations showed a pressure of 11 millimeters of water on the dorsum of the foot and 23 millimeters in the right antecubital fossa. Subsequent thoracenteses were done but no additional findings were made. On the fourth hospital day an abdominal paracentesis was performed and only 20 cubic centimeters of pale yellow fluid removed. This had a specific gravity of 1.014 and contained 280 polymorphonuclears, 196 lymphocytes and 298 red blood cells per cubic millimeter. No tubercle bacilli, other bacteria, or tumor cells were found. Two days later a pericardial tap produced 110 cubic centimeters of cloudy reddish brown fluid with a specific gravity of 1.014. This fluid contained 69,000 red blood cells and 3 white blood cells per cubic millimeter. Examination for organisms and tumor cells was negative. The patient became progressively worse. His color became ashen gray and his respirations deep and labored. Repeated chest taps produced no relief nor did another pericardial tap. Pericardial fluid at this time was straw colored but showed no other change in characteristics. The paradoxical pulse became more pronounced and the neck veins remained distended though to a slightly less degree. On the ninth hospital day the patient lapsed into unconsciousness, developed marked grayish cyanosis, became pulseless and died within a very short time.

COMMENTS ON THE RECORD

DR. RICHARD C. CABOT: The shortness of breath is the presenting symptom and the chief symptom.

I find it rather hard looking back, to believe that he had no cough. But that is the statement.

'Small discrete cervical nodes were noted.' That makes one think of the possibility of malignant disease. There are no larger nodes elsewhere. We may as well say here that nothing else in the history suggests neoplasm.

You will notice that this cardiac examination is not what we would like. Who said that this heart was enlarged and why was he not more positive about it? We do not know.

A friction rub was audible along the left

border of the sternum." We do not know whether it was pericardial or pleural, presumably the former.

The blood is negative.

"A tuberculin test was negative." That seems to be of some importance.

Dr. White has been telling me what this electrocardiograph means. Apparently I do not have to say anything about it.

DR. PAUL D. WHITE: The T₄ is abnormal.

DR. CABOT: May we see the x-rays?

X-RAY INTERPRETATION

DR. AUDREY O. HAMPTON: He had two examinations, one on the twenty-third and one on the twenty-fourth, one before and one after chest tap. This is the first film. It shows the area of dullness described at the right base. The upper margin is sharp as though it represented the interlobar pleura between the middle and upper lobes. This pleura should run horizontally when the film is taken in the usual position. It appears to be depressed and the lung is reduced in size. If the middle lobe was collapsed the right border of the heart should be obscured but here we do see a small portion of it. Of course the middle lobe does not ordinarily obscure the costophrenic angle so that I cannot say it is the middle lobe. It is hard for me to explain this line on any other basis though. His heart is shifted slightly toward the right. He is a little rotated and his heart does not appear particularly large. The blood vessel markings are prominent throughout the chest. The pulmonary conus is enlarged. I do not see anything else to remark about. This is a poor lateral view apparently; the patient was lying on a truck and it does not help us much. Apparently the dullness is more posterior than anterior. Again here is the middle lobe and it does not appear to be collapsed. Here is the fissure we were talking about, and here there must be some air in the middle lobe or we would not see these fissures. So we will have to place the dullness in the lower lobe where they found the physical signs. This is a film with the patient lying on his side after a tap. I suppose in an effort to show shift of fluid and there is this line along the axillary line which we had not seen before. There must be some shift in fluid. Of course you already know he had fluid.

DR. CABOT: One report says that there is apparent narrowing of the right lower lobe bronchus. That is something I imagine.

DR. HAMPTON: I did not have the Bucky film that is mentioned.

DR. CABOT: The films of the bones were negative.

You remember when he went to a previous hospital the ascites cleared up very quickly. It seems to have done the same here.

DIFFERENTIAL DIAGNOSIS

I suppose we have to call this a cardiac death, or a cardiac and pulmonary death, the cardiac being the main thing. What causes have we to consider here? We certainly have to consider pericardial adhesions in spite of the fact that the apex beat moves and in spite of the fact that the heart is apparently not very large. Many cases of pretty marked pericarditis have shown a movable apex beat. I do not think we have any good evidence of cirrhosis of the liver, although we would like to know more about his habits. Nothing is said as to whether he had that which apparently leads pretty often to cirrhosis of the liver. But I do not think we have good evidence of cirrhosis and I do not think that that diagnosis could explain more than a small portion of the case. The striking symptom is dyspnea and the striking lesions are those shown by the x-ray in the lower part of the right lung. I believe on the whole that whatever heart trouble he had was secondary to that rather than to pericardial adhesions, if those exist. I imagine he has some mediastinitis, too, although I have no proof of that. There are a number of points here often associated with pericarditis and with mediastinitis, such as paradoxical pulse and distended neck veins. But those can come from other causes, which make the respiration largely thoracic.

I do not believe he has malignant disease. There are a good many points in the history to make us think of that but it seems to me the x-ray and other evidence, his age, the absence of significant pressure signs, and the absence of pain make it wrong to consider malignant disease seriously. I believe the trouble is in his heart and lungs and only to a minor extent anywhere else.

In the paragraph about the x-ray, they mention small areas of increased radiance, I imagine these are what you get after tapping. If he had not been tapped I should be very much puzzled to explain the areas.

DR AUBREY O HAMPTON: It was a question of a patchy consolidation in the lower lung, one which probably left portions of the lung aerated. The middle lobe was fully aerated giving a shadow next to the heart a little like cavity because of the horizontal diaphragm below it.

DR CABOT: What has he in the right lung? That is the most important point. I think he has a chronic pneumonitis following pneumonia with a chronic pleurisy. That very possibly is present in both lungs but is probably more extensive on the right side. The chronic pneumonitis may have been such as to compress or obstruct a bronchus. There may be bronchiectasis with it but the striking primary thing I should suppose was the pneumonitis itself affect-

ing the bronchi and the parenchyma of the lung and indirectly affecting the heart. I should like to know more than we do about the left lung. X-ray and clinical examinations do not give evidence of damage there. If we are to make the lungs in part or largely responsible for the weakness of the heart, we would expect trouble on the other side too. That is the difficulty with that explanation.

Pericardial fluid was found. Therefore there were not complete pericardial adhesions. On the other hand the amount of fluid was rather small. The specific gravity of all the fluids, whether in the chest, pericardium or peritoneum, is low and so corresponds with a dropical fluid rather than with an inflammatory or neoplastic type of fluid.

He had fever at the end. Some acute infection is suggested. It might be that the sore throat and what was found in the pharynx and tonsils might be enough to account for it, or bronchopneumonia. Other than those I have no idea what was the acute disturbance on top of the chronic, but I believe he did die of both acute and chronic trouble.

I do not believe he had what is called polyserositis, a clinical syndrome with which I have never been very well satisfied. In polyserositis the symptoms are not primarily those of dyspnea, not primarily cardiac, as they are in this case. It seems to me that the prominence of the symptoms of failing compensation work against that diagnosis. He has, of course, fluid in at least three cavities and we have reason to believe that in at least one, possibly two inflammation has gone on. But the low gravity of the fluid and the predominance of the circulatory symptoms make it right to say that an inflammatory process in the serous cavities (polyserositis) was not the primary trouble here.

We must balance how much the pericardium and how much the lung troubles, respectively, are to blame for failure of the heart. I am assuming that he died of heart failure, with respiratory trouble too, but I am not at all sure how to balance the evidence or the conclusions between the pericardium and the lungs. I believe that each of these contributed something. I expect to see some pericardial adhesions. I do not expect to see complete pericardial adhesions. I do not believe that the pericardial adhesions were extensive enough to cause the main part of the cardiac failure. The lungs probably caused some of his dyspnea but I suppose both elements were in it.

There is no evidence of any valvular lesion. I suppose the heart is somewhat hypertrophied and dilated, although the x-ray does not give much support for that. I predict it will be found hypertrophied and dilated but not much

I see no reason to accuse any other organs in the body, the kidneys or any other organ

I might say a bit more about the liver. The dullness and other respiratory signs in the back might be accounted for by an enlarged liver or trouble in the lung or by pleural fluid. Whether his liver had any more disease than passive congestion I doubt. I do not believe we have any good reason to suppose that the changes associated with Pick's disease are in this liver. I do not believe he had cirrhosis. He got rid of the abdominal fluid too easily. I should say. No one had to work to get fluid out of the abdomen. It went out twice easily. I do not suppose, therefore, that it was connected with disease of the liver.

DR. DONALD KING. I am glad Dr. Cabot came to this discussion without being prejudiced by the case which Dr. Mallory showed two weeks ago. We had a case, Dr. Cabot, of carcinoma of the right upper lobe with extensive metastasis to the pericardium. The pericardium contained a large amount of bloody fluid with resulting cardiac tamponade. A few days after this case was demonstrated here the present case was admitted to the hospital with the signs of cardiac tamponade and evidence of a process in the lungs, and the first thought of everyone was again of pulmonary carcinoma with metastasis. I think in the present case the service committed themselves definitely on a diagnosis of malignancy. Did they not, Dr. Mallory?

DR. THACY B. MALLORY. Yes. It was the final report.

DR. KING. None of us even guessed the final diagnosis.

DR. MALLORY. Are there any other suggestions?

DR. HAMPTON. I should like to ask Dr. King what he thought about the right lower lobe. Did he think it was collapsed?

DR. KING. We advised exploratory punctures to see if there was pus there. I thought it was infection of some sort, as Dr. Cabot did. We thought it might be malignant disease.

DR. WHITE. This case resembles very much a man who has recently been under our care, a young Canadian, who showed at autopsy tuberculosis of the pericardium and left pleura. He went through somewhat this same clinical course showing reddish and finally chocolate colored pericardial fluid and eventually died of military tuberculosis. Dr. Tinsler Harrison of Nashville just whispered to me that if it were not for the tuberculin skin test he would feel quite sure that that would be the diagnosis here too, namely, tuberculosis of the pericardium and pleura. The signs of engorgement of the neck veins, the enlarged liver and the paradoxical pulse are in accord with constrictive pericardial involvement, acute or

chronic, or possibly of some lesion causing mediastinal pressure.

CLINICAL DIAGNOSIS

Carcinoma of the right lower bronchus with metastases to the pericardium and secondary atelectasis of the right lower lobe of the lung.

DR. RICHARD C. CABOT'S DIAGNOSES

Chronic pneumonia.
Pericardial adhesions.
General passive congestion.

ANATOMIC DIAGNOSES

Pulmonary embolism, multiple bilateral.
Pulmonary infarcts multiple, bilateral.
Thrombophlebitis, left posttibial, popliteal and femoral veins.
Pericarditis adhesive, localized.
Pericardial effusion, slight.
Hydrothorax, right.
Ascites.
Edema.
Chronic passive congestion liver, spleen and kidneys.

PATHOLOGIC DISCUSSION

DR. MALLORY. Clinical imaginations at various times ran far afield on this man. We were even asked to do a sputum examination for *echinococcus scolices* on one occasion. The autopsy showed two entirely different lesions. There was a slight degree of adhesive pericarditis which was limited to a small area of the heart but it was the area which we have reason to believe is most important in other words, the base of the right auricle where the great vessels enter it. So a significant part of the symptomatology may have come from that.

A PHYSICIAN. Was that very old?

DR. MALLORY. It was evidently a very old process. I am inclined to think however that the major part of the symptomatology has nothing to do with this finding.

We found throughout the lung multiple areas of infarction varying from a very big infarct making up half of the right lower lobe, down to multiple small infarcts about a centimeter in diameter scattered throughout both right and left lungs. The microscopic sections of the lung showed all ages of pulmonary emboli. There are perfectly fresh ones and very old chronic, partially and completely organized ones. The immediate cause of death was massive pulmonary embolism. The source of these emboli was a thrombosis of the deep veins to the right leg. I think multiple successive pulmonary emboli with gradual organization and obliteration of one after another of the pulmonary arteries probably accounted for the right sided heart

failure rather than the somewhat minimal amount of pericarditis, but I do not know

A PHYSICIAN Was this larger thrombus well organized?

DR MALLORY No, that was a fresh one. He had one episode about a year ago and I think some of the older lesions are consistent with that period. The majority are more recent, occurring undoubtedly during the last illness, and the final one was immediately fatal.

A PHYSICIAN What did the liver show?

DR MALLORY The liver was enlarged and showed marked passive congestion, but was otherwise negative. The heart was small, 250 grams. It must also be admitted that the right ventricle was not hypertrophied, a point distinctly against my theory of the relative significance of this man's pericardial and pulmonary lesions.

DR WHITE I would just like to call attention in passing to the electrocardiogram. A while ago we were studying the so-called acute cor pulmonale with dilatation of the right ventricle associated with pulmonary embolism. We found electrocardiographic changes that have proved to be characteristic of that condition. The electrocardiogram of the present case fills the bill perfectly, but I am afraid that we were so attracted by other ideas that we did not even think of the significance of this electrocardiogram.

CASE 22212

PRESENTATION OF CASE

A fifty-nine year old American building inspector was admitted complaining of difficulty in breathing.

About ten days before entry the patient developed malaise, chilly sensations, and a feeling of fullness in his chest. There was a slight cough but he was unable to expectorate. Later he developed generalized aching and had severe night sweats. A few days before entry he began to expectorate blood-streaked sputum. On the day prior to admission he had sharp pain in the right posterior chest and shoulder and also some pain in the right upper quadrant. Deep inspiration and cough caused intense exacerbation of the discomfort. During his illness the patient consumed about two quarts of whiskey as a therapeutic measure, but he did not drink liquor to any great extent ordinarily.

The patient had suffered from gout affecting both great toes for about twenty years and there was a brief acute flare-up during his current illness. Two years ago a physician told him he had pernicious anemia and advised him to eat liver. He did not follow these instructions.

Physical examination showed an obese mid-

dle-aged man sitting up in bed with a slightly increased respiratory rate and faintly cyanotic lips. Throughout the examination he was annoyed by a frequent, dry, irritative, nonproductive cough. Oral hygiene was poor and the tongue was coated and dry. The throat was injected and the tonsils large and cryptic. Patchy dullness to percussion was elicited over the right chest posteriorly and fine moist rales were heard at the left base, over the right lower lobe posteriorly, and the lower portion of the right chest anteriorly. Breath sounds in these areas varied from bronchovesicular to bronchial in character. The apex impulse was 9.5 centimeters to the left of the midsternal line but the heart border could not be percussed. The sounds were of poor quality, regular, and no murmurs were heard. The blood pressure was 154/90. The abdomen was distended and tympanitic but was otherwise negative.

The temperature was 102°, the pulse 130. The respirations were 30.

Examination of the urine was negative. The blood showed a red cell count of 4,800,000, with a hemoglobin of 85 per cent. The white cell count was 13,700, 85 per cent polymorphonuclears. Stool examinations were negative. The sputum contained type I pneumococci. A blood culture showed no growth. Uric acid was 3.9 milligrams per cent. A Hinton test was negative.

A portable x-ray film showed what appeared to be a high diaphragm bilaterally. The heart shadow was not distinctly seen. Hazy dullness was seen along the right costophrenic angle.

The patient's temperature fluctuated between 100° and 103° but after one week gradually returned to normal. Thereafter his condition gradually improved until the morning of the fourteenth hospital day, when he suddenly experienced rapid palpitation associated with nonradiating epigastric pain. Shortly afterward he had vertigo, profuse perspiration, blurring of vision and became semiconscious. An examination showed absent pulsations in the left brachial and radial arteries. The blood pressure was unchanged and the pulse 100. Later he vomited twice. Two and a half hours later examination of the heart was negative. The right carotid pulse was barely palpable although the left was normal. The left brachial, antecubital, and radial pulsations were not palpable, and this arm and hand were distinctly cooler than the right. The femoral pulsations were normal. There was a supranuclear paresis of the left side of the face and slight nystagmus of the right eye when turned toward the right. The reflexes were normal except for a questionable left Babinski sign. Later in the day the patient, except for severe right frontoparietal headache, was generally improved. The temperature in both arms was now approximately

equal and a faint pulsation was palpable in the lower portion of the right common carotid. The blood pressure on the right was 124/66. A faint pulsation was felt in the left axillary and brachial arteries but not distally. Blood pressure taken at the upper portion of the arm was 80/70. The mercury column oscillated at about 75 millimeters at the upper forearm but no sounds were heard. Examination of the urine was negative, but the white cell count of the blood, which had returned to normal rose to 13,400.

Portable x ray films showed hazy homogeneous dullness occupying the lower third of the right lung field. This dullness ended in a sharp line above. This, however, was not in the same position in two films taken. The entire right lung field was less radiant than the left. The supracardiac shadow was wide but there was no definite thickening of the left wall of the arch. The ascending aorta was prominent and the heart was not grossly enlarged.

There was gradual improvement although the pulsation in the left arm did not return and the temperature began to show daily rises to 100° to 102°. Five days after the acute episode the patient was suddenly seized with a severe burning pain beneath the upper half of the sternum and a feeling of suffocation. He became intensely cyanotic and for about thirty seconds a clicking sound was heard with the stethoscope in the right supraclavicular fossa. The pulse was 120 and the blood pressure 130/70 on the right side. The pain in the chest disappeared rapidly following the administration of oxygen. Six hours later he had a similar attack associated with a burning sensation in the midabdomen. This was relieved somewhat by morphin. The blood pressure was 110/60 and the heart sounds appeared somewhat fainter than previously. Pulsation was still absent in the left arm but the carotid pulsation was much improved. An electrocardiogram showed upright T₁ and T₂, a small slurred Q₃. Q-R-S₄ was widened but Q₄ was present and T₄ present though shallow. There were pain and tenderness over the left chest and marked tenderness over the left side of the abdomen and mid portion of the lower abdomen. No definite change in the peripheral pulsations was noted. The patient remained in an oxygen tent and two days later suddenly became drowsy. Examination showed that the left facial weakness had progressed to well-defined paralysis and the tongue protruded to the left. The left arm was cooler and considerably weaker than the right but the leg was negative and there were no reflex changes. The pupils were small but equal and reacted normally to light. The cough, which had disappeared, now returned and was associated with mucoid expectoration with flecks of bright red blood. Repeated urine

examinations were negative but the white blood count rose to 16,500. Another x ray showed that the dullness on the right side of the chest had almost disappeared but there was a new area of dullness on the left side at the costophrenic angle, and there appeared to be some fluid at the left base. The patient's condition continued poor, his abdomen became distended, and on the twenty fourth hospital day he suddenly gasped a few times and died.

DIFFERENTIAL DIAGNOSIS

DR. HOWARD B. SPRAGUE Will you demonstrate the x rays, Dr. Hampton?

DR. AUBREY O. HAMPTON We had three examinations. The first one was taken on the first of the month and the last on the twenty third of the month. That film we thought was underexposed at the base and apparently unsatisfactory. There is nothing very exciting except this area of dullness at the right base.

This is the second examination, thirteen days later, and we see this triangular area of dullness here at the right base. It is more rectangular in shape in this other film taken the same day. I think due to shift in the patient. We had a very nice area of calcification in the arch of the aorta so that we could estimate the thickness of the left wall. We did not see anything else to remark about in this film. I think the shape of that lesion in the lung was quite similar to an infarct.

In this next examination the area of dullness at the right base has practically disappeared but he has a new one on the left side. It is in all appearances similar to the first one. There was at no time any change in the heart or mediastinum that we could see.

DR. SPRAGUE I can only hope that those who had the privilege of seeing the patient were as confused about the mechanism in this case as I. The only thing I am sure he had was gout and that only because they say he had it. I suspect however that the gout had something to do with his final taking off.

The story starts with what appears to be an acute respiratory infection with fever, cough and some blood streaked sputum. We will allow that diagnosis to pass for the moment.

We know nothing about his past history aside from the gout except that some doctor two years before told him he had pernicious anemia and advised him to take liver. It may be that the patient at that time had some sort of appearance which suggested to the doctor that he had anemia. Perhaps he had some sort of cryptic hemorrhage from which he had recovered by the time he entered the hospital here because from the blood picture that we have we cannot make a diagnosis of pernicious anemia.

The patient apparently recovered to a considerable degree from his acute early pulmo-

The New England Journal of Medicine

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THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.04 per year \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass

BRAIN TUMORS LATE SURGICAL RESULTS

THE leading article* in this month's issue of the *Yale Journal of Biology and Medicine* calls attention to one of the uses to which the newly established registry for brain tumors at Yale, mentioned in these columns on December 13, 1934 has been put. Mr. Hugh Cairns, F.R.C.S., cerebral surgeon to the London Hospital came from London last autumn to study the end-results of the tumor cases that came under his supervision while acting as Dr. Cushing's resident at the Peter Bent Brigham Hospital nine years ago. This gives an indication of the purposes to which the collection may be put and emphasizes how the registry will become increasingly valuable for future studies of similar kind.

The principal disadvantage from which it was feared the Registry might suffer by its transfer from Boston to New Haven was its unavoidable separation from the voluminous and detailed clinical records which remain the property of

the Brigham Hospital. This disadvantage has been overcome by the recent reproduction, now completed, of the *circa* 50,000 pages of records that deal with this group of histologically verified tumors. Permission was given for this by the Brigham Hospital Board and through the co-operation of the Sterling Library at Yale the work was carried out with Leica camera and cinema-film methods, it having been one of the largest orders of the sort that has so far been completed. This puts in the hands of those, who will hereafter study the gross and histological preparations, the clinical records of the cases from which they have come, together with the subsequent correspondence and accounts of examinations which continue to be added to the case records as the years progress.

There is much still to be learned about brain tumors, many of which have not as yet even been satisfactorily classified, and only by continued study can the life history of one after another of the many varieties come, in the course of years, to be so fully worked out that the expectation for life and the relative freedom of the patient from incapacitation after operation of a given tumor can be known at the time it is first brought to view. Not until the life history of every kind of tumor is understood by the person who attempts surgically to deal with them can the lowest operative mortality and at the same time the longest survival period be obtained—a survival with the least impairment of the afflicted individual's intellectual and physical capacity to earn his livelihood.

Mr. Cairns' paper represents a new approach to the study of surgical end-results which is particularly important in the case of cerebral lesions. Surgeons heretofore have been satisfied to work out the operative mortality percentages with the survival periods for tumors of special kinds, but to try to determine after a given period what the survivors had been good for, and to what degree the spared life had been worth living is something altogether new in the field. Such a study would be possible only when records are of the best and when the relation of patients and doctors has been on an unusually intimate basis and patients are sufficiently grateful to allow the doctor to keep in touch with them up to the end.

In his prefatory note to Mr. Cairns' paper Dr. Cushing refers to certain matters which might be regarded as controversial. One of them no doubt was the question of how far outside discrimination and selection of cases might affect a surgeon's mortality percentages and survival periods. Dr. Cushing would probably be the first to acknowledge that his known interest in pituitary disorders led patients with adenomas to frequent his clinic, doubtless on the family doctor's advice, but beyond this it is difficult to believe that there was any discrimination

*Cairns, H. W. B. The ultimate results of operation for intracranial tumors: a study of a series of cases after a nine-year interval. *Yale J Biol & Med* 8:421 (May) 1936

made in the type of cases recommended to the Brigham clinic for diagnosis and treatment. Certainly those who worked there know that no discrimination was made between favorable and unfavorable cases after the patients once arrived. It was most unusual for the neurologists, ophthalmologists or physicians who referred patients to do more than make a tentative localizing diagnosis except naturally enough in the case of acoustic tumors, in which the localizing diagnosis usually indicated the nature of the tumor as well.

It should be remembered also that before 1926 no attempt was made to distinguish between different types of gliomas either before or after operation. Until tumors were classified and the life history of some of them worked out, there was no possibility of discriminating before operation between favorable and unfavorable cases. It was felt that every case of intracranial tumor called for an operation and some still believe in following this rule today even in the case of the highly malignant cerebral glioblastoma multiforme and the cerebellar medulloblastoma.

The illuminating "longest known survival" figures which Dr. Eisenhardt has added to Mr. Cairns' Tables showing a four year survival for a glioblastoma and a seven year + survival for a medulloblastoma lead one to feel that in view of the surgeon's inability to make an absolutely correct preoperative pathological diagnosis he is scarcely justified in refusing operation because a tumor is presumably malignant and its surgical exposure is known to have a high percentage of early fatalities.

Mr. Cairns frankly admits his having mistaken a meningioma for a glioblastoma, which shows the risk of refusing to operate upon a presumptive tumor of this sort. The risk of similarly mistaking a benign cerebellar tumor for a medulloblastoma would seem to be too great to justify the preliminary radiation which some have advocated particularly in view of the fact that the survival period of a surgically treated astrocytoma for example may exceed twenty five years.

\$3 000 000 FOR THE MEMORIAL HOSPITAL OF NEW YORK

ANNOUNCEMENT has recently been made of the gift by the General Education Board founded by John D. Rockefeller of \$3 000 000 to the Memorial Hospital for the Treatment of Cancer and Allied Diseases. This munificent gift will allow the oldest cancer institute in the United States to build a new modern hospital and laboratory building on a new site adjacent to the Rockefeller Institute and the New York Hospital-Cornell Medical Center. It will also make available large funds for research. This

hospital has a long and honorable history and especially in the last twenty five years, under the leadership of James Ewing has become one of the great cancer institutes of the world. With this change of location to the proximity of the older institutions with which it has long been associated we may expect it to go on to a future of even greater triumphs than in the past.

Cancer research has been aided by many new gifts in the last few years and the results of this support are appearing almost daily. The treatment of cancer patients is improving by leaps and bounds all over the world and at last in some communities such as Massachusetts, the death records have begun to show this improvement. Even more striking however, is the accumulation of important new scientific knowledge of the nature of cancer and of the processes that lead to it. In New England we have many earnest groups of skilled workers devoting their time to this disease. We take this opportunity to salute Dr. Ewing and his colleagues on their being the recipients of this gift and to congratulate the General Education Board on the selection of the institute to which they have given it.

THE NOISE MENACE

CIVILIZATION may eventually decide that it *can get along without noise, and will then find that it can get along much better without it than with it.* At least it is encouraging to know that earnest efforts are being made in the direction of noise abatement even if a long course of public education will be necessary before any spectacular progress is made.

In New York a symposium on the effect of noise in health and disease was held recently at the Academy of Medicine under the joint auspices of the Medical Society of the County of New York and the City's Noise Abatement Commission. To know that a medical society might be interested in noise abatement is not surprising, to learn that politicians are in favor of less noise is news, and is encouraging.

Experiments at Bellevue Hospital were reported by Dr. Foster Kennedy of Cornell who had demonstrated that the noise resulting from the explosion of a paper bag raised the brain pressure to four times normal for seven seconds and that thirty seconds elapsed before the pressure returned completely to normal. Trephined patients were used for these experiments, the pressure being measured directly from the brain surface. 'The undoubted effect of constant noise,' according to Dr. Kennedy 'is disturbance of the blood vessel apparatus, and the increase in the degenerative processes in the heart and arteries.'

Further experiments have shown that a difference of 19 per cent in energy expenditure

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.00 per year, \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass

BRAIN TUMORS LATE SURGICAL RESULTS

THE leading article* in this month's issue of the *Yale Journal of Biology and Medicine* calls attention to one of the uses to which the newly established registry for brain tumors at Yale, mentioned in these columns on December 13, 1934 has been put. Mr. Hugh Cairns, F.R.C.S., cerebral surgeon to the London Hospital, came from London last autumn to study the end-results of the tumor cases that came under his supervision while acting as Dr. Cushing's resident at the Peter Bent Brigham Hospital nine years ago. This gives an indication of the purposes to which the collection may be put and emphasizes how the registry will become increasingly valuable for future studies of similar kind.

The principal disadvantage from which it was feared the Registry might suffer by its transfer from Boston to New Haven was its unavoidable separation from the voluminous and detailed clinical records which remain the property of

the Brigham Hospital. This disadvantage has been overcome by the recent reproduction, now completed, of the *circa* 50,000 pages of records that deal with this group of histologically verified tumors. Permission was given for this by the Brigham Hospital Board and through the co-operation of the Sterling Library at Yale the work was carried out with Leica camera and cinema-film methods, it having been one of the largest orders of the sort that has so far been completed. This puts in the hands of those, who will hereafter study the gross and histological preparations, the clinical records of the cases from which they have come, together with the subsequent correspondence and accounts of examinations which continue to be added to the case records as the years progress.

There is much still to be learned about brain tumors, many of which have not as yet even been satisfactorily classified, and only by continued study can the life history of one after another of the many varieties come, in the course of years, to be so fully worked out that the expectation for life and the relative freedom of the patient from incapacitation after operation of a given tumor can be known at the time it is first brought to view. Not until the life history of every kind of tumor is understood by the person who attempts surgically to deal with them can the lowest operative mortality and at the same time the longest survival period be obtained—a survival with the least impairment of the afflicted individual's intellectual and physical capacity to earn his livelihood.

Mr. Cairns' paper represents a new approach to the study of surgical end-results which is particularly important in the case of cerebral lesions. Surgeons heretofore have been satisfied to work out the operative mortality percentages with the survival periods for tumors of special kinds, but to try to determine after a given period what the survivors had been good for, and to what degree the spared life had been worth living is something altogether new in the field. Such a study would be possible only when records are of the best and when the relation of patients and doctors has been on an unusually intimate basis and patients are sufficiently grateful to allow the doctor to keep in touch with them up to the end.

In his prefatory note to Mr. Cairns' paper Dr. Cushing refers to certain matters which might be regarded as controversial. One of them no doubt was the question of how far outside discrimination and selection of cases might affect a surgeon's mortality percentages and survival periods. Dr. Cushing would probably be the first to acknowledge that his known interest in pituitary disorders led patients with adenomas to frequent his clinic, doubtless on the family doctor's advice, but beyond this it is difficult to believe that there was any discrimination

*Cairns H. W. B. The ultimate results of operation for intracranial tumors: a study of a series of cases after a nine year interval. *Yale J. Biol. & Med.* 8:421 (May) 1936

Hicks' version, followed by spontaneous delivery offers the best prognosis for the mother while if less than two fingers the insertion of a Vorhees' bag, followed by J. Braxton Hicks' version and delivery as above has given excellent results. Removal of the bag at two or three fingers' dilatation is preferable to waiting for its spontaneous expulsion as the latter is apt to be followed by an immediate hemorrhage. At tempt at extraction before full dilatation is a dangerous procedure.

It is significant that the morbidity in placenta praevia is appreciably higher than in normal pregnancy and that mortality from sepsis is as much to be feared as death from hemorrhage hence strict asepsis with the more frequent employment of hysterectomy especially in potentially infected multiparae, is an important consideration.

THIRD ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 24

Berkshire

Thursday May 28 at 4 30 P.M. at the House of Mercy Hospital Pittsfield Subject: Pediatrics (Surgical)—Abdominal Disease in Childhood. Instructor: P. J. Mahoney, M.D. Melvin H. Walker, Jr., Chairman.

Middlesex East

Wednesday May 27 at 4 00 P.M. at the Melrose Hospital Melrose Subject: Pediatrics—Abdominal Disease in Childhood. Medical and Surgical Aspects. Instructors: P. H. Sylvester and H. W. Hudson, Jr. Joseph H. Fay, Chairman.

Norfolk

Friday May 29 at 8 30 P.M. at the Norwood Hospital Norwood Subject: Ophthalmology and Otolaryngology—(a) The Major Hazards in Diagnosis of Diseases of the Eye, Ear, Nose and Throat as Seen in General Practice. (b) Special Treatment in Acute Medical and Traumatic Diseases of the Eye. Emergencies Arising in the Treatment of the Ear, Nose and Throat. Instructors: P. A. Chandler and C. T. Porter. H. B. C. Riemer, Chairman.

Worcester (Milford Section)

Wednesday May 27 at 8 30 P.M. at the Milford Hospital Milford Subject: Syphilis and Gonorrhea—Syphilis: Modern Treatment. The Use of Neosalvarsan, Tryparsamide, Bismuth, Mercury, Potassium Iodide, etc., in Office Practice. Gonorrhea: Treatment of Complications as Seen in General Practice. Instructors: A. W. Cheever and N. A. Nelson. Joseph I. Ashkins, Sub-Chairman.

REPORT ON THE ACTIVITIES OF THE PUBLIC RELATIONS COMMITTEE OF THE MASSACHUSETTS MEDICAL SOCIETY SINCE THE LAST COUNCIL MEETING

SECTION FOR SCHOOL PHYSICIANS

At the last Council meeting a petition for the establishment of a section for school physicians was referred to this committee for recommendations. The committee carefully considered sections already in existence, pediatrics, etc., and also considered needs for other sections and recommends that no action be taken at this time.

THE WASHINGTON PLAN

Under the sponsorship of the Massachusetts Medical Society, the Massachusetts Dental Society and the Boston Hospital Council, Mr. Ross Garrett, coordinator of the Washington (D. C.) Plan for Medical Care, addressed a special meeting to which Councilors were invited held at the Medical Library, February 18, 1936. The Public Relations Committee is sufficiently impressed with the value of this plan to feel that it is worth while in the near future to send two representatives to Washington to make first hand studies with the view to determine if this plan with some modifications can be used to good advantage in some sections of Massachusetts.

PROPAGANDA ON COMPULSORY SICKNESS INSURANCE

The Subcommittee on Social Legislation and Insurance (Dr. M. A. Tighe) is continuing public education regarding Compulsory Sickness Insurance. Further radio broadcasts will be continued in the fall.

SURVEY ON ADEQUACY OF MEDICAL CARE

The Subcommittee on the Adequacy of Medical Care (Dr. E. L. Hunt) has been making family studies principally in Worcester County but also in other sections. The studies are still being continued and final conclusions and recommendations will be presented at a later meeting. The Public Relations Committee believes however that the following recommendations should be adopted at this time:

Recommendations of the Subcommittee on Adequacy of Medical Care

The results of our studies as set forth in accompanying reports have revealed inadequacies of various types. By far the greatest obstacles which lie between the population in general and the best in medical care are the results of causes deeply rooted in human nature itself in our social structure in the inadequacy of our laws governing the licensure of physicians in medical education even in medical science itself in lack of intelligence and initiative on the part of the people who need the care in overlapping and competing agencies of medical service in parasitic cults and commercialized medical products.

Other obstacles are more superficial and more readily adjustable by comprehensive planning and

more diligent effort Of these, uneven distribution of medical facilities and practitioners, lack of information and understanding of their health needs by the people, and the economic barrier are susceptible of improvement by organized effort and better planning

In order to initiate such effort in harmony with our pledge to find remedies for such inadequacies as our studies should uncover (Council vote April 4, 1935) we recommend

I. That each district society be urged to form within its area, Health Councils composed of carefully chosen representatives of the Welfare Agencies, Hospital Boards, health and welfare departments, and nursing and dental societies The functions of these Councils to be

1 Education of the public in the needs and possibilities of medical service, preventive as well as curative, and in the ways available for securing it

2 Making provision for suitable clinics or district visiting services where need is found (rural and factory village areas)

3 Securing co-operation in its program from industrial, fraternal, social and health organizations

4 Establishing welfare department responsibility for and intelligent administration of medical care for the indigent and near-indigent in each town and city by

a Employing the licensed physicians of the community at reasonable pro rata fees

b Subsidizing licensed practitioners to locate where there are no physicians in residence

5 Influencing established hospitals to broaden their function so as to serve as health centers in co-operation with local health departments and as welfare centers in co-operation with local welfare departments

6 Promulgating, locally organizing and thereafter serving as an advisory body in the administration of any programs of voluntary insurance for hospitalization and medical care which may receive the approval of the State Society

II That a State Health Council of similar constitution be developed whose functions shall be to co-ordinate the work of the local Councils, advise as to methods, study legal relations and devise enabling statutes when necessary to simplify procedures and increase efficiency in carrying out the primary purpose of promoting better health by bringing adequate medical care to the people and relieving economic distresses which are detrimental thereto

*Subcommittee on Adequacy of Medical Care
Survey of 500 Families*

Total number of families	500
Total people surveyed	1820
Total people ill	778

1 Any medical care needed that was not obtained?

Yes	67	— 13 4%	
No	420		
Partially	8		
Unknown	5		Total 500

2 Did finances prevent use of M D ?

Yes	75	— 15 0%	
No	411		
Partially	9		
Unknown	5		Total 500

3 Appliances and special medication needed but not obtained because of economic disability

None	377	— 75 4%	
False Teeth	41		
Trusses	2		
Splints	2		
Glasses	57		
Belts	1		
Drugs	19		
Special Foods	20	— 20 2%	
Unknown	22		Total 541

4 Does the family make use of free clinics?

Never	338		
Seldom	100	— 20 0%	
Often	56	— 11 2%	
Unknown	6		Total 500

5 Need, but inability to pay, for dental service

Yes	150	— 30 0%	
No	346		
Unknown	4		Total 500

6 Need, but inability to pay, for nursing service

Yes	22	— 4 4%	
No	473	— 94 6%	
Unknown	5	— 1 0%	Total 500

7 Amount of money paid during last year for medical care This includes, doctors, nurses, hospitals, medications, etc

None	79	— 15 8%	
Under \$10	95	— 19 0%	
\$10 25	80	— 16 0%	
\$25 50	86	— 17 2%	
\$50 100	60	— 12 0%	
\$100 200	43	— 8 6%	
\$200 300	15	— 3 0%	
\$300-400	5	— 1 0%	
\$400 500	9	— 1 8%	
\$500 1000	4	— 0 8%	
\$1000 and Over	2	— 0 4%	
Unknown	22	— 4 4%	Total 500

8 Proportion of medical burden paid M.D			
None	164	— 32.8%	
One-Eighth	3		
One-Quarter	64		
One-Half	73	— 42.8%	
Three-Quarters	74		
All	88	— 17.6%	
Unknown	34	— 6.8%	Total 500

9 Proportion of medical burden paid nurse			
None	440	— 88.0%	
One-Eighth	11		
One-Quarter	14		
One-Half	5	— 6.2%	
Three-Quarters	1		
All	7	— 1.4%	
Unknown	22	— 4.4%	Total 500

10 Proportion of medical burden paid hospital			
None	383	— 76.6%	
One-Eighth	5		
One-Quarter	32		
One-Half	28	— 16.4%	
Three-Quarters	12		
All	6	— 1.2%	
Unknown	20	— 5.8%	Total 500

11. Proportion of medical burden paid for other medical needs			
None	280	— 46.0%	
One-Eighth	11		
One-Quarter	81		
One-Half	43	— 33.0%	
Three-Quarters	30		
All	61	— 12.2%	
Unknown	44	— 8.8%	Total 500

12. Help received for or by medical care			
None	360	— 72.0%	
Public Welfare	52		
Social Agencies	21		
Frat. Organ	6		
Relatives	26	— 45.4%	
Friends	10		
Private Drs	61		
Unknown	13	— 3.6%	Total 519

13 Living conditions			
Satisfactory	356	— 71.2%	
Fair	115	— 23.0%	
Poor	24	— 4.8%	
Unknown	5	— 1.0%	Total 500

14 Income (total family)			
Under \$500	45	— 9.0%	
\$500-1000	170	— 34.0%	
\$1000-2000	175	— 35.0%	
\$2000-3000	48	— 9.6%	
\$3000-4000	12	— 2.4%	
\$5000	11	— 2.2%	
Unknown	30	— 7.8%	Total 500

15 Outside help			
None	383	— 76.6%	
Public Welfare	64		
Social Agencies	13		
Frat. Organ	4	— 20.0%	
Relatives	19		
Friends	7		
Unknown	16	— 3.2%	Total 506

16 Resources used other than current income			
Savings	65		
Insurance	39		
Investments	7	— 27.3%	
Loan Assn	13		
None	267	— 53.4%	
Unknown	123	— 24.4%	Total 500

PREPAID HOSPITAL INSURANCE

The Public Relations Committee held a joint meeting with the committee of the Boston Hospital Council on April 1 to discuss Prepaid Hospital Insurance. Dr. Faxon explained the proposed program and definitely stated that the Plan would not be initiated without the endorsement of the Massachusetts Medical Society. The discussion was free and frank and criticisms by our committee were accepted and embodied in the revision of the Plan. The revised Plan has the unanimous endorsement of the Public Relations Committee and its adoption by the Council in principle is recommended. The matter was then referred to the Subcommittee on Hospital Relations (Dr. J. Harper Blaisdell) for study and modification. The result of the mutual conference by Dr. Blaisdell's committee and the committee from the Boston Hospital Council is appended below for your careful consideration.

FREE CHOICE OF PHYSICIANS UNDER WORKMEN'S COMPENSATION ACT

The Subcommittee on Hospital Relations also obtained a legal opinion on the subject of free choice of physician under the Workmen's Compensation Act which is appended below. The committee herewith asks authorization to employ counsel at the expense of the Massachusetts Medical Society to carry a test case to the Supreme Court if and when a suitable test case arises. The committee earnestly requests attention of all Fellows to this matter so that a test case will adequately cover the points in doubt.

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PREPAYMENT HOSPITALIZATION PLANS

Prepayment Hospitalization Plans essentially provide a mechanism by which a group of people may insure against hospital costs. This mechanism is called a Hospital Service Corporation. It is a non-profit corporation, set up under State laws. It makes contracts with subscribers agreeing to pay within specified limitations, their hospital bills. In order to fulfill these contracts it arranges with hospitals to provide service when needed by subscribers, paying these hospitals for all service rendered, at specified rates.

Certain essential principles must be understood and adhered to:

1. Such plans are primarily intended to enable subscribers to budget hospital bills, rather than to provide revenue for hospitals.

2. At least a majority of the hospitals of a community must be included in the plan so as to preserve a free choice of hospitals, such as now exists.

3. It must be nonprofit and controlled by persons more interested in the quality of service rendered than the low cost of such service. Representative groups in the community should sponsor and control hospital service plans rather than private investors who are primarily concerned with private gain.

4. It must not interfere in the existing relationship of patient, doctor and hospital.

5. It must follow sound actuarial principles as to subscription rates, scope of benefits, and payments to hospitals.

Prepayment plans are founded upon the fact that although sickness requiring hospitalization in a group of 1,000 persons cannot be predicted as applying to any individual in the group, nor if hospitalized the length of such hospitalization, the total number of persons who will require hospitalization

and the total number of days of hospitalization for the group can be accurately estimated. If then the total cost of hospitalization is equally divided among the group the amount paid by each subscriber will be small. Roughly speaking, 1,000 persons will require 1,000 hospital days which can be provided at a cost of approximately \$10.80 per year per subscriber. Similar use of this principle of insurance has been successfully used in Fire, Life and other forms of Insurance.

Present actuarial information limits subscribers to employed persons, employed because employment presupposes a certain degree of health and ability to meet such financial obligations as are contracted for.

Cooperative study by a Committee representing the Hospital Council of Boston and the Subcommittee on Hospitals of the Committee on Public Relations of the Massachusetts Medical Society has resulted in a plan having these essentials:

There shall be incorporated the Associated Hospital Service Corporation of Boston with a majority of Directors chosen from Trustees of Hospitals in the Metropolitan area, the remainder to be representatives of the Massachusetts Medical Society, the Community Federation, the Council of Social Agencies, the Chamber of Commerce and similar organizations. It shall be a nonprofit organization and no member of the corporation shall receive a salary.

The Hospital Service Corporation shall be empowered to make contracts with groups of employed subscribers for the provision of hospital care within certain limitations which will be clearly stated in the contract. The anticipated cost per year to each subscriber would be \$10.80. No geographical limitations other than State boundary will be set, but in order to maintain existing relationships between patients, doctors and hospitals subscriptions can only be issued in communities where a majority of the hospitals in the community have entered into agreements with the Service Corporation for the provision of hospital care.

The Hospital Service Corporation may also enter into contracts with any hospital authorized under the laws of Massachusetts for the provision of hospital care to subscribers at a fixed rate of payment for each day of service rendered. The anticipated payment for each hospital day is \$6.00. Hospital care shall be that type of care usually designated as semiprivate and all professional fees shall remain a matter of arrangement between patient and physician exactly as they do at present for such cases. Admission of patient shall be subject to the usual rules and regulations of the individual hospital and shall be only upon recommendation of a physician, excepting in case of emergency.

The general principle of Prepayment for Hospitalization was endorsed in 1933 by the American Hospital Association, subject to the limitations set forth above. At present there are over sixty communities in the United States with group hospital

zation plans which have enrolled over 300 000 subscribers and involve several hundred hospitals and which in some instances have been operative for five years

Only the general outlines have been given here since it was felt that the inclusion of the details of contract with subscribers and the contracts with hospitals would only lead to a confusing discussion of these details rather than a consideration of the general principles involved that these details could safely be left to be worked out by the committees representing the Massachusetts Medical Society and the Boston Hospital Council

WORKMEN'S COMPENSATION ACT (FREE CHOICE OF PHYSICIAN)

Your Committee has procured an opinion from counsel as to the right of a physician on the staff of a public or charitable hospital to obtain payment from the insurer under Section 30 of Chapter 152 of the General Laws (The Workmen's Compensation Act) for services rendered an industrial employee who has been brought to the hospital for treatment.

This Section 30 so far as material provides that during the first two weeks after the injury and in unusual cases or cases requiring specialized surgical treatment in the discretion of the department for a longer period the insurer is to furnish adequate and reasonable medical and hospital services that the employee may select his own physician and the reasonable cost of the services of a physician so selected or of a physician other than the one provided by the insurer and called in case of emergency or for other justifiable cause shall be paid by the insurer subject to the approval of the department

The Industrial Accident Board has laid down the rule that an industrial case coming into the hospital as a hospital case, cannot be made into a private case in which the attending physician may collect from the insurance company for his services as in a private case

ALLEN CASE

The first case decided by the Supreme Judicial Court passing upon the right of a physician to payment for his services under Section 30 was Allen's case 265 Mass 490 decided in 1929

In this case the fingers of the employee were jammed. He consulted a doctor who bandaged the hand and sent him to the hospital. At the hospital, a nurse asked him if he had a doctor and he said he knew no doctor at the hospital. Then the nurse suggested the name of Dr. Spellman and he said that Dr. Spellman would be all right.

The doctor was denied payment for his services on the ground that there was no selection by the employee within the meaning of the statute and no emergency existed. The Court further held that physicians as well as nurses are generally expected to be in attendance at a public hospital. A pa-

tient who has been taken to such an institution if he has no physician of his own to treat him, naturally expects that he will receive treatment from some one on the staff. When an employee under the compensation act goes to such a hospital and does not select a physician the payment to the hospital of its charges includes the expenses of nurses and physicians and the insurer is not required to pay the physician who is a member of the staff for his services.

ZOMBRIC CASE

In 1935 the Supreme Court handed down its decision in Zombric's case 1935 A. S. 877

In this case the employee's hair was caught in a revolving shaft and her scalp and the back of her neck were torn off. She was taken to the hospital and Dr. Blood, a member of the staff who was on call but not on duty was called to the hospital to treat her at about 7 A.M. She was of age. At noon of the same day Dr. Blood talked with the girl's father informing him that he could get any physician that he wished to treat her. The father told Dr. Blood to continue to treat her. A week after the accident Dr. Blood notified the insurer of the case and length of treatment necessary. The insurer answered the letter but did not expressly authorize him to continue. The girl never actually selected Dr. Blood but she acquiesced in his treating her for several months.

The Board approved the bill of Dr. Blood finding justifiable cause existed for his treatment of the employee as a private patient. Upon appeal by the insurer Dr. Blood was granted recovery on the grounds (1) that an emergency existed and (2) that there had been a selection by the father ratified and adopted by the employee the exact amount of such selection being immaterial. The Court regards it as sufficient that the treatment continued as that of a private patient although it did not begin as such.

The general principles laid down in these cases appear to be that a staff physician is entitled to reasonable compensation for his services from the insurer when he treats an employee in the hospital (1) in an emergency (2) for other justifiable cause or (3) after selection by the employer.

The difficulty in obtaining such compensation however arises in view of the present attitude of the Board from the fact that the Board must pass on these questions in the first instance, and that an appeal from an adverse finding of the Board to the Courts may be taken only on questions of law since the Board's finding of facts is final and conclusive. It should further be noted that the physician is protected by the statute only for the first two weeks after the accident, except in unusual cases or cases requiring specialized or surgical treatment the existence of which must be found by the Board as a fact.

As the right of the staff physician to obtain compensation for his services must depend upon the

facts of each case, it is impossible to lay down any procedure that will absolutely assure him of compensation. However, your Committee makes the following suggestions that should prove of assistance to the employee in choosing his own physician, if he desires, and to the staff physician in procuring compensation for his services, if he is selected by the employee to attend him.

1 All industrial accident employees should be treated in private or semiprivate rooms or wards. This is in accordance with our previous recommendation as set forth in the report of the Public Relations Committee of the Massachusetts Medical Society presented at the Council Meeting, June 5, 1934.

2 As soon as the condition of the employee warrants his being questioned, the name of his regular family physician, if any, should be ascertained. If he has such a physician who is on the staff or courtesy staff of the hospital, his physician should be notified immediately and called in to treat the employee. In cases where surgical or unusual treatment may be required, the employee may make his selection with the assistance of his family physician.

If the employee has no regular family physician, he should be advised of his right of selection under the law, *including the right to select a staff physician, if he desires*, as soon as he is completely able to understand his situation, with mind unclouded by pain, drugs, or the effects of the accident, and should be told that such selection need not be made until he feels disposed to make it. Any question of the employee's capacity to make the selection may invalidate it, and hence the employee should be encouraged to defer the selection until his condition clearly warrants his making it.

We suggest that some one in authority in the hospital, other than the physician or nurse in attendance, should handle this matter. The utmost good faith should be exercised by all who come in contact with the employee. Under the decisions, no suggestions should be made to him by any one in the hospital as to the physician to be selected. The employee can be told the names of all the physicians on the staff from whom his selection may be made if he desires to select one, but the choice must be left entirely to him. The likelihood may well be that he will select the physician who has been treating him. If the patient is a minor, the selection may be made by the parent or guardian.

3 A written record should be kept for evidential purposes of the conversation of the parties at the time of instructing the employee of his right of selection and at the time such selection is made. The logical place for making such a record would be in the patient's hospital record. Although it would be most desirable to have a record of the entire conversation or conversations, it would be impractical,

to make such a record in many cases. Such a record will be very important in the event of a case arising before the Board in which testimony on this subject may need to be given. Therefore, in all cases in which the entire conversation cannot be recorded, a record should be kept which will be sufficient to enable the party making it to refresh his recollection for purposes of testifying in any proceeding. Although it is impossible to lay down any definite rule as to the extent of the record to be made in each case, it should contain at least the following:

- "a. A brief statement of the employee's physical and mental condition
- b. Employee stated Dr _____ was his regular family physician
- c. Dr _____ called in to treat him"

In cases where the employee has no such physician or the physician is not on the staff or courtesy staff of the hospital, the record should contain the following:

- "a. A brief statement of the employee's physical and mental condition
- b. The employee stated that he had no regular family physician or the physician was not on the staff or the courtesy staff of the hospital as the case might be
- c. Informed employee of his right of selection which he might exercise if he desired
- d. Employee expressed a desire to select a physician
- e. Informed employee that he could select any one of the following physicians (list names)
- f. Employee selected Dr _____ to treat him"

All such records should be dated and signed by the party making them.

Your Committee is desirous of doing everything possible to assist the members of the Society in this situation. However, it would be impractical, if not impossible, for the Society to arrange for representation by counsel at all hearings before the Board in which this question is involved.

Your Committee's part in the matter must be limited to furnishing you with assistance in bringing before the courts those cases in which an appeal from an adverse decision of the Board seems warranted. In order to take an appeal under the law, a copy of the record must be procured from the Board and entered in the Superior Court *within ten days* after notice of the filing of the Board's decision.

Therefore, if you have a case which comes within the foregoing suggestions we wish that, in the event of an adverse decision, you would mail promptly the copy of the decision to Dr J Harper Blaisdell, Chairman of the Sub Committee on Hospitalization, 45 Bay State Road, Boston, Mass.

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Dr. William B. Castle, Chairman

Dr. Marshall N. Fulton

Dr. Benjamin Spector

At the Springfield meeting of the State Society in June, the officers of the Boston Medical Library will gladly welcome all who are already interested in the work of the Library and any who are so conscious of the truth expressed by the following quotation that they are inspired to perfect themselves by further study

For never yet hath any one attained to such perfection but that time and place and use have brought addition to his knowledge or made correction or admonished him that he was ignorant of much which he had thought he knew or led him to reject what he had once esteemed of highest price."

One or more of the Library Committee will be in attendance prepared to explain such services as the Library is in position to render. The Booth allotted is No. 6 in the Springfield Municipal Auditorium.

ACCESSIONS

- "The Stomach and Duodenum 1935 By G. B. Eusterman and D. C. Balfour
"The Colon, Rectum and Anus 1935 By F. W. Rankin, J. A. Bagen and L. A. Bule
"Textbook of Fractures and Dislocations" 3d Edition 1935 By K. Speed

Haemochromatosis" 1935 Oxford By Sheldon

"La Maladie de Boeck. 1935 By Klemmeyer

"Forensic Chemistry" 3d Edition, 1935 By A. Lucas

"Comprehensive Treatise on Inorganic and Theoretical Chemistry V 14 1935 By J. W. Mellor

Biographisches Lexicon Ergänzungsband 1-5 1935

By W. Haeberling.

"The Human Foot. By D. J. Morton

Body Water By J. P. Peters

Experiments & Observations on Gastric Juice.

By William Beaumont.

"Textbook of Biochemistry By Benjamin Harrow and Carl P. Sherwin

Ed. Index of Differential Diagnosis." 5th ed. By Herbert French

Abortion By Frederick J. Taussig

Diseases of the Endocrine Glands 3d ed. By Hermann Zondek.

Diseases of Women By H. S. Crossen 8th ed.

Agents of Disease and Host Resistance By Frederick P. Gay

Sex and Internal Secretions By Edgar Allen.

A Textbook of Obstetrics" By Frederick C. Irving (Presentation Copy)

Mechanics of Normal & Pathological Locomotion in Man." 1935 By Arthur Steindler

"The Anatomy of Plants 1682. By Nehemiah Grew

REFERENCE BOOKS

American Illustrated Medical Dictionary By W. A. N. Dorland 17th ed.

A Compendium to Manuals of Practical Anatomy" By E. B. Jamieson 4th ed.

"Presidents and Professors in American Colleges and Universities By R. C. Cook 1935

CONTINUATIONS

"American Book Prices Current." N. Y. 1936

The above selections have been made by the Library Committee after consultation with representatives of various Societies of specialists and from the recent offerings of publishers who have submitted their new books for inspection by the Committee at fortnightly intervals.

There follow a few abstracts offered by individuals engaged in preparing the various Progress reports which appear from time to time in *The New England Journal of Medicine*. It is impossible of course to do more than single out a few each quarter and the effort has been to select the few that do appear because of their outstanding practical value to general practitioners.

ALLERGY

Perhaps nothing has given rise to more confusion than the word allergy. No two men seem to use it in quite the same way. To one man it seems to mean a sensitivity to some certain substance. To

FROM PROGRESS IN DISEASES OF THE SKIN

another it seems to mean every disturbance in sensitivity of any sort whatever. To many others it seems to mean nothing definite but only that if they use the word, even without sense, they are keeping up with the times.

Sulzberger and Goodman¹ think that the confusion which naturally has arisen from such loose use would be eliminated if writers would adhere strictly to the definition of allergy made by von Pirquet and Schick in 1906 to the effect that it denotes "an altered state of reactivity in an individual (human or animal)." A little farther on in the same paper they give the application wide scope saying that "all the allergic reactions mentioned above can occur in all organs, in any organ, in any part of an organ and in any system," which means that allergy includes about everything, if not indeed everything, which only a few years ago was explained on the ground of intoxication, auto-intoxication, sensitivity, hypersensitivity and susceptibility. Such cases would now, in modern terminology, be called allergic or allergy.

One is enabled to understand this point of view better by reading an earlier article by Sulzberger, Wise and Wolf.²

Unfortunately, the position taken by Sulzberger and his collaborators does not clear up everything as Grow and Herman's paper³ proves.

Grow and Herman report that out of 150 so-called normal individuals 55.5 per cent reacted positively to 1 or more of 13 test extracts used. 4 reacted to all the extracts and 1 control was positive.

These figures suggest that Sulzberger and Goodman's criteria of allergy are far more accurate. According to Grow and Herman—family history, personal history and intracutaneous tests are as common in normal individuals as in "allergic." Indeed, the latter conclude, without confirmation by the history and the clinical manifestations, they are but aids to diagnosis and even positive tests are not necessarily proof of allergic disease.

REFERENCES

- 1 Sulzberger M B and Goodman J. Nomenclature definition and classification of allergy and allergic manifestations. *M Rec* 143:13 (Jan 1) 1936.
- 2 Sulzberger M B, Wise F and Wolf J. Tentative classification of allergic dermatoses. *J A M A* 104:1489 (April 27) 1935.
- 3 Grow Max H and Herman Nathan B. Intracutaneous tests in normal individuals: an analysis of 150 subjects. *J Allergy* 7:108 (Jan) 1936.

ANESTHESIA*

The January number of *Annals of Surgery*, volume 103, contains five articles of particular interest to anesthesiologists.

These are the following:

- 1 Page 13 The Surgical Risk, Rodman J S and Leaman, W G, Philadelphia.
- 2 Page 24 The Renal Phase of Surgical Risk, Rowntree L G, Philadelphia.
- 3 Page 29 Pantocaine in Spinal Anesthesia, Bull, D C and Esselstyn, C B, New York.

*From *Progress in Anesthesia*.

4 Page 38 Carbon Dioxide Absorption Technique in Anesthesia, Waters, R. M., Madison.

5 Page 46 Preanesthesia Narcosis with Paraldehyde, Henderson, J, New York.

- 1 Rodman evaluates chiefly the cardiac risk. "We have advanced considerably since the days when a stethoscope to the chest in the anesthetizing room was considered sufficient to determine the risk of the patient from the cardiac standpoint. The features then of a complete heart study before operation consist of an inquiry into the patient's symptoms to determine myocardial function, a survey of the patient's past medical history to search out diseases which are known to affect the heart, a record of all the physical signs elicited and, if possible, fluoroscopic and electrocardiographic examinations to complete the picture." We often speak of the stress and strain of the operation on the heart, yet this is hardly greater than the work the heart does during the normal activities of any day. The symptoms that are commonly recorded as cardiac arise, in many instances, from other causes. When we see the skillful anesthetist take patients through long operations with no change in the heart rate, mechanism of the heart beat and with little or no change in the blood pressure and no visible venous engorgement, we realize the importance of choosing the anesthetist and the part the anesthetist has in making the burden borne by the heart indeed a light one.

A heart which carries its daily burden well without excessive dyspnea or chest pain is equivalent to the normal organ."

- 4 Waters describes the historical basis for the foundation of modern anesthesia, with special note of progress as he has seen it.

"In the year 1916, the following conditions obtained in regard to inhalation anesthesia:

- 1 A completely open technic was known to result in a cold dry atmosphere being inhaled, resulting in irritation of membranes and resultant hyperactive breathing.
- 2 A semiclosed technic was as a rule less damaging to the patient but required much clinical judgment in its use. Respiratory movements were excessive due to retained carbon dioxide. Cost of gas anesthesia, though less than with completely open technic, was for many cases prohibitive.
- 3 With all inhalation anesthesia, sweating was the rule, reduction of body temperature usual, annoyingly hyperactive breathing frequent, and operating teams were constantly exposed to high concentrations of agents used." The advantages of the carbon dioxide absorption technic are demonstrated.

5 Henderson's usual dose of paraldehyde is .15 cc. per pound of body weight given in a vehicle of starch solution, 2 table-spoonfuls to the pint but rarely exceeding 6 ounces in total volume. This is given 1½ hours preoperatively by rectum. One-half hour preoperatively 1/6 gr morphia and 1/150 gr atropine or scopolamine is given hypodermically. Either nitrous oxide or ethylene is the usual inhalation anesthetic. In his series there have been amnesia marked lessening of the amounts of gases used, comfort, and safety. Paraldehyde is cheap, requires no special preparation and is easily administered by the nurses. He states that the smell is not objectionable.

BOOK REVIEWS

Prospective purchasers of medical books are not infrequently the victims of high pressure salesmanship on the part of agents who visit at inopportune times. Many books are bought under such circumstances that are really not the best for the individual's needs. *The New England Journal of Medicine* presents in its 'Book Review' department a means of checking up on the worth while books. Attention is called below to reviews of a few of the more recent publications about which some may desire information and reference to this department in *The New England Journal of Medicine* will simplify the process of securing for one's own library the texts one should possess.

The Theory and Practice of Anaesthesia by M. D. Nosworthy published in London and reviewed quite fully in *The New England Journal of Medicine* (March 5 1936 p 500) and a review of five recent articles in the *Annals of Surgery* given above will be found a very practical help to practitioners and students as well as to professional anesthetists.

A biographical sketch of one of America's foremost obstetricians John Whitridge Williams former Professor of Obstetrics at the Johns Hopkins University Hospital and Medical School is well recommended in a review on p 500 of *The New England Journal of Medicine*'s issue of March 5 1936.

Dr James Peter Warbasse's volume on "The Doctor and the Public," reviewed in the issue of February 10 1936 of *The New England Journal of Medicine* on p 400 cites the study of the present day social aspects of physicians' relations with the public. Also under date of February 20 p 400 appears an appreciation of the recently published small volume of the "Diagnosis and Treatment of Pulmonary Tuberculosis" by Drs John B. Hawes and Moses J. Stone.

Volume III of the Forty-Fifth Series of the *International Clinics* edited by Louis Hamman is out and its significant articles are appraised in a review appearing on p 400 of *The New England Journal of Medicine* for February 20 1936.

RULES GOVERNING THE USE OF THE LIBRARY

Hours: During the months of October to June inclusive the Library will be open daily except Satur-

days Sundays and Holidays from 9 30 A.M. to 6 P.M. Saturdays the Library will close at 5 P.M. From October 16 to May 31 the Library will be open Monday and Wednesday evenings from 6 to 10 o'clock. During July August and September the Library will close daily at 5 P.M., except Saturdays, when it will close at 12 noon.

Most books and periodicals may be borrowed for periods varying from three to fourteen days.

MISCELLANY

THE PRESIDENT ELECT AND THE VICE-PRESIDENT OF THE AMERICAN MEDICAL ASSOCIATION

At the Annual Meeting in Kansas City Dr John H. J. Upham of 244 N. Parkview Avenue Columbus Ohio whose office is at 327 East State Street, was elected President Elect of the American Medical Association and Dr Charles Gordon Heyd of New York City was elected Vice-President.

Dr Upham was born in 1871 and graduated from the University of Pennsylvania Medical School in 1894. He is Chairman of the Board of Trustees of the American Medical Association and Dean and Professor of Medicine of the Ohio State University College of Medicine.

Dr Heyd was born in 1884 and received his M.D. degree from the University of Buffalo School of Medicine in 1909. He is Professor of Clinical Surgery at Columbia University and Director of Surgery and Attending Surgeon at the New York Postgraduate Hospital and Dispensary. He holds the position of consulting surgeon to several other hospitals.

His office is at 116 East 53rd Street New York City.

APPROVED PROPHYLACTIC REMEDY FOR USE IN THE EYES OF INFANTS AT BIRTH

The Massachusetts Department of Public Health in accordance with the provisions of Chapter 115 of the Acts of 1936 approves the following "prophylactic remedy" for the treatment of the eyes of infants at birth. A one per cent filtered solution of silver nitrate USP in distilled water stored in ampoules for single use; the ampoules to be protected against penetration of light and provided that if the ampoule must be broken it shall not be made of glass or other shatterable material which might cause injury to the eye and further provided that the ampoule or its container shall bear an expiration date which shall not be later than six months after the date of preparation of the solution and that no solution shall be used after said date of expiration.

Under the provisions of Chapter 115 of the Acts of 1936 no prophylactic remedy may be used after June 4 1936 for the treatment of the eyes of infants at birth which is not furnished or approved by the Department of Public Health.

The Department recommends the following pro-

cedure for the protection of an infant's eyes against infection at birth

- 1 Every pregnant woman, concerning whom there is the least suspicion of gonococcal infection, should be so treated for the infection, both during pregnancy and at delivery, that the birth canal may be as free as possible from the gonococcus during the birth of the baby
- 2 The following order of procedure is recommended for the use of the prophylactic in the baby's eyes
 - a Clean the skin of the four eyelids with cotton pledgets moistened in boric acid solution, using separate pledgets for each eye
 - b Thoroughly irrigate the conjunctival sac of each eye with boric acid solution, using a sterile soft rubber ear syringe
 - c Retract the eyelids, digitally, and instill one drop of a one per cent solution of silver nitrate into each eye, preferably near the outer canthus, and allow the solution to remain in contact with the conjunctiva for at least two minutes
 - d Irrigate the conjunctival sac of each eye with sterile normal salt solution to prevent chemical conjunctivitis
 - e Secure the services of an ophthalmologist upon the first appearance of suppurative conjunctivitis and insist upon a bacteriological report on the conjunctival secretions
- 3 Precautions
Since corneal abrasions promote ulceration in the presence of the gonococcus, great care must be taken to avoid contact between the cornea and the finger manipulating the eyelids, the irrigating syringe or the eye dropper, if the above recommended procedure is carried out

HENRY D CHADWICK, M D,
Commissioner of Public Health

May 12, 1936

THE AWARD TO DR E R BALDWIN

On May 6, 1936, Dr E R Baldwin of Saranac Lake, New York, was awarded the Dr George M Kober Medal by the Association of American Physicians, at its annual meeting, in recognition of his research work in tuberculosis

This award is given annually in honor of the late Dr Kober, former professor of medicine and Dean at George Washington University

CONNECTICUT NEWS ITEMS

Dr R. L. Leak, Superintendent of the State Hospital for the Insane at Middletown, recently appeared before the State Board of Finance and Control asking for some relief of the overcrowding existing in his institution. The hospital now has 600 ward employees, sixteen of whom are physicians, one physician to 170 patients. Through Dr Leak the trustees

asked for two more physicians as well as additional ward attendants. The board immediately authorized the trustees to add one senior physician and twenty-five ward attendants. It is recognized that this project by no means solves the problem of overcrowding at the hospital but it is, nevertheless, a step in the right direction.

Dr Robert V. Boyce, president of the Hartford Board of Health, was named acting health officer of the city at a special meeting of the commission on May 1, 1936. At the same time the board gave Dr Thomas F. O'Brien, who has been acting health officer, an indefinite leave of absence with pay because of illness. Dr Boyce's basic salary was set at \$5,000, an increase of \$1,000 over that of his predecessor.

The Litchfield County Medical Association held its annual meeting at the Charlotte Hungerford Hospital, Torrington, Tuesday afternoon, April 28, 1936.

The following officers were elected

President Maurice J. Reidy, M.D., Winsted
Vice-President Howard Allen, M.D., Woodbury
Secretary-Treasurer W. Bradford Walker, M.D., Cornwall
Councillor Harry B. Hanchett, M.D., Torrington
Censor Roy Sanderson, M.D., Winsted
Chairman, Committee on Public Policy and Legislation Sanford H. Wadhams, M.D., Torrington
Chairman, Committee on Medical Ethics and Department Harry B. Hanchett, M.D., Torrington
Chairman, Medical Economics Committee Timothy M. Ryan, M.D., Torrington

As guest speakers the Association listened to Walter Dappreuther, M.D., New York Post-Graduate Hospital, and to Walter R. Steiner, M.D., Douglas J. Roberts, M.D., and Wilmar M. Allen, M.D., of Hartford.

Dr Albert W. Buck, Superintendent of the New Haven Hospital and President of the Connecticut Association of General Hospitals, appeared recently before the Commission to Study the Pauper Laws. He informed the Commission that the general hospitals of Connecticut are contributing thousands of dollars a year in the care of state patients for which they are never fully reimbursed by the State. Dr Buck characterized relief cases as a serious financial problem.

The State now pays each general hospital a flat yearly appropriation and in addition four dollars per week for each state case. Hospitals caring for a large number of state patients find this compensation far below the actual cost of the care of these patients. The four dollar weekly rate was established thirty years ago when the average cost of hospital care was six dollars per week. Now the average cost is thirty-five dollars per week per patient.

It was brought out in the discussion that the Hartford Hospital has lost \$160,000 in the last five years in caring for the state cases and St. Francis

Hospital \$43 000 in the last year. The Assistant Superintendent of the Hartford Hospital informed the Commission that the flat appropriations are given out on a political basis and some hospitals with very little charity work receive the same grants as hospitals with a large number of these patients. He also stated that the last adjustment of the grants was made in 1921 and since then the amount of care given state cases has increased materially. The whole amount of free service given by the hospitals in Hartford has risen 160 per cent in three years. At the same time the private gifts to hospitals have dropped to one-fourth the amount in 1929.

Another fact of interest was revealed at this hearing, viz. that old age assistance ceases the moment the beneficiary enters a hospital. That person then becomes a town or city charge.

Specimens of marihuana, also known as Indian hemp and as hashish are being grown in the laboratories of the State Health Department in New Haven. It is planned in about a month to distribute these to fifty police stations throughout Connecticut so that marihuana may be recognized when growing and ordered by the police to be instantly uprooted. This weed grows wild in Connecticut and has been found within the limits of Hartford. Fearing the perversion of youth by its usage the Narcotics Division of the State Department of Health is concentrating every effort to stamp it out. It is easily obtained and commonly used by drying the leaves and smoking them in cigarettes.

It is a known fact that marihuana sometimes gives man the lust to kill unreasonably and without motive. Many cases of assault, rape, robbery and murder are traced to the use of this weed.

The police have found traffic in marihuana cigarettes going on in Hartford, the product being imported from New York. They also are of the opinion that the weed is being grown in the city, the exact location not yet having been discovered.

Dr James A. Greenway, Director of the Department of University Health at Yale since its establishment in 1916 will retire in June. He will be succeeded by his assistant, Dr Orville F. Rogers. The department is considered a pioneer in its field. Twenty years ago when it was established 497 students applied for advice and assistance. Last year the department recorded 34 100 consultations.

Dr Greenway graduated from Yale in 1900. He received his medical degree from the College of Physicians and Surgeons of Columbia University and served as associate attending physician at the New York Hospital and as attending physician at the Seton Hospital before returning to Yale. During the World War he was a major in the U S Army Medical Corps. Dr Rogers has been associated with the University Health Department since its organization and has been assistant director since 1921. He is a graduate of Harvard

Connecticut will have membership on two of the four committees appointed by Secretary Perkins of the Federal Labor Department in a concentrated drive being carried on against silicosis. Warren A. Cook of the Connecticut Department of Health has been appointed chairman of the committee on the prevention of silicosis through engineering control and Dr Stanley H. Osborn, State Commissioner of Health has been appointed a member of the committee on regulatory and administrative phases of the silicosis problem. Such valuable members of these committees should be of real aid in handling this problem of preventive medicine.

The diphtheria situation in Hartford has shown a striking change. In 1883 with a population of 43 000 there were 234 child deaths from diphtheria. In 1835 but one child died of this disease. In 1884 there were 122 child deaths from diphtheria and from that year to 1889 between twenty five and fifty died each year from this cause. In 1889 occurred an epidemic when 118 lives were lost.

This year Hartford is carrying on its annual campaign to inoculate preschool children. Clinics for the purpose are being set up throughout the city.

The Connecticut Public Health Association held its annual meeting May 6 1936 in Hartford. More than seventy five city and state officials attended. Dr Stanley H. Osborn, State Commissioner of Health, was among the speakers. He stated that federal funds allocated to Connecticut for various phases of health work are used exclusively where it is known they will be effective. Money sent into the state from the Public Health Service and the Children's Bureau at Washington is distributed locally wherever it is requested and in such places that the town set up complies with the federal requirements. The State has about \$40 000 waiting to be allocated to towns that ask for it. Most of the money is being spent in rural areas and no effort is being made by the State Department of Health to push the program where it is not wanted.

The subject of "Public Health and the Social Security Act" was discussed at the morning session by Dr C O Applewhite, surgeon, regional consultant, U S Public Health Service; Dr Doris Murray, regional consultant, U S Children's Bureau; Dr B G Horning, director, local health administrator, State Department of Health; and Dr Joseph L. Linde, Chairman, public health advisory committee, Connecticut State Medical Society.

Following luncheon and a business meeting, Elizabeth Taylor, R.N., director, Bureau of Public Health Nursing, State Department of Health, spoke on "What the Community Expects of the Public Health Nurse." Dr B B Robbins, health officer of Bristol and president of the Association, spoke briefly on current problems confronting health officers. Dr Louis J. Dumont, health officer of New Britain, led the discussion.

AN HONOR TO DR FAXON

A merited tribute was paid to Dr William O Faxon of Stoughton at a dinner at the Hotel Lenox, Boston May 1, in celebration of his sixty years of practice. Although Dr Faxon has seen eighty-two birthdays, he is still active and has served Norfolk County as medical examiner for forty-two years.

In addition to the social features of the occasion, a silver platter bearing the engraved names of those who were privileged to participate in this celebration was presented to Dr Faxon.

Dr Faxon's son, Dr N W Faxon, is the Director of the Massachusetts General Hospital and is known as an able administrator of hospital problems.

TWO FORTUNATE HOSPITALS

Under the terms of the will of Ozro M Field of Beverly filed in the probate court the residuum of his estate above one hundred thousand dollars is to be distributed, after the death of his widow, equally to the Palmer Memorial Unit of the New England Deaconess Hospital, Boston, and the Beverly Hospital, Beverly.

The report gives no inventory of the estate, but the testator was characterized as wealthy.

Both hospitals are worthy of the confidence shown by Mr Field and will administer the trust wisely. Very many hospitals should be remembered by persons who are making wills.

THE AWARD OF THE TRUDEAU MEDAL

The Trudeau Medal of the National Tuberculosis Association has been awarded to Dr Edward W Archibald, professor of surgery at McGill University and consulting surgeon at the Royal Victoria Hospital—*Science*, May 8, 1936.

THE PRESIDENT OF THE NATIONAL TUBERCULOSIS ASSOCIATION

Dr Esmond R Long, director of the Henry Phipps Institute of the University of Pennsylvania, was elected president of the National Tuberculosis Association at the New Orleans meeting, succeeding Dr James J Waring, of Denver. Dr Hugh S Cumming, Surgeon-General of the United States, retired, was elected an honorary member—*Science*, May 8, 1936.

AN INVITATION TO DR J G FITZGERALD

Dr J G Fitzgerald, dean of the Faculty of Medicine and director of the School of Hygiene and of the Connaught Laboratories of the University of Toronto, has been invited by the Rockefeller Foundation to make a study of the methods at present employed in the teaching of preventive medicine to undergraduates in medical schools. It is anticipated that the study will occupy a period of one year from September 15. Dr Charles Edward Smith, of the Stanford University Medical School, San Fran-

cisco, will assist in the undertaking. Uni-
medical schools in the United States and C
the British Isles and in European countries
visited in the course of the survey. Dr Fitz
will resign as dean of the Faculty of Medicine
the University of Toronto on June 30. He
given leave of absence by the governors of the
versity for the necessary period and will, it
pected, return to the university in September
as director of the School of Hygiene and
Connaught Laboratories—*Science*, May 8, 1936.

NEARLY 700,000 BENEFIT FROM SOCIAL SECURITY PUBLIC ASSISTANCE PLANS IN THIRTY-ONE STATES AND THE DISTRICT OF COLUMBIA*

COST WILL BE \$32,033,934 DURING CURRENT QUARTER

A total of 690,277 persons are expected to aid during the quarter ending June 30, under public assistance plans so far approved by the Security Board, as was announced May 4. The figure is based on estimates submitted by the States having approved plans, and therefore represents the total number of persons to be aided.

Included in the total number of persons to be aided are 528,694 needy aged, 18,750 needy blind, and 142,878 dependent children.

To date, the Social Security Board has approved public assistance plans in thirty-one States and the District of Columbia. The Board has approved twenty-nine State plans for old age assistance, eighteen State plans for aid to the blind, and thirteen State plans for aid to dependent children. The total monthly expenditure, exclusive of administrative costs, for these three forms of public assistance in all States having approved plans is estimated to be \$10,509,466.05, of which \$8,638,752.42 is for aid to the needy aged, \$478,845.04 is for aid to the blind, and \$1,391,868.59 is for aid to dependent children.

For the three months' period ending June 30, the estimated cost of public assistance in all States having approved plans including payments matched by the Federal Government and cost of administering aid to dependent children totals \$32,033,934.80. This amount includes \$25,926,258.14 for aid to the aged, \$1,413,765.14 for aid to the blind, and \$4,693,911.38 for aid to dependent children.

Based on the States' estimates, the Federal Government's share of the above expenditures for the three months' period will be \$14,536,810 of which \$11,686,110 will go to the States for assistance to their needy aged, \$704,707 for assistance to their needy blind, and \$1,526,384 for assistance to their dependent children.

Under the terms of the Social Security Act, Federal funds are granted to States having approved public assistance plans which conform with the requirements of the Federal act so that the States may provide more adequately for their needy dependent children. The Federal allotments to the States are

*Report of the Social Security Board, Washington, D. C.

of any amount (not in excess of \$30 a month to an individual) which the State grants to needy persons sixty-five years of age or over and to needy blind, provided these aged or blind persons are not inmates of public institutions. The Federal Government also adds 5 per cent to its half in making its contribution to the States.

Federal grants for aid to dependent children represent one-third of the States' administrative expenses and benefit payments under its plan for this form of assistance exclusive of amounts in excess of \$18 per month for the first dependent child in a family and \$12 per month for each additional child.

In addition to State plans already approved the Social Security Board now has under consideration seven State plans for old-age assistance, three State plans for aid to the blind and eight State plans for aid to dependent children.

California, Florida, Illinois, Montana, Colorado, New Jersey and Hawaii have submitted plans for old-age assistance; Connecticut, Delaware, Massachusetts, Michigan, Minnesota, Rhode Island, Colorado, and New Jersey have submitted plans for aid to dependent children; and Massachusetts, Minnesota, and Colorado have submitted plans for aid to the blind.

To be approved by the Social Security Board, a State plan for any of these forms of public assistance must provide for cash payments to needy persons in all parts of the State; there must be a single State agency to administer the plan or to supervise the administration if the plan is directly administered by the counties; the State agency must have power to hear appeals from any decision denying assistance to an applicant.

Thirty-six States are now sharing in the benefits of those provisions of the Social Security Act which are administered by the Social Security Board and public-assistance plans of four additional States are now being considered for approval by the Board according to an announcement made by Frank Bane, Executive Director of the Board.

FEDERAL JUDGES FINE CARELESS CRAB PACKERS

Shipments of germ-laden crabmeat by three Chesapeake Bay packers brought them into Federal court at Baltimore recently for violating the Food and Drugs Act, the Food and Drug Administration reports.

The actions are the outcome of the campaign begun by federal and state authorities in 1932 to clean up dirty conditions in the crab packing houses in the Chesapeake Bay region so as to guarantee the production of crabmeat free from danger to the consumer. Crabmeat which after cooking is picked from the shells and packed by hand and then refrigerated without sterilization was found to be contaminated with several types of bacteria.—U. S. Department of Agriculture

CARDIOVASCULAR RENAL DISEASE

Diseases of the heart, arteries and kidneys are of such importance in the national health picture that a special exhibit of charts on cardiovascular renal diseases was prepared by the Metropolitan Life Insurance Company for exhibition at the Annual Meeting of the American Medical Association in Kansas City, Mo., from May 11 to 15.

These diseases present an outstanding problem to the medical profession. The death rate from cardiovascular-renal diseases has not decreased since 1900. During the same period there have been marked declines in mortality from acute diseases of childhood and of early adult life. The cardiovascular renal diseases stand first in the mortality list today and are responsible for more than a half million deaths annually. After age forty-five the death rate from these conditions is four times that from cancer and nearly twenty times that from tuberculosis or diabetes.

Mortality from these diseases is shown in a curve that indicates the age of the victims—slowly rising at first but then more rapidly after age forty-five where the progressive degeneration of the heart, kidneys and arteries is reflected in the mortality.

The exhibit stressed the fact that, at the present rate of mortality, nearly fifty out of an initial group of 100 children born today in the United States will eventually die from some disease of the heart, kidneys, arteries or cerebral hemorrhage. This is five times the number that will die from cancer and ten times the eventual number of deaths from tuberculosis.

In the agricultural regions of the country relatively low death rates are reported from cardiovascular renal diseases while the highest mortality is registered among residents on the eastern seaboard.

The exhibit showed that this group of diseases has had an upward trend since 1900 when the crude death rate alone is considered. The aging of the population explains a large part of this apparent increase, as the population over age forty-five has increased 100 per cent since the turn of the century while below that age the increase has amounted to only 60 per cent. When death rates for these diseases are standardized they show about the same mortality that prevailed twenty-five years ago. In no age period between forty-five and seventy-five is there evidence of any rise in mortality from these conditions.

At the present time every other death occurring past middle life is from cardiovascular renal conditions. This compares with one death in three from these causes in 1900 among persons forty-five years of age or older.

By 1950 it is expected that 1,200,000 deaths will occur annually from these diseases. This is twice the annual deaths at present from cardiovascular renal diseases. The rise will attend the increasing proportion of aged persons in the population.

Men are subject to higher mortality from cardiovascular renal diseases than are women according

to the exhibit This is especially true in the period from fifty to sixty-five years, where the rate for men is 25 to 30 per cent higher than that for women

These diseases take their greatest toll among unskilled workers, with professional men showing high mortality rates Agricultural workers make the best showing, their mortality being only half that of unskilled laborers Among Negroes, between ages forty-five and sixty-five, these death rates are nearly double that for white persons

The exhibit showed that the highest mortality from these diseases occur in the winter months During spring and autumn, the death rates are low, but noticeably higher than the minimum mortality which prevails in summer

CORRESPONDENCE

POOR JOHNNY REB'

May 14, 1936

Editor, *New England Journal of Medicine*,

The following is from "Scraps of Paper" by Marietta Minnigrode Andrews, New York E P Dutton, 1929

"One of my father's stories was that toward the end of the struggle a Confederate soldier, a veritable scare-crow in his rags and tatters, emaciated, unshaven, hungry and foot-sore, and faint from dysentery, accosted a Federal cavalryman, spic and span, as follows

"Oh my, oh my! You look like you wuz sich a happy man' You got on sich a nice new niform* you got sich nice boots on, you ridin' sich a nice hoss, an' you look like yer bowers wuz so reglar'"

Yours truly,

WM PEARCE COUES, M D

*new niform is correct

RECENT DEATHS

EDWARDS—ARTHUR ROBIN EDWARDS, M D, a retired physician of 416 Marlborough Street, Boston, died May 17, 1936, at his home

Dr Edwards had lived in Boston since 1924 He was a native of Chicago and graduated from Northwestern University in 1888, from the Chicago Medical School in 1891 and was Dean of the Northwestern University Medical School for several years also serving as Professor of the Principles and Practice of Medicine

Dr Edwards was a Fellow of the American Medical Association during his active years, an honorary member of Phi Beta Kappa and a member of the Association of Principles and Practice of Medicine

His widow, Mrs Susannah T (Harrison) Edwards, a son, Arthur Edwards, of Boston, and two sisters, Miss Grace Edwards and Miss Alice Edwards, of La Jolla, California, survive him

SPALDING—HARRY OSGOOD SPALDING, M D, a retired physician of 152 Main Street, Hingham, Massachusetts, died May 10, 1936, following a brief illness

Dr Spalding was born in Hingham, Massachusetts, the son of Dr Henry E Spalding and Mrs Anne O (Frye) Spalding, and after a preliminary education at Phillips Andover Academy and graduation from Williams College in 1894, he entered the Boston University School of Medicine and graduated there from in 1897

Dr Spalding served an internship at the Massachusetts Memorial Hospitals and later was associated with the Norwich Hospital at Norwich, Connecticut, for several years

He subsequently served six years as Superintendent of the Westboro State Hospital and after retiring from this position spent several years as Superintendent of the Wiswall Sanatorium in Wellesley

Dr Spalding was a Fellow of the Massachusetts Medical Society and the American Medical Association, and a member of the American Psychiatric and the New England Psychiatric Societies

Two sisters, Mrs Francis H Lincoln and Mrs Charles E Clapp, both of Hingham, survive him

NOTICE

LAWRENCE CANCER CLINIC

Lawrence, Mass.,

May 20, 1936

To the Physicians of the North Half of Essex County

Dear Doctor

The regular Lawrence Cancer Clinic, to be held at Lawrence General Hospital, 1 Garden Street, Lawrence, upon Tuesday, June 2, at 10 00 A.M., will be a Demonstration Clinic, with Channing C Simons, M D, of Boston, Associate in Surgery in the Graduate Courses in Medicine at Harvard University Medical School, Surgeon-in-Chief to Collis P Huntington Memorial Hospital, member of the Cancer Commission of Harvard University, Boston, and Visiting Surgeon to the Massachusetts General Hospital, present as consultant You are invited to accompany any of your patients whom you desire shall have this service, or to send them with a note, and a report will be returned to you The service is gratis Your attendance at the Clinic is always welcome.

This clinic is endorsed by the Committee on Postgraduate Instruction of the Massachusetts Medical Society

COMMITTEE

Roy V Baketel, M.D.,

Chas J Burgess, M D,

John J McArdle, M.D.,

Harry H Nevers, M.D.,

Thos V Uniac, M D

J Forrest Burnham, M.D., Chairman

REPORTS AND NOTICES OF MEETINGS

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

A stated meeting of the Essex South District Medical Society was held April 1, 1936, at the Essex

Sanatorium, Middleton Mass. An interesting and instructive clinic was held by the physicians associated with the institution.

A very significant statement was made and proved that 36 per cent of pulmonary tuberculosis cases will not be diagnosed if examination is limited to the use of the stethoscope without the essential aid of the x-ray film.

Following an excellent dinner the meeting was continued at 7 P.M., in order to listen to the guest speaker Dr. Richard H. Overholt of the Lahey Clinic, Boston.

He presented the subject of "Chest Surgery" in a most interesting and encouraging manner. The temporary forms of lung collapse by means of pneumothorax and phrenic nerve paralysis and the permanent forms by means of thoracoplasty and paraffin pack were carefully explained and illustrated by lantern slides.

The latest developments in the treatment of empyema, emphysema, bronchiectasis and cancer of the lung were instructively presented.

Very remarkable and encouraging were the results shown by the reports of surgical treatment of lung cancer.

NATHANIEL POPE BREED M.D., Reporter

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

ANNUAL MEETING

The annual meeting of the Middlesex South District Medical Society was held at the Hotel Continental, Cambridge on Wednesday May 6, 1936. Two hundred and twelve members were present at the meeting and luncheon.

The meeting was called to order and presided over by Dr. Sumner H. Remick.

Dr. Edward Mellus, Treasurer read the following report:

Report of Edward Mellus, Treasurer

In account with

The Middlesex South District Medical Society

April 1935—April 1936

Dr

To Cash on Hand	\$1,304.45
" Guests at Dinner	5.00
Interest	16.29
" Reversion from Massachusetts Medical Society (696 payments)	989.73
	\$2,315.37

Cr

By Annual Dinner	\$ 216.00
" October Dinner	266.50
" February Dinner	254.50
" Printing Postage etc.	243.41
" Honorarium to Secretary	75.00
Balance on Hand	1,259.96
	\$2,315.37

April 15, 1936

We have this day examined the accounts of Edward Mellus, Treasurer of Middlesex South District Medical Society and find them correct.

GEORGE H. HOOPER,
ALVAN C. CUMMINGS
ARTHUR N. MAKEJEHNIK
Auditing Committee

Dr. Alexander A. Levi, Secretary, then read a summary of the meetings held during the past year. In addition, he reported a meeting held by the Councilors of this District at the Middlesex County Sanatorium and expressed the belief that this meeting was the first of its kind ever held in the district. He further reported that the "Hospital Resolutions" which had been adopted by the Society at the October 1934 meeting had been accepted in full by twelve hospitals that the Marlborough Hospital had reported "no action" and that no reply had been received from the Trustees of the Cambridge Hospital. A motion was passed that this matter be returned to the Councilors and officers for further consideration.

Dr. John F. Casey then reported on progress made by the Committee on Immunization. Dr. Enos H. Rigelow made a statement of appreciation of this report and added "The town from which I come has hundreds of children who remain untreated" and hoped that such a splendid group of men will accomplish it.

The names of Fellows who had passed away during the past year were then read by the Secretary. The list is as follows:

Henry S. Rowen, April 29, 1935; Frank L. Newton, May 30, 1935; William D. Swan, June 25, 1935; Arthur H. Ring, June 25, 1935; Frederick E. Withee, June 29, 1935; John J. Murphy, July 8, 1935; Thomas B. McQuaid, September 19, 1935; William H. Clancy, September 21, 1935; Charles S. Cahill, December 10, 1935; Felice Bongiorno, February 20, 1936; Frank E. Bateman, April 5, 1936.

Dr. Sidney C. Dalrymple, the Chairman of the Nominating Committee, next presented the nominations for 1936 to the assembly. The ballot was accepted by unanimous vote, the Secretary being instructed to cast one vote to such effect. The list of names of the officers elected (or appointed) for the Society year 1936 is as follows:

President: Sumner H. Remick, Waltham
Vice-President: Fred R. Jonett, Cambridge
Secretary: Alexander A. Levi, Cambridge
Treasurer: Edward Mellus, Newton
Orator: Carl H. Ernlund
Commissioner of Trials: Edward P. Suckney, Arlington

5 Censors: Supervisor 1. Thomas E. Reilly, Marlborough 2. Fritz W. Gay, Malden 3. Michael J. Shaughnessy, Framingham 4. Charles H. Dalton, Somerville 5. Joseph C. Merriam, Framingham
Councilors: Charles F. Atwood, Arlington; Elmer

W Barron, Malden, Carl E Barstow, Arlington, Charles F K Bean, West Medford, Enos H Bigelow, Framingham, George F H Bowers, Newton Highlands, Charles O Chase, Watertown, Frank R. Clark, Newtonville, Brainard F Conley, Malden, Alvah C Cummings, Newton, Dana F Cummings, Natick, Hilbert F Day, Cambridge, John E Dodd, Framingham, David C Dow, Cambridge, Augustus W Dudley, Cambridge, H Quimby Gallupe, Newton, Wilfred G Grandison, Charlestown, Fred A Higginbotham, Watertown, Norman M Hunter Hudson, Charles M Hutchinson, Cambridge, Arthur M Jackson, Everett, Alexander A. Levi, Cambridge, Franklin P Lowry, Newton, Frederick L MacDonald, Waltham, Raymond A. McCarthy, Waltham, Lee W McGuire, Malden, John A McLean, West Somerville, Edward Mellus, Newton, Charles E Mongan, Somerville, Frank L Morse, Somerville, John P Nelligan, Cambridge, Edward J O'Brien, Jr, Brighton, Dwight O'Hara, Waltham, Charles T Porter, Waltham, William D Reid, Newton, Thomas E Reilly, Marlborough, Sumner H Remick, Waltham, Elliott S A Robinson, Newton, Edward J Sawyer, Newton, Monroe J Schlesinger, Brighton, Edgar F Sewall, Somerville, David W Sherwood, Newtonville, Frederick G Smith, Somerville, Horace P Stevens, Cambridge, Hartley W Thayer, Newtonville, Fresenius Van Nüys, Weston, Ralph H Wells, Lexington, Michael W White, Somerville, Ross K. Whiton, Concord, W Stewart Whittemore, Cambridge, Alfred Worcester, Waltham

Councilor for Nominating Committee Principal, Augustus W Dudley, Cambridge, Alternate, Fresenius Van Nüys, Weston

Signed, ALEXANDER A. LEVI, *Secretary*

Luncheon was then served. Following it, the meeting was resumed.

Dr Edmund H Stevens was introduced to, and honored by prolonged applause by, the members since this annual meeting was the sixty fifth which he had attended.

Dr Charles E Mongan was introduced as the next speaker. He said in part that "the first movement to bring about laws effecting the practice of medicine was begun twenty years ago in this District. We have succeeded in having a law on the statutes to protect the proper standards of medical practice. We found the legislators receptive and willing to listen.

"If organized medicine is going to maintain its standards you must take an interest in your legislators. You must become politically minded. You must have a keen interest in what concerns you most—your Government.

"The practical phase is this. Five thousand physicians in this State are organized in such a way as never before. Your word, your profession must stand for something! I appeal to you—let us maintain what we have gained. It behooves us to study these questions.

"The Compulsory Health Insurance bill will soon be presented by the authorities in Washington. It

will be a question with you, whether you want it in Massachusetts. There is no other state which provides such good care for the sick. One hundred and thirty six million dollars is the capital investment in hospitals in Massachusetts. No other state has this. In 1933 over 700,000 patients were treated in hospitals of whom 300,000 were treated for nothing. Can this capital investment be modified for conformity with compulsory Health Insurance? This is your question. If taxes are too high, philanthropy will decline and many hospitals will be unable to exist. Therefore the change will be greater in Massachusetts than elsewhere. To settle this question properly will require work by a large body of intelligent people who will soon be called upon for an answer."

Dr James M Baty, Assistant Professor in the Department of Pediatrics, Tufts College Medical School, delivered the annual oration. The title of his paper was "Anemia in Infants and Children." The following is a summary.

The average values for the normal blood findings were given, pointing out the wide variations. Classification of the causes of anemia in infants and children was presented.

An analysis of 1,500 records at the Boston Floating Hospital showed that 514 patients, or 34 per cent, had a definite anemia. The incidence of anemia was greater in the infants, the highest incidence being between one and two years of age.

The most common causes of anemia in infants and children are infection, dietary deficiency and prematurity. In 92 per cent of the above group of 514 anemic patients, the anemia apparently resulted from one or more of these three conditions.

The findings and treatment of these conditions were discussed.

Summary

1. A careful history, physical examination and examination of the blood are necessary for the accurate diagnosis and adequate treatment of anemia.

2. The most important etiological factors in the development of anemia in infants and children are infection, diet and prematurity.

3. The treatment of anemia is an important adjunct in the care of the patient, particularly during convalescence from chronic infections. The administration of iron usually is sufficient.

4. Transfusion is necessary only in rare instances, but at such times is a life-saving procedure.

The meeting was adjourned at 1:30 P.M.

ALEXANDER A. LEVI, M.D., *Secretary*

FITCHBURG CANCER CLINIC

The Fitchburg Cancer Clinic Committee held one of its periodic consultation clinics on May 12, 1938 at the Burbank Hospital.

Dr Joe V. Meigs, Boston, visiting surgeon to the Massachusetts General, Huntington Memorial, and Pondville Hospitals, officiated as consultant.

Approximately 25 doctors attended.

The number of patients examined were.....	7
Diagnoses established	
Recurrent cancer of pelvis.....	1
Recurrent cancer of cervix.....	1
Postoperative cancer of cervix no recurrence	1
Possible malignancy of breast.....	1
Postoperative cancer of skin of face no recurrence	1
Deferred for dilatation and curettage also amputation of cervix.....	1
Deferred for biopsy of growth from neck.....	1
Luncheon was served at the close of the clinic	

Submitted by

FITZBURGH CANCER CLINIC COMMITTEE

Frederick Thompson Sr., M.D., Chairman
 Hervey Pitcher M.D. Vice-Chairman
 Walter Sawyer M.D., Secretary
 Erskine Pickwick M.D.,
 Luigi De Cicco M.D.
 Rudolf Bachmann M.D.,
 Frederick Djerf M.D.

WOMAN'S AUXILIARY TO THE AMERICAN
MEDICAL ASSOCIATION

The Annual Convention of the Woman's Auxiliary to the American Medical Association was held at Kansas City Missouri May 11-15 1936

PROGRAM

Greetings

Mrs. Herbert L. Mantz Chairman of Arrangements

Dr. James S. McLester President American Medical Association.

Mrs. Walter W. Seymour Second Vice-President, General Federation of Women's Clubs

From the National Auxiliary Special Articles

Mrs. Rogers N. Herbert, President.

Mrs. Arthur B. McGlothlan Past President

Mrs. James F. Percy Past President.

From State Auxiliaries in Western District

News edited by Mrs. James F. Percy

Hypoxia in the West, Mrs. Mark Albert Glaser

President Mrs. Rogers N. Herbert, Nashville Tennessee

President Elect Mrs. Robert E. Fitzgerald Wausau, Wisconsin

Presidents of State Auxiliaries in Western District

Arizona—Mrs. M. C. Comer

California—Mrs. Thomas J. Clark

Colorado—Mrs. C. A. Ringle

Idaho—Mrs. J. H. Crampton

Nevada—Mrs. R. O. Schofield.

New Mexico—Mrs. J. Lopez Garduno.

Oregon—Mrs. W. F. Patrick

Utah—Mrs. Leslie J. Paul

Washington—Mrs. J. B. Blair

Wyoming—Mrs. Walter Gray

OFFICERS OF THE AMERICAN SOCIETY
FOR EXPERIMENTAL PATHOLOGY

At the meeting of the American Society for Experimental Pathology held in Washington recently the following officers were elected President Alphonse R. Dochez Presbyterian Hospital New York Vice-President, C. Phillip Miller University of Chicago Secretary Treasurer, Shields Warren, Palmer Memorial Hospital, Boston Councilors Morton McCutcheon University of Pennsylvania Medical School Ernest W. Goodpasture Vanderbilt University Medical School The next meeting of the society will be held at Memphis Tenn. from April 21 to 24 1937—*Science* May 8 1936

THE FIRST INTERNATIONAL CONFERENCE
ON FEVER THERAPY

The first International Conference on Fever Therapy is to be held at Columbia University New York City from September 29 to October 3 The subjects to be discussed will include physiologic and pathologic changes as well as the treatment of gonorrhea, gonorrheal and nonspecific arthritis syphilis neurologic conditions such as multiple sclerosis chorea, paresis, tabes skin diseases, etc The meeting will be held under the chairmanship of Baron Henri de Rothschild of Paris France—*Science* May 8 1936

AMERICAN ASSOCIATION FOR THE STUDY
OF GOITER

ANNUAL MEETING

The Annual Meeting of the American Association for the Study of Goiter will be held in Chicago Illinois June 8, 9 and 10 1936 at the Drake Hotel The Scientific Sessions are open to members of the medical profession in good standing Registration fee \$3.00

CLOVER HILL HOSPITAL

Lawrence Mass

The last of the 1935-1936 series of monthly medical lectures at the Clover Hill Hospital will be held in the reception room of the hospital at 161 Berkeley Street, Lawrence on Thursday evening May 23 1936 at 9 P.M.

Speaker Albert Warren Stearns M.D., Dean of Tufts College Medical School Boston Mass

Subject "Situational Factor in Psychoneurosis."

Following the discussion luncheon will be served All physicians of Lawrence and vicinity are cordially invited to attend

N. F. DeCiccarelli, M.D., Chairman

THE MEDICAL LIBRARY ASSOCIATION

The Thirty-Eighth Annual Meeting of the Medical Library Association will be held in St. Paul, Minnesota June 22 and 23 1936 and in Rochester Minnesota, June 24 Sessions will be held at the Ramsey County Medical Society New Lowry Medical

Arts Building St Paul and at the Mayo Clinic, Rochester

The program will include addresses, discussions, and demonstrations on library procedure, medical history and literature

This Association consists of about 175 of the medical libraries of this country and Canada, together with their librarians and a group of supporting members who are physicians interested in the advancement of medical libraries

The officers of the Association are as follows President Dr W W Francis, Montreal Vice-President Dr A H Sanford, Rochester, Minn, Secretary Miss Janet Doe, New York, Treasurer, Miss Mary Louise Marshall, New Orleans Chairman of Executive Committee Miss Marjorie J Dairach, Detroit

All interested in the development of medical libraries and a wider knowledge of medical literature are invited to attend

BROCKTON MEDICAL SOCIETY

The annual meeting of the Brockton Medical Society will be held on Thursday, May 28 1936 at 7 30 P M, at the Commercial Club, Brockton Massachusetts

PROGRAM

1 Business Meeting

Election of Officers

2 Scientific Program

'The Problems in Medical Economics Today' Morris Fishbein, M D, Chicago, Illinois Editor, Journal of the American Medical Association

3 Buffet Lunch

We are very fortunate in having the opportunity to listen to such an able and well informed authority on what is going on in the world today in matters which are of vital interest to every one of us I hope that every member of the Society will make an effort to be present.

FRED F WEINER, M D., *President*

MILDRED RYAN, M D, *Secretary*,

57 West Elm Street,

Brockton, Massachusetts

THIRD INTERNATIONAL CONGRESS ON MALARIA

The Congress will be held in Madrid from October 12 to 18, 1936 The scientific meetings and the official excursions will take place in the meantime

Various itineraries will be studied in order to allow the Members to visit, during the Congress, the most typical and beautiful towns of Spain, traveling comfortably and at moderate prices

Membership fees—The Members of the Congress will be classified in three categories

1 *Protective Associations*—(Universities, Institutes, Academies, Schools, etc) These Members

shall pay a Membership fee of 250 Ptas (minimum) The Association may appoint three official representatives They will enjoy the same rights as the active Members and receive a copy of every publication of the Congress A fourth copy will be addressed to the Protective Association

2 *Active Members*—As the former members they have the right to vote and send communications to the Congress They may also attend the trips and official receptions They will receive a copy of the publications of the Congress without charge *Membership fee* 50 Ptas (by postal order or check)

3 *Associate Members (Relatives)*—These Members are not allowed either to attend the scientific meetings or to receive the publications of the Congress Notwithstanding, they can attend the entertainments and excursions that will be organized in honor of guests *Membership fee* 25 Ptas (by postal order or check)

Every application must be accompanied by two small photographs for the Member's personal card This card is essential for all matters concerning the Congress as well as for the railway or transport reductions that may be obtained by the Organization

Reports and communications—A duplicate typewritten copy must be sent together with a brief summary for the Press, *no longer than twenty lines* The writers will kindly indicate if films are necessary for the presentation of their work.

Reports must be sent before July 1 Communications will be received until August 15

Subsequently, the Members will receive further information concerning the decisions taken by the Committee

All correspondence shall be addressed to *Dr Manuel G Ferradas, Secretary, Instituto Nacional de Sanidad, Calle de Recoletos, 19, hotel, Madrid (Spain)*

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS

ANNUAL MEETING

Copley Plaza Hotel, Boston, Wednesday, May 27

Dinner at 6 30 P M \$2 50 per Plate

Election of Officers

Papers

1 A Prepayment Plan for Hospitalization Nathaniel W Faxon, M D, Director, Massachusetts General Hospital

Discussion opened by Charles E Mongan, M D, President, Massachusetts Medical Society

2 The Diagnosis and Treatment of Direct Inguinal Hernia in Relation to Industrial Surgery Edward M Hodgkins, M D, Assistant Professor of Surgery, Tufts College Medical School

Discussion opened by William A. Bishop, M.D

- 3 End Results of Epiphyseal Fractures Alex
ander Aitkin M.D., Boston City Hospital.
Discussion opened by F J Cotton M.D.
GEORGE H. R. GOSMAN M.D. President
WM. PEARCE COUPE, M.D., Secretary

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at 4 30 P.M., May 25 1936 in the Amphitheatre of the Children's Hospital Boston, Mass. Program 1 An Identical Twin Presenting a Bicuspid Pulmonic Valve. Dr Harry Dietrick. 2 Two Cases of Idiopathic Hypertrophy of the Heart with Recovery Dr Mark I Makler 3 Arachnoidocyst. Dr Hyman Green. 4 A Case for Diagnosis. Dr Henry F Keever 5 Behavior Difficulties in Children Who Have Attended Heart Clinics. Dr Bronson Crothers 6 Some Cases of Transposition of the Great Vessels Dr Paul W Emerson. 7 A Definite Clinical Syndrome Associated with Enlargement of the Heart in Infants and Young Children. Dr M. A. Kugel (Mt Sinai Hospital, New York)

All members of the New England Heart Association and interested physicians are cordially invited to attend

JAMES M FAULKNER, M.D. Secretary

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY MAY 25 1936

Monday May 25—

- 1-4 P.M. Surgical Lecture at the Peter Bent Brigham Hospital Amphitheatre by Dr K. H. Gierke
4:30 P.M. New England Heart Association Amphitheatre of the Children's Hospital Boston.

Tuesday May 26—

- 9 A.M. Massachusetts General Hospital. Polymyositis Clinic. Out Patient Department.
9:10 A.M. Boston Dispensary 25 Bennet Street, Boston. The Effect of Endocrine Disease on the Cardiovascular System. Dr H C Gordinier
12 M. Massachusetts General Hospital. Nerve Eye Conference. Out Patient Department
2:30 P.M. Pediatric Ward Visit Massachusetts Eye and Ear Infirmary

Wednesday May 27—

- 9:10 A.M. Boston Dispensary 25 Bennet Street, Boston. Endocrine Symposium. Dr E. A. Sharp, Dr J. Lerman, Dr Reginald Fitz, Dr W. Richard Ohler, Dr Fuller Albright, Dr S J Thannhauser, Dr C. H. Lawrence and others.
11. M. Clinico-Pathological Conference Children's Hospital.
P.M. Massachusetts General Hospital. Psychiatric Clinic. Out Patient Department.
6:30 P.M. Massachusetts Society of Examining Physicians. Copley Plaza Hotel. Annual meeting and dinner

Thursday May 28—

- 9:30 3:30 A.M. Clinic, Surgical Staff of the Peter Bent Brigham Hospital at the Peter Bent Brigham Hospital.
9 A.M. Massachusetts General Hospital. Surgical Grand Rounds.
9-10 A.M. Boston Dispensary 25 Bennet Street, Boston. Blood Clinic Presentation. Dr Isadore Oles.
11 A.M. Massachusetts General Hospital. Medical Grand Rounds.
1 M. Massachusetts General Hospital. Clinico-Pathological Conference

Friday May 29—

- 9 A.M. Massachusetts General Hospital. Lecture Clinic. Out Patient Department.

- *9 10 A.M. Boston Dispensary 25 Bennet Street, Boston. Observations on the Circulation During Pregnancy. Dr C. Sidney Burwell.

Open to the medical profession.
Open to Fellows of the Massachusetts Medical Society

May 21—Trudeau Society will meet at 4 P.M. at the North Reading State Sanatorium North Wilmington Mass

May 25—Surgical Lecture at the Peter Bent Brigham Hospital by Dr K. H. Gierke. See page 957 issue of Jan 7

May 25—New England Heart Association. See notice elsewhere on this page

May 27—Massachusetts Society of Examining Physicians. See page 1076

May 28—New England Obstetrical and Gynecological Society will meet at Providence R.I.

May 28—Clover Hill Hospital Medical Lecture. See page 1076

May 28—Brookline Medical Society. See page 1076

May 31 June 1—International Cardiological Meeting. Royal (Australasian) Assembly of Physiologists Pathologists and Therapists. See page 104 issue of April 9

June 2—Lawrence Cancer Clinic. See page 1076

June 4 July 3—Massachusetts Institute of Technology Department of Biology and Public Health. See page 101 issue of May 14

June 8—Tufts Medical Alumni Luncheon. See page 1047

June 8, 9 and 10—American Association for the Study of Goltz. See page 1076

June 8—New England Alumni. See page 1047

June 9—Massachusetts Medical Legal Society. See page 1047

June 9—Massachusetts Diplomates of the National Board of Medical Examiners. See page 104

June 15 19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Army Baltimore Md

June 16 July 22—Summer Course in Bacteriology. See page 105 issue of February 20

June 22 and 23—The Medical Library Association. See page 1076

June 29 July 11—Hospital Administration. See page 95 issue of May 7

September 1935—First International Congress of Sanatoria and Private Nursing Homes. See page 803 issue of April 16

September 7 10—International Union against Tuberculosis. See page 554 issue of March 12.

September 29 October 3—First International Conference on Fever Therapy. See page 1226 issue of December 6, 1935 and page 1076 of this issue

October 12 16—Third International Congress on Malaria. See page 1076

October 19 23—Clinical Congress of the American College of Surgeons. See page 130 issue of January 23

April 21 24, 1937—American Society for Experimental Pathology. See

DISTRICT MEDICAL SOCIETY

PLYMOUTH DISTRICT MEDICAL SOCIETY

May 21—Lakeville State Sanatorium.

G. A. MOORE, M.D. Secretary

167 Newbury Street, Brockton.

BOOK REVIEWS

Russell A. Hibbs. Pioneer in Orthopedic Surgery 1869-1932. George M Goodwin. 136 pp New York Columbia University Press \$2.00

"Russell A. Hibbs Pioneer in Orthopedic Surgery is a most interesting memorial to a very vivid personality. There were strong farmer ancestors on his father's side who occupied positions of trust in Kentucky communities. On his mother's side there was a touch of medicine for his grand father was both a physician and a bishop in the Methodist Church. Russell Hibbs was the youngest child of ten children and was brought up on a farm

He was graduated from Vanderbilt University in 1888, and received his medical education at the University of Louisville, graduating in 1890 after two terms of six months each. He practiced for a few months in his native town of Birdsville, Kentucky, then settled in Texas for two years, where he was a saddlebag doctor, making his calls on horseback. In 1893 he had saved enough money to make a journey to New York and applied for a position as intern at the Polyclinic Hospital under Dr. John Wyeth. His pay was \$4.00 a week with lodging thrown in. Three dollars a week went for food and one dollar for washing, but he was allowed the privilege of attending without fee postgraduate courses. His interest in orthopedic surgery was excited and the post of superintendent and resident intern at the newly established and struggling New York Orthopaedic Dispensary Hospital becoming vacant, he obtained the position on the approval of the surgeon in chief, Dr. Newton M. Shaffer. This post he filled for four years and then an unfortunate dispute arose with Dr. Shaffer concerning the policy of the dispensary and Hibbs being supported by the trustees, Dr. Shaffer resigned. There followed an appointment as surgeon in chief in December 1900 and within four years of this appointment Hibbs had secured about \$450,000 for the erection and endowment of a country branch of the dispensary at White Plains, for the rising young orthopedic surgeon had become convinced that much of the city dispensary work was futile without a convalescent home outside the city where these long chronic cases could be properly cared for. By 1924 the bed capacity had grown from fifty to one hundred and sixty-five beds and the endowment to a million and a half dollars.

Hibbs was largely instrumental in the establishment of the New Jersey Orthopedic Dispensary and Hospital at Orange.

In 1916, after ceaseless efforts of persuasion, the trustees of the New York Orthopaedic Dispensary and Hospital recognized the need of a more adequate building. The present building on East 59th Street was erected, and after a struggle a sufficient endowment for this hospital was secured and in 1925 a clinic for private patients was opened.

These more or less administrative accomplishments did not prevent Hibbs from doing important original research and the book states fully his various important contributions to the surgery of bone and joint diseases outlined in such a way that the lay reader may understand their significance.

Hibbs will be remembered as the great advocate of what he termed "fusion operations" designed to provide complete immobilization of tuberculous joints without the use of external apparatus. He reached the conclusion that this was the treatment par excellence whenever the patient's condition warranted it as a means of preventing its spread to other regions, affording the most permanent form of cure and the saving of great social and economic wastage which the standard methods then in vogue

entailed because of the length of time required to bring about even partially successful relief.

Hibbs was appointed professor of orthopaedic surgery in Columbia University in 1919 and he was elected a member of the American Orthopaedic Association in 1921. He fought for the principle of salaries for the hospital staff and won, so that the New York Dispensary and Hospital was almost unique in this respect at the time the change in policy was made. In 1929, by the will of Mrs. John I. Kane, a million dollars was left to the hospital for scholarships for continuing training and research, which scholarships are awarded to promising young surgeons. Dr. Hibbs was almost entirely responsible for this bequest and this was his last contribution to orthopedic surgery. He died in 1932 from the results of a coronary occlusion.

There is an interesting short description of Hibbs as a sportsman by Dr. Samuel W. Lambert and a feeling tribute by Dr. Karl Vogel. The book also contains appendices or original papers: (1) The Lengthening of the Tendo Achilles (illustrated), (2) An Operation for Stiffening the Knee Joint (illustrated), (3) An Operation for Progressive Spinal Deformities (illustrated) and (4) A Preliminary Report of Twenty Cases of Hip Joint Tuberculosis Treated by an Operation Devised to Eliminate Motion by Fusing the Joints (illustrated) and a chronological bibliography from 1923 to 1931.

This modest volume of some 130 pages will interest a wider audience than orthopedic surgeons. We hope that laymen and women as well as the medical profession will make up this audience, for a well told story of early struggle and eventual success (when success is deserved) is always worth reading.

The Kidney in Health and Disease Edited by Hilding Berglund, Grace Medes and others. 754 pp. Philadelphia: Lea & Febiger. \$10.00.

This is a large volume of nearly eight hundred pages, comprising the work of forty-one contributors. The work is really the outgrowth of the symposium on the structure and function of the kidney in health and disease which took place in Minneapolis in 1930. The book is divided into six sections beginning with the "Anatomy and Physiology of the Kidney" and ending with the "Clinical Aspects of Bright's Disease." Each chapter in the book is carefully and thoroughly outlined and is followed by a complete bibliography.

The book is hardly intended for the general practitioner. Its greatest usefulness will be as a reference work for students and physicians who are especially interested in nephritis and allied problems. In this respect the convenient arrangement of chapters and the obvious effort of each contributor to state clearly the general principles involved, adds greatly to the practical value of the work. The book is really a comprehensive and authoritative exposition of present knowledge in a single field of medical science and for this reason alone, is decidedly worth while.

The New England Journal of Medicine

VOLUME 214

MAY 28 1936

NUMBER 22

PROTAMINE INSULIN

BY ELMOTT I JOSLIN, M.D.† HOWARD F. ROOT, M.D.,† ALEXANDER MARBLE, M.D.†
PRISCILLA WHITE, M.D.† ALLEN P. JOSLIN, M.D.† AND
GEORGE W. LANCY, M.D.†

INTRODUCTION Eleven year old B. W. showed 10 per cent of urinary sugar upon the morning follow up the discovery of his diabetes and began the use of protamine insulin forthwith (Figure 1). Thirty units were given before breakfast on the first day 50 units on the second, third and fourth and upon the fifth day the urine was sugar free although the patient had received in the previous twenty four hours 210 grams of carbohydrate and 1900 calories. He had no reactions and eleven days later while at home was sugar free with a normal blood sugar. By that time his insulin had been reduced to 24 units before breakfast. It is true he was a fresh case and a child but contrast this experience with the inauguration of treatment with former methods.

Mrs. S., a nurse thirty-six years old so crippled with rheumatoid arthritis that exercise was impossible in the treatment of her diabetes of one year's duration weighed eighty four pounds in July 1935. To control her diabetes she required insulin in enormous amounts given in four to six doses daily for six months. At one time she took as high as 530 units a day. Since January she has shown improvement, her weight has risen to 117½ pounds and the insulin was decreased to 240 units administered before meals and on retiring. Upon January 23 she began protamine insulin and now in April her diabetes is equally well controlled with insulin once daily 120 units of the old and 120 units of the new (Figure 2).

Her parents told me (E. P. J.) that since her severe reaction ten years ago they had not dared to let her sleep alone. This last autumn the week after entrance to a college in Boston while at lunch with her mother at a restaurant she had a reaction so violent that it was necessary to call an ambulance and remove her to a hospital. Immediately she began protamine insulin and is now taking 40-60 units.* Her mother says: "Since R. commenced protamine insulin she has had no reactions. She sleeps alone. You cannot tell Dr. Joslin what protamine insulin means to her father and me."

DESCRIPTION OF PATIENTS. All told, we have given protamine insulin since last August to more than 100 diabetics but only the cases studied before April 1 are summarized in this report. Of these ninety one patients, forty six were males. All began it in the hospital. Their ages ranged between four and seventy

six years thirteen being children fifteen years old or less, and the duration of the diabetes a few days to twenty-eight years. Sixty six patients continue to take it, and the great majority of these are using it in their homes. No patient who began it has died developed diabetic coma or acidosis, or, as a matter of fact, *de novo* any complication common to diabetes such as lesions of the legs or carbuncles. This is not particularly strange, because the patients were selected for intelligence and reliability. One patient of eight years' duration with reactions of considerable intensity in the past has developed what at first we thought was neuritis but probably is proving to be multiple sclerosis. However it is our impression that the sixty-six patients now taking protamine insulin alone or in conjunction with old insulin live far more comfortably more safely than before and with less inconvenience to themselves or their families and that they can take a somewhat wider range of carbohydrate in the diet without showing an increase in glycosuria. We are convinced as previously reported^{1,2} that protamine insulin represents a great advance in diabetic therapy.

TABLE I
NINETY-ONE DIABETICS TREATED WITH PROTAMINE INSULIN

Age by Decades	Number of Cases	Average Duration of Diabetes Yrs.
0-9	6	2.9
10-19	40	6.7
20-29	7	11.3
30-39	8	8.6
40-49	13	10.0
50-59	8	6.2
60-69	6	12.5
70-79	3	14.0

In an estimation of the value of protamine insulin one is forced at the moment to depend upon immediate results such as prolongation of the action of insulin and freedom from reactions, but beneficial as these are we consider them to be insignificant in comparison with the better control of the diabetes which it makes practical. Formerly a diabetic could maintain a reasonably normal blood sugar for one half

† In the morning dose of id insulin
* no insulin at noon.
Thirty-six unit of protamine insulin
Joslin, Elliott 1—Medical Director George F. Baker Clinic
New England Deaconess Hospital, Root, Howard F. Marble,
Alexander and White, Priscilla—Physician to the New England
Deaconess Hospital, Joslin, Allen P., and Lancy George W.
also see these for records and addresses of a short time
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two-thirds or three-quarters of the twenty-four hours, but consider what this signified if applied to the course of his diabetes throughout twenty years—the average duration of diabetes with onset in 1936. It would mean that for one-half to one-quarter of this period, namely ten to five years he would be living with an abnormal blood sugar with all its implications. And it is this long range view of the diabetic problem which is ultimately the more important.

THE HAGEDORN ERA Whereas the Banting Era made possible the conquest of coma, the Hagedorn Era makes possible the approximation of the physiological processes of the diabetic so nearly to normal that arteriosclerosis should cease to be his distinctive enemy. Protamine insulin has broken the spell of content which the original insulin induced. Now we know improvement in insulin is possible. These are the chief reasons that for ourselves we think it only fair and a just due to the Copenhagen investigator to name this present era the Hagedorn Era.¹

We will next present the technique we have employed in the administration of protamine insulin: the dosage, the diets, the untoward effects such as reactions, hypoglycemic or allergic, the apparent lack of control of the disease in the inauguration of treatment and the reasons why having begun protamine insulin certain patients omitted it. Finally, we will state as best we can the indications for its use and the suggestions we have for its employment with new diabetics and for the transfer to new insulin of diabetics already under treatment with old insulin.

GENERAL TECHNIQUE The diabetic patient can be treated entirely with protamine insulin or with combinations of old and protamine insulin. With fresh cases of diabetes we have been greatly impressed with the effectiveness of the use of protamine insulin exclusively and believe that it is desirable to follow this up intensively. When both old and protamine insulin are employed our most consistent results have been secured by following the original suggestion of Hagedorn² of giving old insulin in the morning and protamine insulin before the evening meal. The cases we started upon this plan nine months ago have done remarkably well and so well that they furnish a standard for comparison with other methods.

A small number of patients have been given both old and new insulin before breakfast and old and new insulin before the evening meal and a group of these have found this method so satisfactory that we hesitate to change them to other types of treatment. Knowing in advance the results obtained by Campbell, Best and Wilder^{4, 5} with simple doses of old and protamine insulin given separately before breakfast, we

have tested this method more especially in the last few weeks and it has worked well.

DETAILS OF ADMINISTRATION The present protamine insulin compound in use in this country is obtained, as in Copenhagen, by mixing two solutions which come in separate bottles. In the first is a solution containing standard insulin of U-50 strength. In the smaller bottle accompanying the larger one in the same package is a solution containing protamine derived from fish sperm. When 1 cc. of the protamine solution is injected into the bottle containing the U-50 insulin, a cloudy, milky mixture is formed which is really a suspension of the finely divided and almost insoluble protamine insulin compound. This compound has its point of minimum solubility at pH 7.3, or at about the reaction of blood serum. This cloudy suspension is injected.

The effectiveness of the new protamine insulin depends upon the fact that the compound at the reaction of body tissue is very slowly assimilated. Therefore, when it is injected into human tissue, there is formed a depot which is slowly and gradually drawn upon by the body during the ensuing ten to twenty-four hours. The duration of the action apparently varies. In one normal nurse we found that the blood sugar was still falling at the end of ten hours after the injection. Other observations show that if a rather large amount is deposited that the blood sugar lowering action is still demonstrable for a full twenty-four hours or longer after the injection.

EFFECTS UPON THE BLOOD, URINE AND TISSUES Local tissue changes, due to allergy, have not been observed at the Deaconess Hospital although one such case has been reported elsewhere and another in one of our discharged cases. No abscesses followed its use, and so far as we know no new areas of fatty atrophy have occurred. It has been stated that when this substance is injected into animals and the tissues are subjected to pathologic study, there is no evidence of the substance acting as a foreign body and attracting to it collections of leukocytes. There is no positive chemotaxis. The typical effects are shown in figures 1 and 3. In figure 1 on the second day of treatment, the blood sugar fell so much during the night that a normal level was reached twenty-four hours after the dose of 50 units. On the fifth day of treatment, the morning rise in the blood sugar came under control. In figure 3 another boy's record shows control of former wide oscillations in blood sugar within a narrow range. In such severe juvenile cases there is apt to be an elevation of blood sugar during the night which sometimes develops into mild acidosis. This is prevented by this treatment.

The administration of protamine insulin is

cause the dose may have been increased so markedly as a result of heavy glycosuria that at the end of that period unnecessarily large amounts are being employed. Especially is one apt to obtain reactions at this time if old insulin and protamine insulin are combined before breakfast. It is so unusual for us doctors to expect our patients to have normal blood sugars early in the morning that a reaction may be precipitated if the patient receives quick-acting old insulin a half hour or more before his morning meal. Therefore, we have recently made it a rule that no patient taking old and new insulin should have it injected more than thirty minutes before taking food. It is because of

figure 2. The smallest dose was 5 units in a three year old girl with incipient diabetes of recent onset.

DIETS Protamine insulin works successfully even if the carbohydrate in the diet varies from 100 to 275 grams. The ideal carbohydrate would be such a value that would allow the patient to learn it readily and easily, adhere to it, and then take a quantity of protein normal for his age and size, and fat sufficient to maintain a proper weight. Undoubtedly, the individual patient can adjust the distribution of carbohydrate advantageously in various ways according to his method of living. It is our

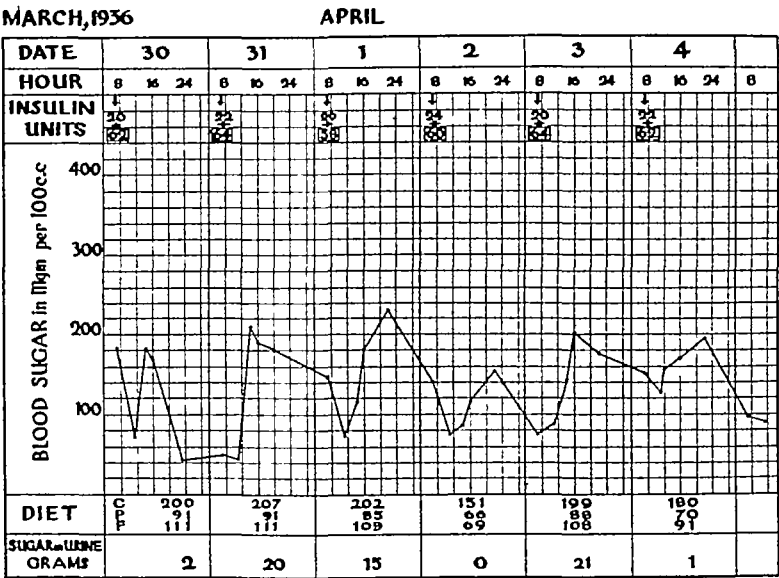


FIG. 3—Case 11905. A. aged eleven was uncontrolled with 57 units of ordinary insulin in three doses in December 1935. The above chart shows improved control of the blood sugar with ordinary insulin 22 units and protamine insulin 62 units taken simultaneously.

the days required to adjust the diabetic to the new insulin and the possibility of reactions at the end of a few days, that we believe the general distribution of the protamine insulin should proceed slowly. However, the general control of the diabetes which it allows may counterbalance this temporary danger if doctors and patients can be taught to wait five days more or less for it to exert its complete effect.

In changing from old to new insulin it is probable that in the controlled case approximately the same number of units will be employed. For the first few days following the shift the glycosuria will increase, but eventually it will disappear and in a considerable number of patients the reports have come back that the patient needs less rather than more total units than before the protamine insulin was started. By no means can this statement be made unequivocally.

The largest single dose has been 120 units, given in the fasting state simultaneously with 120 units of the ordinary insulin as shown in

impression that an increase of 20 grams from the patient's customary amount for a single day produces fewer alterations in glycosuria than would take place when under treatment with old insulin. The diets used in eighty-eight cases included carbohydrate less than 150 grams in twenty-three cases, between 150 and 200 grams in forty-one cases, 200 to 250 grams in twenty-two cases and above 250 grams in only two cases.

PROTAMINE INSULIN THERAPY Until within a week we have believed it to be unwise to begin the use of protamine insulin on patients outside the hospital. The average period of hospital stay has been fourteen days for eighty-eight cases treated at the George F. Baker Clinic, excluding three cases with exceptionally long stays in the hospital because of complications and a group of children living in the Prendergast Preventorium. Perhaps the chief reason for insisting upon hospital observation was our desire to study effects of treatment by means of frequent blood sugar determinations and the

fact that in many patients there is a latent period of from two to five or six days during which time there is apparently little effect from the protamine insulin. During this time, one is tempted to increase the dose to a dangerously high point, as already mentioned. If this is done then there is a sudden change on the fourth or fifth day after the beginning of treatment and a fall of blood sugar which is so rapid and may be so great that serious and persistent hypoglycemia may result. The frequency of hypoglycemia during this period of adjustment may be seen from the fact that there were 149 blood sugar determinations among a total of 1772 of 0.05 (50 milligrams) per cent or lower four of which were 0.02 (20 milligrams) per cent. The change in character of treatment brought about by protamine insulin is well shown because the total number of insulin injections in this group of patients was reduced from 241 to 189, or 25 per cent. This reduction does not appear so large as one might expect because it contains a good many of the early cases in whom the reduction in number of doses was often only from four to three and also cases in whom the number of injections was not reduced at all, the end sought being the better control of the diabetes. In our more recent cases, however, a reduction of four injections a day to two injections given at the same time before breakfast has become almost the rule and therefore a much greater change in the character of treatment is wrought. In eleven patients the number of injections was reduced from four to three, in fifteen cases from four to two, and in one case from four to one. An increased number of injections was necessary in thirteen cases entering the hospital with uncontrolled diabetes. Since April 1 the reduction in number of injections has reached a much greater per cent.

DURATION OF TREATMENT Up to April 1 1936 the use of protamine insulin had been discontinued in twenty five cases leaving sixty six patients who had used it continuously for periods shown in table 2.

TABLE 2
DURATION OF TREATMENT WITH PROTAMINE INSULIN
IN 66 CASES

Number of Months	Number of Patients
6	3
5	3
4	4
3	16
2	28
1 or less	9

Protamine insulin may be and has been omitted with safety and regular insulin substituted

for it. This has taken place especially under conditions such as resulted from the floods in New England which prevented shipments. Usually a reduction in the number of units by approximately a fourth suffices to avoid the possibility of reactions. Certain patients were able to give up all insulin because of such improvement that their urine was sugar free without insulin. Others who began protamine insulin in September and October, 1935 were discontinued because of a deliberate intention to restrict its use to hospital patients at first. A small number of patients preferred to return to their customary doses of old insulin believing that to be equally effective in their own case.

HYPOLYCEMIC ATTACKS Attacks of hypoglycemia are by no means impossible when the patient is taking protamine insulin. With administration in excessive dosage a low blood sugar level can be produced just as with regular insulin. However, the action of the new preparation is so gradual that with proper care the danger of insulin reactions is largely avoided. This has been the greatest immediate benefit that the use of protamine insulin has conferred.

When hypoglycemia arises from a single excessive dose, the effect is seen naturally eight to twenty four hours from the time of injection. Thus a patient who is given an excessive dose in the evening before supper may wake up the next morning with a reaction. This is more apt to occur if the protamine insulin is given twice daily, as for example in the morning before breakfast and in the evening before supper. Then a 'pyramid' effect may be seen if the doses have been too large. Early in our experience with the new insulin this occurred with one small boy, aged four and a half years, in whom we were attempting to control glycosuria solely by the use of protamine insulin in a morning and an evening dose. In an effort to control hyperglycemia in the late forenoon, the before breakfast dose of protamine insulin was made unwisely large. Then another dose of protamine insulin was given before supper. The result was a series of hypoglycemic attacks in the early morning hours.

A word of caution should be spoken to those who adopt the system of giving regular insulin before breakfast and protamine insulin before supper. Because of the prolonged effect of the latter the patient will awaken in the morning with a lower blood sugar level than under the old régime. Hence the action of the dose of regular insulin taken before breakfast will be more effective and unless this fact is recognized and the dosage reduced a reaction in the late forenoon may result. Furthermore the older insulin should be given within thirty to fifteen

minutes before breakfast to aid in the prevention of a reaction although it must be said that even if given immediately before or after breakfast a reaction may not be averted or even ended if already begun.

With most patients hypoglycemic attacks due to protamine insulin are apt to come on more slowly thereby giving more time for intervention before marked symptoms arise. It has been supposed that patients when using the protamine insulin seem to tolerate lower levels of blood sugar for longer periods without the usual symptoms of hypoglycemia. Our own experience does not bear out this impression. Best⁶ has shown that in dogs receiving protamine insulin such asymptomatic hypoglycemia may exist for eighteen to thirty hours without apparent damage to the animal and has assumed that this was so, because the tendency to lower blood sugar levels was exerted so mildly and so gradually that the bodily secretion of epinephrine was able to exert the proper counter-effect.

It is characteristic of marked hypoglycemia (in patients) due to protamine insulin that a series of reactions is apt to occur. For example, relief may be secured following the administration of carbohydrate in small amounts but some minutes later the hypoglycemic symptoms may reappear and so on. This type of action is to be expected when the blood-sugar-lowering effect is due to the gradual and continued release of insulin from a bodily depot.

Mention has been made (Editorial, *Annals of Internal Medicine*⁶) of the greater frequency of rather severe headache during hypoglycemia with the new insulin than with the old. We have not noticed any marked difference with our series of cases between old and new insulin. In fact, Mrs. St. C. experienced very severe headaches lasting even for three days when she had a reaction resulting from the old insulin.

DURATION OF EFFECT OF PROTAMINE INSULIN

In Hagedorn's original paper and in Kiaup's monograph from his clinic, it is stated that the effect of the slowly-acting insulin could be demonstrated at least twelve to fourteen hours after the injection. Subsequent experience has shown that this is a very conservative estimate. With the preparations in use at the present time an effect at least twenty-four hours distant from the time of administration is demonstrable. This is borne out by our daily experience in those patients to whom we are now giving insulin at only one time of day, viz., a dose of the regular and a dose of the protamine insulin (in different areas) before breakfast. With Wilder's case at the Mayo Clinic this prolonged action was forcefully illustrated. On the first test day the patient was given 35 units of regular insulin and her breakfast. No more insulin or food was allowed during the next twenty-four

hours. On the following morning the patient was in definite acidosis, was vomiting and had a blood sugar of 425 milligrams per cent and a plasma CO₂ combining power of 28 volumes per cent. Repeated doses of regular insulin were required to bring the patient out of acidosis. Three days later the test was repeated except that an equivalent dose of protamine insulin was given before breakfast in place of regular insulin. Although the patient exhibited much glycosuria during the day, this cleared up during the night and on the following morning a single specimen of urine contained only a trace of sugar and the blood sugar was 270 milligrams per cent. The patient was clinically in good condition.

Scott and Fisher⁷ have found that in animals the addition of a zinc salt to preparations of insulin further prolongs and makes more gradual the blood-sugar-lowering effect. These investigators suggest that zinc or other metals may play a part in the union between insulin and protamine, but very likely its effect may be simply to stabilize the product and make the precipitate less likely to adhere to the wall of the vial.

Beecher and Kiogh⁸ have made microscopic observations upon the absorption of insulin and protamine insulin.

DOES PROTAMINE INSULIN DETERIORATE AFTER FOUR OR FIVE DAYS? It is difficult to get clear-cut proof of the durability of protamine insulin solution or, on the contrary, of its deterioration because patients who come into the hospital are under active treatment, and both the diet and insulin dose are apt to be changed. In order to test this point, the protamine insulin was mixed, and a single bottle was used daily for the same patient for periods from three to ten days in length. In two cases on the fourth and fifth days there occurred a marked increase in sugar in the urine and a rise in the blood sugar curve. However, both were new cases so far as use of protamine insulin was concerned and might have reacted differently if the test had been carried out after a period of previous treatment with protamine insulin. The daily records of another case sometimes clearly indicated that the insulin deteriorated at the end of three, four, or five days. On the other hand, at other periods, no such evidence of deterioration appeared in his tests.

In a considerable group of patients outside the hospital who sent in daily charts no constant change in their urine tests occurred at the end of four or five days. Therefore we do not feel certain that loss of potency actually took place. We understand that stabilizing substances are now being tried and a future gain in stability of the protamine insulin mixture is probable.

THE INDICATIONS FOR USE OF PROTAMINE INSULIN 1 A trial should be made with diabetes of recent onset because it is probable that such patients can be controlled with a single daily dose of protamine insulin from the beginning of treatment. Indeed it is our impression that we will never learn what protamine insulin can do until we use it as a remedy *sui generis* and observe patients treated with it exclusively over a period of years.

2 High fasting blood sugar values are a definite indication because of the great advantage to a diabetic in beginning his day with the nearly normal metabolism indicated by a normal blood sugar.

3 Multiplicity of dosage can be avoided by the use of protamine insulin and the consequent gain in simplicity and convenience of treatment improves the end result.

4 Sensitivity to insulin as indicated by frequency of reactions constitutes the fourth major indication.

5 Hepatomegaly is an indication because of the efficacy of protamine insulin in reducing the size of the liver reported by Hansen.

6 Lipodystrophy may be favorably affected by the reduced number of injections and lessened acidity of the preparation.

7 Finally it may prove to be of peculiar value in mild diabetes in patients with hyperlipemia, cardiac cases in whom hypoglycemia should be avoided and for the same reason where there are occupational hazards.

CONCLUSION With protamine insulin the fundamentals of treatment of diabetes are not changed but the ideals of treatment are more nearly achieved. Diabetes today is a disease to be respected and neglect to do so spells disaster. Diet and exercise are as essential as ever. The patient must not overeat but it seems likely that having determined the insulin dosage for a given quantity of carbohydrate, the protein can be determined by adjustment to the age and size of the patient, the fat regulated by body weight and even the carbohydrate can vary ten to twenty per cent up or down with comparative impunity.

The simplicity of administration of insulin in one or two doses instead of two three, or four doses will appeal so generally to patients that the probability is strong that the number of diabetics taking insulin will increase. As a result the percentage of deaths from coma should fall at an accelerated pace.

The original hope that protamine insulin would be safer, because of the lessened number and severity of insulin reactions which it engenders has been confirmed.

Thus far those diabetics characterized by high fasting blood sugar values by the need of three or four doses of insulin or by sudden and serious insulin reactions have been those selected for trial with protamine insulin and recently we have begun to employ it with fresh cases. Knowing that it helps severe diabetes there is no doubt that it will help the milder cases and we are confident that soon the great majority of patients will adopt it.

Best of all is the hint that the more complete control of the disease which the new insulin makes possible may so raise the standard of bodily health that the diabetic will be less subject to and will resist more successfully the various so-called diabetic complications infections, vascular degeneration and abnormal neurologic and ophthalmologic manifestations.

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HYPOPHYSIS AND BLOOD PRESSURE

BY BERNARDO A HOUSSAY, M D †

IN 1894 Oliver and Schafer¹¹³ discovered that pituitary extracts raised the blood pressure, Howell⁷⁸ showed that this action was due to the posterior lobe, and in 1928 Kamm⁸⁵ and his collaborators separated the vasopressor and the oxytocic principles*. It came to be believed early that the pituitary played an important part in the regulation of the arterial pressure¹⁰⁶ Azam¹⁰ and Dehille,⁴⁴ a pupil of Renon, attributed the lowered blood pressure, accelerated pulse, etc., of acute infections to an insufficiency of the pituitary, since treatment with the extract corrected these symptoms, Renon even postulated a syndrome of hyperpituitarism with hypertension and bradycardia. But in spite of many theories there were few facts to support them, and in 1932 Dale⁴¹ concluded that it was not possible to say what part the vasopressor principle in the posterior lobe played in the maintenance of normal blood pressure. Nevertheless numerous experimental and clinical observations indicate that there may be a relation between the pituitary and the blood pressure level. We will describe and discuss these observations in this paper.

ARTERIAL BLOOD PRESSURE IN EXPERIMENTAL
PITUITARY INSUFFICIENCY

Amphibians—The toad's pituitary contains substances which raise the blood pressure of the dog,⁷² the cat⁶⁴ and the toad¹¹⁴. The neuro-intermediate lobe is more active than the principal lobe in this respect¹¹⁴. The vascular system of the batrachians is sensitive to the vasopressor substance in the mammalian pituitary,^{1 14 55 74 93 113 114 118} etc. but Hogben and Schlapp⁶⁹ had to use such large quantities to produce effects, that it was not possible to consider them physiological.

A few hours after complete extirpation of the pituitary in the toad the capillaries and arterioles of the skin become dilated^{9 94}. Injection or perfusion of pituitrin, even in doses of 1, 1,000,000 re-establishes the capillary tone and larger doses produce a contraction of the arterioles as well. From these facts Krogh⁹³ deduced that the pituitary, by means of a hormone, had a continuous action on the tone of the capillaries ‡.

*Extensive bibliographies on the vasopressor activity of pituitary extracts will be found in Houssay⁷⁴ Gelling⁸⁷ Trendelenburg¹⁴⁶. My own work on the subject will be found in my book⁷⁴.

†Houssay Bernardo A—Professor of Physiology Faculty of Medical Sciences University of Buenos Aires 1919—For record and address of author see This Week's Issue page 946 issue of May 7.

‡Krogh also brings evidence for the presence of the hormone in the blood of mammals. Thus in ox serum there is a substance which constricts the capillaries. It is dialyzable insoluble in alcohol and ether soluble in methyl alcohol and thermostable.

The removal of the principal lobe produces a similar but transitory alteration,^{9 94} since the normal tone is soon recovered,⁹⁴ though in some cases the recuperation may not be complete.⁹ In the toad when the nutritional disturbances and asthenia are marked, usually about one month after the lobectomy, the vasodilatation again becomes pronounced. Infundibulotuberal lesions produce only a moderate and passing dilatation.⁹ The dilated capillaries are unstable,⁹⁴ but react well to thermal stimuli.⁹ According to Nogaki,¹¹¹ however, the contractile capacity of the vascular system is reduced in the hypophysectomized frog.

Blount²⁸ produced a state of hyperpituitarism in the larvae of *Amblystoma*, by grafting two extrahypophyseal anlagen. In these animals he observed vasoconstriction, bradycardia, hypertrophy of the ventricle, and sometimes edema. The basal membrane of the glomeruli of the kidney was thickened, the glomeruli were diminished in size and in some the capillaries became obstructed, these lesions are similar to those seen in human hypertension.²³

Orias has done important work in our Institute, showing that the intermedio-neural lobe plays a considerable rôle in the maintenance of normal blood pressure in the toad *Bufo arenarum* (Hensell). Removal of the principal lobe alone did not alter the blood pressure until the nutritional disturbances and neuromuscular asthenia appeared, when it was found somewhat lower (30 mm Hg) than in the controls which had only been craniotomized (39 mm Hg) (Fig 1). When the whole pituitary was removed, i.e., the neuro-intermediate together with the principal lobe, the blood pressure began to fall within a few hours after the operation. At times there was a transitory reaction in about twenty-four hours, but afterwards the decrease continued and an average blood pressure of 24 mm Hg was found one week after operation and of 17 mm one month later. The injection of extracts of either lobe raised the blood pressure but the neuro-intermediate was the more active. The fall in blood pressure could be prevented by daily implantation of one lobe, either glandular or neuro-intermediate. Neubach (unpublished data) showed that intravenous injection of 3 cc arterial blood from a normal toad produced a significantly greater increase in the blood pressure of hypophysectomized toads than did the same quantity of blood from hypophysectomized toads.

Several facts indicate that the vasopressor and melanophore dilating activities are due to different substances. The following evidence

may be so interpreted namely that after removal of the pituitary the skin blanches before the blood pressure drops that there are certain differences in the pharmacological and chemical characteristics of the two hormones^{46 47 54 56} etc. and, of even more significance that Dietel^{48 49} has isolated a melanophore dilating substance which, far from having a pressor effect dilates

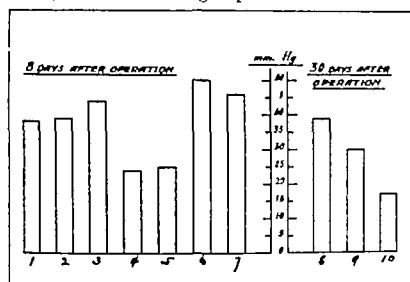


FIG. 1.
Blood pressure of dogs in mm Hg.
Eight days after operation.
1. Controls.
2. Removal of principal lobe.
3. Lesion of tuber cinereum.
4. Hypophysectomy.
5. Hypophysectomy and lesion of tuber cinereum.
6. Hypophysectomy and implantation of neurohormone medulla lobe.
7. Hypophysectomy and implantation of posterior lobe.
Thirty days after operation.
8. Controls.
9. Removal of principal lobe.
10. Hypophysectomy.

the capillaries and decreases the blood pressure. He believes it may also have a part in regulating the blood pressure.

Mammals—Braun Menendez^{51 52} measured the blood pressure in twenty-five hypophysectomized dogs in our Institute. Only three of the operated animals had a normal blood pressure and the average value (108 mm Hg), was lower than that found in twenty-one normal controls (127 mm Hg). Lesions of the tuber did not modify the blood pressure, the average

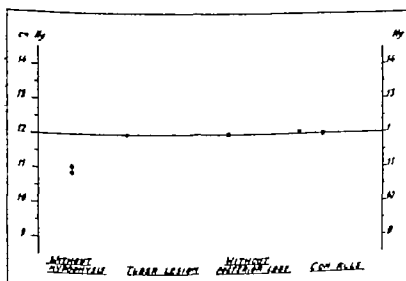


FIG. 2.
Blood pressure of dogs in cm Hg.

tomized dogs in our Institute. Only three of the operated animals had a normal blood pressure and the average value (108 mm Hg), was lower than that found in twenty-one normal controls (127 mm Hg). Lesions of the tuber did not modify the blood pressure, the average

being 124 mm Hg in thirteen experiments nor did the removal of the posterior lobe produce a significant decrease, the average being 120 mm Hg in four dogs (Fig. 2). It must be noted that in these experiments the extirpations were not complete, since the *pars tuberalis* remained in the hypophysectomized animals, and in those whose posterior lobe alone was removed, fragments of the *pars intermedia* were left behind.*

Braun Menendez^{53 54} was able to demonstrate that the vasomotor reactions were less adequate in the hypophysectomized than in normal dogs. When dogs were bled from the carotid to the extent of 15 per cent of the body weight the blood pressure fell 30 to 40 mm Hg. In six experiments on normal animals the pressure returned to its initial level in 25 to 75 (average 45) minutes, whereas in nine experiments on hypophysectomized animals the initial pressure was not re-established until 75 to 130 (average 95) minutes following bleeding (Fig. 3).

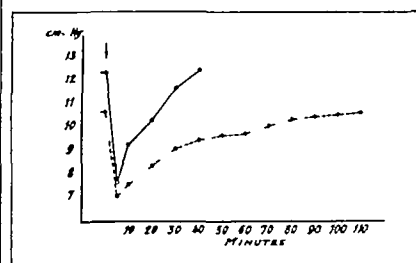


FIG. 3.
Graph showing the effect of hemorrhage on the blood pressure of normal and hypophysectomized dogs.
Solid line—average of five normal dogs.
Dotted line—average of nine hypophysectomized dogs.
At arrow the animal was bled from the carotid artery to the extent of 15 per cent of the body weight.
Abscissae—Time in minutes.
Ordinates—cm Hg.

In the rat, removal of the posterior lobe does not alter the blood pressure significantly, the observed pressures being within the normal range, though somewhat low. Their sensitivity to histamine also is not increased. On the other hand complete hypophysectomy is followed by a decrease in blood pressure and there may be a lowered resistance to histamine.⁵⁵ Yamashita⁵⁶ also found a lowered blood pressure in the rabbit after partial hypophysectomy.

BLOOD PRESSURE IN HUMAN PITUITARY INSUFFICIENCY

In patients with chromophobe adenomas of the pituitary the systolic pressure is usually low.^{57 58 59 60} Cushing⁶¹ found it to be below

* For Braun Menendez's work I had measured the blood pressure in a hypophysectomized dog in 1931 and Foster and Gossel⁵⁰ did the same in two dogs. Braun Menendez and Yamashita⁵⁶ found, which was the systolic pressure.

100 mm Hg in 11 per cent and below 110 in 46 per cent of his 200 cases, while only two had an abnormally high blood pressure. In craniopharyngiomas it is lower still. Peiémy¹⁻⁰ found the blood pressure to be between 78 and 110 mm Hg in 20 out of 45 cases of hypophyseal tumor.

In many cases of pituitary cachexia there is a low blood pressure, as noted in the papers by Graubner,⁵⁹ Calder³⁰ and others more recently. The vasomotor reactions are also disturbed.¹³² After muscular exercise both the systolic and diastolic pressures fall markedly, and the same may happen when the patients resume the erect posture after a period of reclining. This circulatory collapse frequently occurs in such patients and may be corrected by treatment with anterior lobe extract. Nevertheless it cannot be attributed specifically and primarily to the hypophysis, since it is a common occurrence in other types of cases which have a low blood pressure and marked loss of weight. Thus, it has been seen in hypothyroidism and in cases of tabes dorsalis. In spite of this, Schelling believes that the pituitary anterior lobe is of importance in the regulation of blood pressure. Ratner¹²⁰ found these circulatory disturbances in ten cases, and attributes them to adrenal insufficiency due to a deficient secretion of the pituitary adenotropic hormone.

BLOOD PRESSURE IN ACROMEGALY

The postmortem examination of acromegalics often reveals arteriosclerosis and enlargement of the heart. Numerous instances of increased blood pressure have been reported in these patients.^{2, 8, 31, 32, 40, 63, 80, 108, 116, 117, 119, 121, 122, 155} and death is frequently due to cardiac insufficiency. Nevertheless the pressure was low (below 120 mm Hg) in 30 out of 100 cases of acromegaly studied by Davidoff⁴³ and in 28 per cent of those seen by Rowe and Lawrence.¹²⁰ According to Kylin,⁹⁷ in cases of acromegaly occurring in Sweden and collected by Biennig, the blood pressure was normal in young subjects, in only two was it above 140 mm Hg, but in the patients forty or more years old 11 per cent of the men and 60 per cent of the women had a high blood pressure. Henstell⁹³ says that paroxysmal hypertension may occur in acromegalics.

PITUITARY BASOPHILISM AND THE BLOOD PRESSURE

We owe to Cushing the recognition of a clinical syndrome characterized by adiposity, dorso-cervical kyphosis, amenorrhea or impotence, hypertrichosis, plethoric skin with atrophic striae, high blood pressure, glycosuria, osteoporosis etc. At autopsy a basophile adenoma of the pituitary is found in a large proportion of the cases in the literature which I have read. The raised

blood pressure was evident and constant in the reports of seventeen cases confirmed by autopsy and in which the blood pressure was recorded.^{3, 12, 23, 33, 35, 38, 88, 98, 110, 126, 127, 130, 131, 141, 150, 151} Some of the literature I have not been able to read^{16, 58, 142} etc. and in numerous published cases there was no anatomical verification.

Certain improvements which occur when the pituitary is irradiated favor the theory that it is the prime factor of this disease (Cushing, Jamin, Dattner, Wohl and collaborators, Aub, etc.). Even though the basophile adenoma is not constant (according to Bauer¹³ it was found in only fifteen out of twenty-three cases) its frequency is significant since in general it is a rare condition, Susman¹⁴⁰ finding it in only 3 per cent of the 260 pituitary glands which he examined. In some cases adenoma was not present but there was an increase in the basophile cells, this is an equivalent pathological state according to Cushing. In discussing the possible part the pituitary might take in the genesis of raised blood pressure he considers that the hypertension might be due (1) to a specific secretion of the adenoma, (2) to stimulation of the pressor secretion of the posterior lobe by the adenoma, (3) to an action through some other gland. Cushing^{38, 39} is inclined to accept the second of the possibilities just mentioned, while Bauer¹³ maintains that elevation of pressure is due to adrenal hyperactivity brought about by the pituitary adenotropic hormone.

Cushing³⁹ observed that in cases of eclampsia and elevated blood pressure and in certain cases of basophilism with hypertension, there was basophile cell infiltration of the posterior lobe. This might indicate hyperactivity of this lobe, but, according to Spark,¹³⁷ this morphological appearance has no significance. He made an extensive study of reported cases and sectioned the pituitary in seventy cases of raised blood pressure, in eleven with a previous history of raised blood pressure and in 108 where the blood pressure was normal, in all types of cases a similar basophilic infiltration was found. Also Butt,²⁸ in 200 cases, failed to find any correlation between the degree of basophilic infiltration and the presence of arterial hypertension, arteriosclerosis, eclampsia or obesity. On the other hand an increase in the basophile cells of the pituitary has been reported in cases of raised blood pressure^{19, 91, 92} and more frequently in adiposity. Kraus⁹¹ found it in 80 per cent of cases of the latter type and believed that the basophilism was secondary to the obesity. In some cases of adrenal tumor the fact that foci of basophile cells without adenoma^{18, 100*} have been found in the pituitary

*In these cases it may be supposed that pituitary basophilism was the cause of the adrenal adenomas which later became malignant.

has suggested the possibility that basophilism may be secondary to overactivity of the adrenal. Finally, Leyton¹⁰¹ found Cushing's syndrome in a case of thymus tumor associated with adrenal hyperplasia.

It is known that the presence of the anterior pituitary is necessary for the development and maintenance of the normal anatomical and functional state of the adrenal cortex.⁷² Hypophysectomy causes the atrophy of the reticular layers and of the internal part of the fascicular layers with preservation or hypertrophy of the glomerular zone, but leaves the medulla unchanged. Adrenotropic extracts of the pituitary may bring about the hypertrophy of the adrenal cortex^{15, 24, 59, 61, 75} etc. and even produce small adenomas¹⁷³ and certain symptoms (adiposity, bony alterations etc.), which Thompson and Cushing¹¹¹ consider similar to those of basophilism. Up to now it has not been observed that they cause a rise in blood pressure.

Bauer¹² attributes the symptoms of Cushing's syndrome to hyperactivity of the adrenal cortex due to an overproduction of the adrenotropic pituitary hormone. He refuses to accept the theory that it originates in the basophilic cells, citing the frequency of basophilism in different circumstances and the fact that Sokolow and Gromow¹⁶⁶ found a cortico-adrenal syndrome with raised blood pressure in a child which was found to have an eosinophile adenoma of the pituitary. The anatomical state of a gland does not give an adequate measure of its function, for this reason a possible overactivity of the pituitary or the adrenal glands cannot be excluded in those cases where no basophile adenoma or adrenal hypertrophy is found. It would be necessary to measure the amount of hormones secreted into the blood. Bauer¹² further draws attention to the fact that the symptoms of Cushing's syndrome are also those of hyperactivity of the adrenals. In chromaffin tumors of adrenal origin the blood pressure is raised permanently or paroxysmally and in six cases in which the tumor was removed the paroxysms disappeared. It has not been proved that permanent hypertension is due to an excessive secretion of adrenin. Probably cortical overactivity also causes the blood pressure to rise since there are cases of tumors of the adrenal cortex with high blood pressure and hyperglycemia and in some instances removal of the tumor has cured these symptoms. It must also be remembered that in certain cases of Cushing's syndrome the adrenals are normal, although generally they are hypertrophied or adenomatous.

The adrenal symptoms are predominant in the syndrome of basophilism but it cannot be affirmed that the hyperactivity of the adrenals is always of pituitary origin although the large

number of typical and marked cases with basophile adenoma of the pituitary is suggestive. It can only be suspected that the latter is the primary cause in many cases. It is not yet clear whether the raised blood pressure is due to an excess of adrenal or pituitary hormones or to some other cause since the presence of these hormones in the blood has not yet been confirmed.

THE PITUITARY AND RAISED BLOOD PRESSURE IN THE TOXEMIAS OF PREGNANCY AND IN ECLAMPSIA

Since Hofbauer's work⁶⁶ it has been maintained that eclampsia may be due to a polyglandular disturbance, with an excess of the posterior pituitary lobe secretion predominating. The principal arguments brought forward and some of the objections raised to them are as follows. (1) There is a certain similarity between the symptoms of eclampsia and those which are produced by posterior lobe extract,^{4, 10, 6, 66, 95, 100, 113, 147} etc. (e.g. tendency to edema, raised blood pressure, capillary spasm, convulsions and coma, pulmonary edema, ionic changes, favorable action of narcotics), but there are also definite differences.^{1, 114} (2) There is a certain similarity between the anatomical lesions found in eclampsia (in the liver, kidney etc.) and those provoked by posterior pituitary extract.⁵² However the majority of writers consider these lesions rare and hardly worth mentioning.^{*} (3) The infiltration of the posterior lobe by basophilic cells in eclampsies would cause oversecretion of pituitrin,⁵³ but Spark¹²⁷ proved that the basophile invasion may occur when eclampsia is not present. (4) Dialysis of the serum of eclampsies shows that there is an increase in antidiuretic and blood pressure raising substances² but this cannot be pituitary posterior lobe secretion (Theobald¹¹⁴). The blood of eclampsies, when injected into the cerebral ventricles, causes oliguria according to Marx.¹⁰⁴ The antidiuretic action, however, has not been confirmed in the careful experiments of Byrom and Wilson⁷ or of Hurwitz and Bullock.⁴¹ (5) The melanophore dilating substance is increased in the blood⁴³ and placenta⁴⁹ of eclampsies. Against this are the reports that the blood of eclampsies is common with that of normal or pregnant women possesses the property of neutralizing the effects of certain of the posterior pituitary lobe extracts for example the oxytocic,^{7, 115} etc. the oliguric,²¹ the melanophore dilatory¹⁷ and the pressor.¹⁴

THE PITUITARY AND OTHER HYPERTENSIONS

An increase of basophilic cells has been seen in the hypophyses of two thirds of the cases of raised blood pressure,¹⁹ but is even more fre-

* For other literature see H. 7¹ and for the most recent Ohtsuzumacher¹¹ and Scherer.¹¹²

quent in obesity,⁹¹ and has also been observed in other conditions Spark¹³⁷ declares that the posterior pituitary lobe invasion by basophile cells described by Cushing^{88 89} can exist with equal frequency when there is no raised blood pressure

Kylin⁹⁷ believes that the anterior pituitary lobe is an essential factor in hypertension, because the general and metabolic symptoms are exactly opposite to those of pituitary insufficiency Pal,¹¹⁶ and Merle and his collaborators¹⁰⁷ also believe in the pituitary theory and Drouet⁴⁸ describes improvement in certain cases of raised blood pressure due to irradiation of the pituitary The cerebrospinal fluid of patients suffering from raised blood pressure only occasionally contains "minute traces of pituitrin",⁷⁹ so an overactivity of the posterior pituitary lobe does not seem to be an etiological factor in the disease Moehlig¹⁰⁹ has produced arteriosclerosis in rabbits, by submitting them to a diet rich in fats and cholesterol combined with treatment with pituitrin Volhard¹⁴⁸ has shown that the raised blood pressure due to ligation of the renal artery is produced both in normal and hypophysectomized dogs

PITUITARY, DIENCEPHALON AND HYPERTENSION

It has been known for some time* that the principal vasomotor centres are in the medulla Section of the brain stem above the pons does not modify the level of the blood pressure or the vasomotor reflexes and reactions^{25 26 65 86 138, 139} etc. in acute experiments

The stimulation of the posterior ventral part of the hypothalamus causes a marked rise of blood pressure,^{17 77 82 84 86 124 149} even in the absence of the pituitary and adrenals (Karplus and Kneidl, confirmed in our Institute) When the adrenals are present there is also a marked secretion of adrenin, itself capable of raising the blood pressure⁷⁷ and the blood sugar⁸² The melanophore dilating substance in the cerebrospinal fluid is also increased⁸⁷ Ergotamine or the extirpation of the sympathetic chain and the splanchnics⁸² suppresses the rise in blood pressure Leiter and Grinker¹⁰¹ affirm that the rise in blood pressure occurs only when there are muscular or respiratory disturbances, but de Jaegher and Van Bogaert⁸² have shown that it may be raised both by mechanical and chemical stimuli which do not evoke muscular activity According to Hoff and Urban⁹⁷ lesions of the mammillary bodies may cause a delayed rise in blood pressure some months after the operation

It has not been proved that the pituitary takes part in the rise in blood pressure produced by cisternal injection of kaolin or other colloids^{60 61 70} Pituitrin causes a rise of blood pressure if it is injected into the cerebrospinal

canal^{74 80} or the cistern^{61 62} If, however, it is injected into the ventricles there is either a fall in blood pressure followed by a rise³⁷ or no effect at all⁶³

GENERAL SUMMARY

The posterior pituitary lobe contains vasoconstrictor substances, which in amphibians play a very important rôle in the maintenance of the blood pressure and arterial and capillary tone Small quantities of similar substances exist in the principal lobe of the toad, but removal of this lobe causes a lowering of the blood pressure only after asthenia has developed In the rat, dog and man pituitary insufficiency is accompanied by lowered blood pressure, it is not clear whether this is due to lack of one or both lobes, but it seems more particularly due to lack of the anterior lobe (central or peripheral vascular asthenia)

The existence of raised blood pressure in acromegaly has not been well established, since the blood pressure is frequently normal in these cases On the other hand hypertension is a constant and prominent symptom in the pituitary basophilism syndrome of Cushing, though whether this is due to pituitary or adrenaal hypersecretion or to a secondary or associated factor, is not yet clear

The evidence put forward to demonstrate that hyperactivity of the posterior pituitary lobe is the causal factor in eclampsia and in essential hypertension is contradictory and inconclusive

In contradistinction to the medulla the diencephalon is not essential for the maintenance of blood pressure in acute experiments, nor has it been proved that increase in blood pressure due to lesions or stimulation of this region is accompanied by hypersecretion of the posterior pituitary

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MERCURIN SUPPOSITORIES AS A DIURETIC IN THE TREATMENT OF EDEMA*

BY MARSHALL N. FULTON, M.D.†

IN the treatment of edema, particularly chronic or recurrent edema diuretic drugs frequently are of great service. Of these the organic mercurial salts have come to be used extensively because of their effectiveness in increasing urine output and their relative freedom from toxic effects. Salyrgan (merisalyl) enjoys a widespread popularity and has been found to be effective even when given repeatedly over a long period of time.^{1,2} During the past few years another preparation, mercupurin introduced in Europe under the name of novurit, combining both a mercurial salt and theophylline, has been given enthusiastic recognition.^{3,4,5} The disadvantages in the use of these drugs are (1) that they must be given either by intravenous or intramuscular injection (2) that by the former route they are liable to injure the vein or surrounding tissues and by intramuscular administration are irritating and painful and (3) that their repeated use requires frequent attendance of doctor to patient or of patient to doctor or clinic, which necessity often curtails their employment. If either drug or any other preparation equally effective could be administered by the patient, himself under supervision, there would be a saving both in time and money and added convenience of no little measure.

It has been shown in certain European clinics that the mercurial component of mercupurin, the sodium salt of trimethylcyclopentane-dicarboxylic acid-methoxy mercuric hydroxide alkylamide is effective as a diuretic when administered by rectum in suppository form.^{6,7,8} This preparation has recently been introduced in this country under the name of mercurin suppositories. During the past eight months at the Peter Bent Brigham Hospital we have had the opportunity of using mercurin suppositories in twenty-five patients with edema.† They have been found to be an effective and safe diuretic, producing results comparable with those obtained by

the intravenous injection of salyrgan or mercupurin. These results are published with the feeling that this preparation offers a distinct advance in diuretic therapy, particularly in the convenience it affords to both doctor and patient.

PLAN OF TREATMENT

All but five of the patients with whom this report deals had cardiac failure with edema. Most of them were observed for a time at bed rest on the hospital wards. Following a period of several days' observation to allow for adequate digitalization or a spontaneous diuresis, they were given one gram of ammonium chloride three or four times a day. This therapy, introduced by Keith and his associates⁹, has been shown to enhance the action of mercurial diuretics by the mild degree of acidosis which it produces.¹⁰ After two to four days of this régime the patients were given the suppositories usually the first thing in the morning following a cleansing enema. Use of the suppositories or other diuretics was repeated at intervals of four to six days, the patients, meanwhile, continuing on a daily dosage of three or four grams of ammonium chloride.

Each suppository, made of cocoa butter base, contains 500 milligrams of the mercurial salt of mercupurin ($C_{14}H_{24}O_5NHgNa$) without any added theophylline. This is approximately five times the amount of mercury contained in one cc of mercupurin or salyrgan.

RESULTS

The diuretic response to the suppositories was very satisfactory comparing favorably with that observed after intravenous administration of mercurial salts. The increased urine flow began in one to three hours after the suppository was given and was passed, as a rule, by the end of twelve hours, so that the patients were not kept awake the following night voiding urine. Occasionally the increased urine flow lasted twenty-four hours or longer. That the absorption of the material by the rectal mucosa may occur very promptly was indicated by one patient who had a bowel movement twenty minutes after insertion of the suppository, yet who

*From the Medical Clinic, Peter Bent Brigham Hospital, Boston, Mass.

†Fulton, Marshall N.—Physician, Peter Bent Brigham Hospital. For record and address of author see This Week's Issue, page 1107.

‡We wish to express our thanks to the Campbell Products Inc., 79 Madison Avenue, New York, N. Y., for the suppositories used in this work.

passed three liters of urine in the next twenty-four hours. In only one instance did a patient fail to have a diuresis with the suppositories after responding satisfactorily to other diuretics. Conversely, both suppositories and parenterally administered mercurials failed to induce a significant diuresis in six of the patients on whom they were tried. A few individuals complained of slight rectal irritation and burning for fifteen to thirty minutes after the insertion of the suppository, more stoical ones made no

ures do not afford a close measure of the comparative diuretic potency of these several preparations inasmuch as the first diuretic given on admission to the hospital often calls forth a much greater urine excretion than those given subsequently. The urine output in edematous patients is influenced markedly, among other things, by the extent of edema present at the time the diuretic is given. The figures do show, however, that the urine output observed after mercurial suppositories com-

TABLE 1

Patient	24-Hour Urine Volume with—					
	Mercurio Suppositories		Salysrgan 1 cc Intravenously		Salysrgan 2 cc. Intravenously	
	Maximum	Average	Maximum	Average	Maximum	Average
	cc	cc	cc	cc	cc	cc
M McC	4575	3490 (4)	600	2350 (2)	4050	3750 (2)
N G	4550	330 (8)	*800	2620 (3)	5700	4700 (4)
J K	4450	35.5 (2)	3800	2830 (5)	—	—
L H	4350	—	—	—	—	—
E P	4050	2620 (14)	1450	1425 (2)	—	—
R F	3990	2920 (3)	—	—	—	—
L H	3800	—	—	—	—	—
J Z	3500	2840 (4)	1700	1875 (2)	4100	2875 (4)
L W	3500	*865 (15)	3500†	—	3250	2480 (14)
J R	3400	—	*400	—	3500†	3775 (18)†
J L	3050	.625 (2)	—	—	5650	5525 (2)
J S	3000	2360 (4)	4100	2760 (7)	4600	—
T K	3000	—	3500	—	—	—
L C	2800	2350 ()	2*50	—	6380	4240 (2)
			4100*	3950 (2)*	—	—
N H	2750	1880 (4)	3550	2675 (4)*	3200*	.550 (3)*
O R	2500	2200 (2)	—	—	—	—
J W	2200	1770 (3)	3500	2810 (4)	3600	—
S T	1800	1500 (2)	1950	—	4000	2470 (5)
S H	1800	1450 (2)	—	—	—	—
H M	1600	1425 (2)	—	—	500	2060 (6)
J B	1300	—	—	—	—	—
G K	1050	*5 (2)	*600	1850 (2)	—	—
M L	1000	900 (2)	1300	—	—	—

Mercurio in instead of Salysrgan given

†Salysrgan given intravenously

Figure 1 represents the number of times preparation was given.

Patient F P had subacute phthisis in the nephrotic stage. Patient H M and M L had iritis of the liver. All the other patients had the chronic myocarditis or chronic valvular heart disease.

complaint. One patient occasionally passed mucus in the stools on the day the suppository was administered. In no instance were toxic effects observed from use of this form of medication as manifested either in the patient's condition or by changes in his urine or kidney function tests. The suppositories have been used by patients at home with results quite as satisfactory as those observed in the hospital.

The results are indicated in table 1 which shows the maximum and average twenty-four hour urine volumes observed on the days the suppositories were used. For comparison, figures are given to show the urine volumes when salysrgan or mercuripurin were administered intravenously, to the same patients. These fig-

ures compared very favorably with that following salysrgan or mercuripurin given intravenously.

The response of two patients is shown in charts 1 and 2.

Chart 1 (Patient M McC) is from the record of a thirty-eight year old single female with chronic rheumatic valvular disease (aortic and mitral stenosis and insufficiency possibly tricuspid insufficiency). She began having severe dyspnea in 1933 and developed ascites which first required tapping in July of that year. Until the time of the first admission shown in the chart (September 1935) she had ten abdominal paracenteses for recurring ascites, the last three being in April June and August 1935. During 1935 she found it necessary in addition to the hospital admissions for tapping to attend the outpatient clinic some three or five times for intravenous injection of diuretics. Theocin

given at home caused nausea and vomiting. Urea was only moderately successful in increasing the urine output. With the diureses afforded by the medication, as shown in the chart, it was possible for the patient to go from October 25 until mid January without tapping. Suppositories, administered by the patient at home during December and January, produced twenty-four hour urine volumes varying from 3100 to 4300 cc.

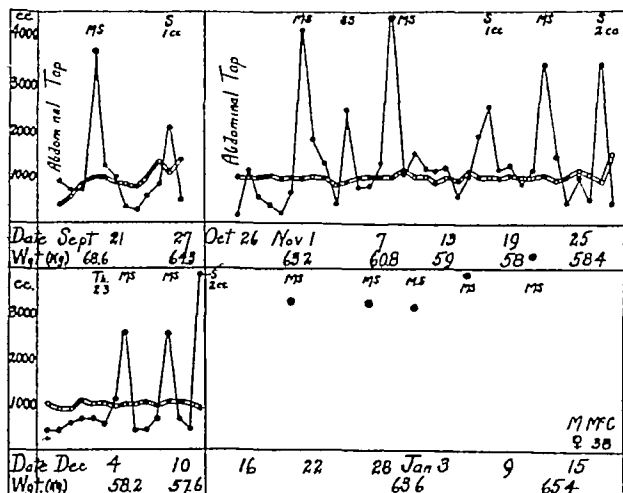


CHART 1 (Patient M McC) Fluid intake and urine output during two hospital admissions between September 16 and December 12 and urine output following mercurin suppositories taken at home. In this and chart 2 circles represent the fluid intake, dots the urine output. MS = mercurin suppository. S = salyrgan given intravenously. SS = suppository containing residue after evaporation of 2 cc of salyrgan. Th 2 = two doses of theocin 0.3 Gm each.

Chart 2 (Patient N G) shows the course during two hospital admissions of a forty-four year old male patient with chronic myocarditis and hypertension. In September, 1933, he had an attack of coronary thrombosis. Subsequent to this he had

Patient E P (table 1) with the so called nephrosis syndrome, having normal excretion of phthalein and no nitrogen retention, was given mercurin suppositories fourteen times during the course of four months with resulting diureses ranging from 1500 to 4000 cc in twenty-four hours. During this time there was no evidence of added kidney damage from the mercurin administered and edema, while not abolished, was satisfactorily controlled. This case illustrates that certain selected patients with edema of renal origin notably those with subacute or chronic nephritis who show normal ability in excreting phenolsulphonaphthalein and nitrogen, may be given mercurial diuretics with safety.

Experience with the patient L W during the past ten months indicates the advantages incident to the use of the suppositories in patients with persistent edema who are well enough to be ambulatory. This patient, a forty-five year old Negro, has chronic myocarditis with recurrent ascites which has necessitated frequent abdominal taps, the last ones being done in June and September, 1935. Between June and November of that year, he made weekly trips to the out-patient clinic for the intramuscular injection of a mercurial diuretic. There was no other indication for such frequent visits. In November he was tried with mercurin suppositories with satisfactory results. For the past three months he has been able to extend the interval between visits to four weeks, taking a mercurin suppository each week at home with continued good response. During these three months his weight has remained constant. There have been no changes either in the urine examination or in the condition of the patient. Naturally, he prefers this form of therapy inasmuch as it abolishes the necessity of his frequent trips to the hospital.

The four patients having ascites and edema with cirrhosis of the liver, on whom the suppositories were tried, failed to respond with satisfactory diuresis. Only two of these (H M and M L) are noted in table 1. This is in

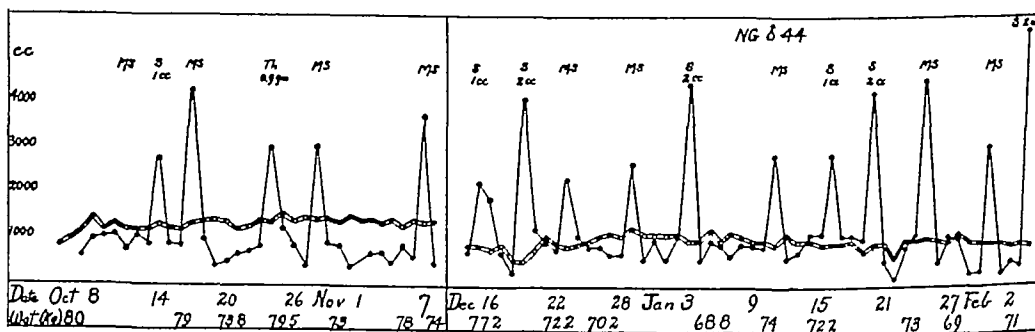


CHART 2 (Patient N G) Fluid intake and urine output during two hospital admissions between October 5 1935 and February 4 1936.

two admissions to the hospital because of angina pectoris and cardiac failure before total thyroidectomy was done in March, 1935. He was not greatly improved by this procedure, and on his fourth admission in October, 1935 (the first one shown in the chart) he exhibited marked cardiac failure with hydrothorax and edema of the extremities. He was, of course, given digitalis and ammonium chloride throughout the two admissions shown in the chart. Though it was not possible to rid the patient of his edema or to reduce his weight more than 11.2 kilograms, he was kept from the accumulation of massive anasarca by the repeated diureses. With the suppositories twenty-four hour urine volumes between 3000 and 4500 cc were obtained repeatedly.

keeping with the general experience at this hospital, that diuretics are much less effective in removing ascitic and edema fluid in patients with hepatic cirrhosis than in those with cardiac failure.¹¹

COMMENT

The obvious advantage of this form of diuretic therapy is its simplicity and ease of administration. It does away with the clinical as well as the economic disadvantages of giving diuretics intravenously and intramuscularly. The same may be said of any of the diuretics given by

mouth, such as urea, theocin, metaphyllin or other drugs of the xanthine group. These other preparations, however, are not always well tolerated by patients, and do not effect in general so satisfactory an increase in urine output as that resulting from the mercurin suppositories. The latter, thus far in our experience, have produced diureses quite comparable to those obtained by parenterally administered mercurial salts.

It has been our experience with the suppositories as with mercupurin and salyrgan, that the patients excrete more urine if an acid forming salt such as ammonium chloride is given in daily dosage of three or four grms. either continuously or with occasional rest periods of several days between "courses". The suppositories have been repeated at intervals of four to six days according to the extent or persistence of edema.

The advantages obtaining from this method of administering diuretics afford a definite advance in the treatment of edema by diuretic drugs.

SUMMARY

Mercurin suppositories containing 500 milligrams of the mercurial salt of mercupurin, administered by rectum have been found to cause diureses in edematous patients comparable with those observed after mercurial salts given intravenously.

No significant untoward or toxic effects occurred in twenty-five patients receiving from one to fifteen suppositories.

The simplicity of administration makes this form of therapy very suitable in the treatment of patients with edema in whom the use of diuretics is indicated.

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VERMONT STATE MEDICAL SOCIETY

THE BIOPSYCHIC APPROACH TO DISEASES OF THE MIND ITS DEPENDENCE ON NEUROLOGY AND GENERAL MEDICINE*

BY FOSTER KENNEDY, M.D.†

NEUROPSYCHIATRY by its very nature must pervade all medicine. Neurology must rest upon it, and must be the base of psychiatry. We who study these things must concern ourselves with the general field. You remember when Peter rested on the roof top he saw a great sheet let down from Heaven full of all manner of creeping and crawling things. Shrinking from them he heard a voice from on high saying "Call nothing that I have created common or unclean."

In the past century neurologists were busy collecting, classifying and, as their often unappreciative colleagues would say, "labeling" specimens of neural disorders. Even today many physicians point at us an unwitting finger thinking us an academic lot, full of wise saws but in the main signifying nothing. This view is long outgrown far behind the realities of our employment. We have viewed and learned the flora on the ground's surface, tabulated and

brought them into the scheme of law. Now is the task of digging into the ground to find the roots from which plants spring and of analyzing the soil—often heavy and seemingly unprofitable labor, but work which is the very stuff of medicine and on which will one day be established a true pathology of mind.

May we here examine a little the detail of this pretentious statement? For example, think of the rôle of focal infections in the production often quickly, often after long intervals of degeneration in the central nervous system. Abscessed teeth and chronic sepsis of the tonsils by perineural lymphogenous infectious cause cervical spinal arachnoiditis with cord compression and slowly progressive paraplegia. Caruncle of the neck by lighting an almost instantaneous fuse may cause an explosion in the upper spinal segments with transverse myelitis and quadriplegia. Diphtheritic sores of the hand have been shown to cause radiculitis and spinal paralysis of the affected arm while the same diphtheritic sores on the thigh throughout the British Forces in Mesopotamia gave rise to cauda equina neuritis with double

Read at the Annual Meeting of the Vermont State Medical Society at Rutland, October 18, 1935.
†Kennedy, Foster—Professor of Clinical Neurology, Cornell University Medical College. For record and address of a thorough This Week. I see page 1107.

dropped feet and paralysis of the sphincters Kimmie Wilson has shown the part played by chronic lead poisoning in painters and cable layers in the later production of amyotrophic lateral sclerosis. If one neural poison can cause central cell degeneration in this manner the same road of invasion is open to others whose nature still lies hidden from us.

Lately a woman was seen by us who gave a history of recurrent herpes zoster in the left second and third lumbar root skin areas of the left upper thigh. The painful eruption had appeared regularly for sixteen months in the first days of each menstrual period. She had consulted many physicians of the skin with slight symptomatic success. The clue to her condition was the discovery of an infected Bartholin cyst in the left labium which aggravated at the period, caused an ascending inflammation of the appropriate roots and posterior spinal ganglia.

Again a man was seen who had extensive anterior horn muscular atrophy of the legs with fibrillary twitching, usually thought characteristic of progressive muscular atrophy. The absence of any signs of involvement of the cervical segments, however, caused us to suspect the existence of a local infecting focus. The cure of a chronic prostatic abscess, in this case, resulted in recovery of function in the lower spinal segments.

Last year a soldier had eight upper teeth removed at one time under local anesthesia. Three days later he began to have severe neck pains and occipital headache and, in two weeks, he died of meningitis. The road for bacterial invasion of the brain membranes had been opened through overconfidence in modern dentistry applied to infected tissues.

One may point out the dependence of some spinal cord degenerations on long standing achylia gastrica which, in its turn, may depend upon a chronic cholecystitis.

A dozen years ago a violent epidemic of poliomyelitis with many scores of fatalities was traced to streptococcal milk. The dependence of other inexplicable forms of neuritides is often found in nutritional deficiency, not due to inadequate diet but to inadequate assimilation through deterioration of function in the mucous membranes of the alimentary canal.

There is no need to pile Pelion on Ossa, we must realize that the causes of neural degenerations lie often in infections of other tissues. Within the lifetime of all here paresis and tabes have been proved to be caused by lues and only by lues, but most of the older men as students were instructed that these two nervous diseases might come from overwork and exposure—presumably to the winds of Heaven! I was told as a student that paralysis agitans was "a neuro-

sis" without organic basis. We know now its cellular pathology and much of its infective origin. Asthma was to me at college akin to the vapors of a still earlier day. Now we understand that its allergic etiology is due in great part to individual sensitiveness to specific proteins which may cause some forms of palsy, blindness, and various obscure cerebral illnesses.

So, we neurologists live in no ivory tower. We scurry over and delve in the fields of internal medicine and must also try to throw searchlights through the tenebrous fog of endocrinological fact and fable. So, too, we must deal with the aberrations of all the special senses. We must try to bare the causes of many cases of blindness, of discrete losses of vision, of diplopia and, often enough, of simulated disease. We must try to give a reason for subjective visual phenomena, like visual fits or the more complex hallucinations of men and things associated with disordered function in the temporal sphenoidal lobe. We must know enough about sinus disease to distinguish between the pain caused by osteitis of the floor of an antrum and that of trigeminal neuralgia and between the localized headache due to pus in a sphenoidal sinus and a unilateral migraine. We neurologists must examine the ears ourselves and later secure skilled aid from the expert. We have to decide the significance of subjective ear noises and the significance of islands of lost hearing, to appraise labyrinthine efficiency and distinguish errors in semicircular canal mechanism from those of the cerebellar system. Errors in respiratory rhythm and palsies of the vocal cords, together with bulbar palsies and hysterical aphonias give us a link with the laryngologist. Thus the senses of taste, touch and smell, and the vagaries of speech all bring grist to our mill and we must grind thoroughly if we would make good bread.

We cannot busy ourselves with the spinal cord without acquaintance with its bony covering, nor can we deal with paralyzed members with no concern for the resources of the orthopedic surgeon in their cure. At times we can elucidate the cause of sciatic pain as being due to a tumor of the epiconus, not easily susceptible to spinal fusion, and aid by the diagnosis of dystonia musculorum in the orthopedic problem of the resultant disordered joint.

The palsies of the sphincters and the failure of the sexual reflex bring us into alliance and understanding with the genitourinary surgeon, but it is in the great problem of incurable pain that we can perhaps be of most assistance. In operable pelvic cancer, prostatic or uterine, may be made somewhat bearable by the operation of chordotomy, the division in the upper dorsal region of the tracts carrying pain impulses to the brain and consciousness. This operation in

proper hands, is no more arduous to the patient than is an exploratory laparotomy or an appendectomy, it causes no motor palsy no essential sensory loss, merely a transient sphincter disturbance and will secure the patient from most of the unpleasant features of morphine life. There is nothing to be said for the expectant treatment of bladder or womb cancer. When the diagnosis has been established and local treatment exhausted chordotomy should be done before morphine addiction has occurred.

All the specific fevers have their nervous concomitants, paralyses due to cerebral thromboses, neuritis, delirium and psychoses. These latter, mark you are the outcome of infection and fever. Is it not strange to us that a patient with pneumonia or typhus who harassed by delusions of imminent destruction throws himself from a window, is classified as delirious from fever, while the same psychic situation with no obvious intoxication may be called paranoia, the organic pathology of which most psychiatrists deny? One patient is said to have a disease of the body, the other a disease of the mind. This is at once loose and dogmatic thinking. We must reduce a pathology of mental disease through medicine the effort to do so through philosophy and psychology has failed. They are useful till our knowledge of the body will have grown to larger stature. In therapeutics they deal well enough with symptoms but a sharper sword is today being forged by medicine to deal with the nature of mental illness itself.

Often one hears a plea from the psychologist for the consideration of the human animal as a whole. We have often heard physiologists speaking of the cerebrum, the cortex, acting as a whole. I have never been quite able to understand clearly what is meant by the physiologist when he speaks of the cortex acting as a whole. Head uses the phrase in his writings. I have always thought it a very confusing term, but I think I do understand or approximate to understanding what is meant by a human being acting as a whole in that the metazoal, multicellular animal functions in each act as uniquely in as unified a manner as does the unicellular animal. Each behavior each act of behavior, is the resultant of the forces that are in the organism so that I think one may properly speak of the human being as acting as a whole which is far from being the same as feeling or thinking as a whole. Many lately have spoken rather adversely of Freud's philosophy. Freud's theory as being a purely motivational relation of human behavior. Now unfortunately, those who speak decidedly on any side in this rather amorphous world get the reputation of being prejudiced.

Our antagonism if it can be called antagonism

—and it is only criticism—to psychoanalysis is not that it is wrong but that it is only true in part. It is one angle of view only. Our mind symbolizes anything we see we see but one aspect at a time and that first and clearest that appeals to the consciousness of the observer. The important thing is to try to have more than one angle of vision, but the psychoanalyst seems to see like Polyphemus, with but a single eye and one cannot but feel that there is a certain belief in their circles that they have absorbed psychiatry. The psychoanalyst feels that only he is truly a psychiatrist and that unless one is a psychoanalyst one is not a psychiatrist, and that he who is not for them is against them. This is on the banner of all religions. They suggest that one has no right or power to have a notion or an idea of human personality in other terms than theirs. Shakespeare was not a psychoanalyst. Voltaire was not a psychoanalyst, George Moore and Thomas Hardy were not psychoanalysts, but I venture to say that these men knew more of the human spirit and the motivational phenomena that prevail in the human heart than most of Freud's disciples. The great artists are perhaps the greatest of all psychiatrists. Their understanding may be better than our knowledge. So I feel the Freudian contribution to be this. Freud has demonstrated that there is a phylogeny of personality. By that I mean that each of us is a microcosm of our race. From the egg to death we pass through stages in our body at least similar to those through which the whole race has passed. Freud has made it clear that in our emotion, in our striving in the preponderance of this instinct over that at different periods of our lives we have a like phylogeny of personality that the child is a savage that its sexual instinct emerges by gradual progression from a preoccupation with one orifice to a preoccupation with another. That is a true contribution to knowledge. Freud himself however, has lately said that he is not sure whether it is a contribution to therapeutics but at least it does make it clear how our instincts developed inside the microcosm of each man's body. We have vestigial remains like gillslits and others like satological tropisms, but we cannot describe the total body in terms of the one or the total personality in terms of the other.

This analysis of behavior has been nevertheless, a great compensation against the materialism and dogma of the "cellular" epoch which perforce evolved in the nineteenth century. However, if we are to think solely in terms of this reversion to dualism this ecclesiastical view of man which has beset our minds and lamed our thoughts for two thousand years if we are to think that such patterning and docking constitute the whole of psychiatry then

dropped feet and paralysis of the sphincters Kinnier Wilson has shown the part played by chronic lead poisoning in painters and cable layers in the later production of amyotrophic lateral sclerosis. If one neural poison can cause central cell degeneration in this manner the same road of invasion is open to others whose nature still lies hidden from us.

Lately a woman was seen by us who gave a history of recurrent herpes zoster in the left second and third lumbar root skin areas of the left upper thigh. The painful eruption had appeared regularly for sixteen months in the first days of each menstrual period. She had consulted many physicians of the skin with slight symptomatic success. The clue to her condition was the discovery of an infected Bartholin cyst in the left labium which, aggravated at the period, caused an ascending inflammation of the appropriate roots and posterior spinal ganglia.

Again a man was seen who had extensive anterior horn muscular atrophy of the legs with fibrillary twitching, usually thought characteristic of progressive muscular atrophy. The absence of any signs of involvement of the cervical segments, however, caused us to suspect the existence of a local infecting focus. The cure of a chronic prostatic abscess, in this case, resulted in recovery of function in the lower spinal segments.

Last year a soldier had eight upper teeth removed at one time under local anesthesia. Three days later he began to have severe neck pains and occipital headache and, in two weeks, he died of meningitis. The road for bacterial invasion of the brain membranes had been opened through overconfidence in modern dentistry applied to infected tissues.

One may point out the dependence of some spinal cord degenerations on long-standing achylia gastrica which, in its turn, may depend upon a chronic cholecystitis.

A dozen years ago a violent epidemic of polyn neuritis with many scores of fatalities was traced to streptococcal milk. The dependence of other inexplicable forms of neuritides is often found in nutritional deficiency, not due to inadequate diet but to inadequate assimilation through deterioration of function in the mucous membranes of the alimentary canal.

There is no need to pile Pelion on Ossa, we must realize that the causes of neural degenerations lie often in infections of other tissues. Within the lifetime of all here paresis and tabes have been proved to be caused by lues and only by lues, but most of the older men as students were instructed that these two nervous diseases might come from overwork and exposure—presumably to the winds of Heaven! I was told as a student that paralysis agitans was "a neuro-

sis" without organic basis. We know now its cellular pathology and much of its infective origin. Asthma was to me at college akin to the vapors of a still earlier day. Now we understand that its allergic etiology is due in great part to individual sensitiveness to specific proteins which may cause some forms of palsy, blindness, and various obscure cerebral illnesses.

So, we neurologists live in no ivory tower. We scurry over and delve in the fields of internal medicine and must also try to throw searchlights through the tenebrous fog of endocrinological fact and fable. So, too, we must deal with the aberrations of all the special senses. We must try to bare the causes of many cases of blindness, of discrete losses of vision, of diplopias and, often enough, of simulated disease. We must try to give a reason for subjective visual phenomena, like visual fits or the more complex hallucinations of men and things associated with disordered function in the temporo-sphenoidal lobe. We must know enough about sinus disease to distinguish between the pain caused by osteitis of the floor of an antrum and that of trigeminal neuralgia and between the localized headache due to pus in a sphenoidal sinus and a unilateral migraine. We neurologists must examine the ears ourselves and later secure skilled aid from the expert. We have to decide the significance of subjective ear noises and the significance of islands of lost hearing, to appraise labyrinthine efficiency and distinguish errors in semicircular canal mechanism from those of the cerebellar system. Errors in respiratory rhythm and palsies of the vocal cords, together with bulbar palsies and hysterical aphonias give us a link with the laryngologist. Thus the senses of taste, touch and smell, and the vagaries of speech all bring grist to our mill and we must grind thoroughly if we would make good bread.

We cannot busy ourselves with the spinal cord without acquaintance with its bony covering, nor can we deal with paralyzed members with no concern for the resources of the orthopedic surgeon in their cure. At times we can elucidate the cause of sciatic pain as being due to a tumor of the epiconus, not easily susceptible to spinal fusion, and aid by the diagnosis of dystonia musculorum in the orthopedic problem of the resultant disordered joint.

The palsies of the sphincters and the failure of the sexual reflex bring us into alliance and understanding with the genitourinary surgeon, but it is in the great problem of incurable pain that we can perhaps be of most assistance. In operable pelvic cancer, prostatic or uterine, may be made somewhat bearable by the operation of chordotomy, the division in the upper dorsal region of the tracts carrying pain impulses to the brain and consciousness. This operation, in

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT M.D.

TRACY B. MALLORY M.D. *Editor*

CASE 22221

PRESENTATION OF CASE

A seventy seven year old fisherman was admitted to a convalescent hospital complaining of swelling of the lower extremities.

Three weeks previous to admission he first noted some weakness which was associated with moderate difficulty in breathing. There was also slight dizziness and a gradually progressive edema of both feet and legs.

Thirty five years prior to his entry the patient had had a carcinoma of the lower lip excised. One year later he returned with an ulcer of the lip which was thought to be a recurrence but which on section showed no evidence of malignancy. Twenty years before entry he was seen in the Out Patient Department with a generalized skin rash, sores on his tongue and lips, and was found to have a strongly positive Wassermann test. Nine years later the Wassermann was still strongly positive. Six years before his final entry he returned to the hospital with a complaint of pain in the right side of his abdomen of three weeks' duration associated with nausea, vomiting and occasional shooting pains radiating down into his genitalia and both legs. A huge mass was palpable in his right upper quadrant and shortly thereafter a transperitoneal nephrectomy for hypernephroma was done. At operation it was noted that the glands in the region of the renal pedicle were involved but were inextricable.

Physical examination showed a well-developed and nourished pallid elderly man. The lower lip was contracted and scarred. The heart sounds were distant and muffled in character. No murmurs were audible. The blood pressure was 140/80. The radial vessels were tortuous and sclerotic. The lungs were clear. There was a small ventral hernia noted. The scars of the two previous operations were not remarkable. There was tenderness in the right upper quadrant but no mass was palpable. There was pitting edema of both lower extremities and a large exostosis was felt protruding from the surgical neck of the humerus.

Examination of the urine showed a specific gravity of 1.014 with a slight trace of albumin. The sediment contained 30 white blood cells per

high power field. The blood showed a red cell count of 3,000,000 with a hemoglobin of 39 per cent. The white cell count was 4,400, 68 per cent polymorphonuclears. A blood Wassermann test was negative.

The patient remained in the hospital for six months, during which time his edema persisted despite varied therapeutic measures. His temperature ranged between 98° and 99° and his pulse between 60 and 80. A hypochromic anemia which had been noted was improved by the administration of iron and liver. His general condition improved to such a point that during the sixth month he was allowed to return to his home for several one week vacations. His edema, however, remained little improved despite digitalization. During the seventh month vague complaints of dyspepsia led to a gastrointestinal x-ray. The films showed a large polypoid filling defect in the anterior wall of the stomach measuring about two inches in diameter. Thereafter his condition remained essentially unchanged although he had occasional nocturnal epigastric discomfort which was relieved by alkalies. During the tenth hospital month he developed chills, a temperature of 103° and pain in the right side of his abdomen. Examination of the chest was recorded as being negative. There was some urinary frequency and burning dysuria. He was given fluids intravenously. A urine examination showed no change from the admission specimen. Thereafter he became progressively weaker, his temperature ranged between 100° and 103° and the pain in his right upper abdomen persisted. He died about ten and a half months after entry, two weeks after the onset of his acute symptoms.

DIFFERENTIAL DIAGNOSIS

DR. FLETCHER H. COLBY. It seems apparent that neoplastic malignant disease is the chief consideration in this patient. This individual had cancers of two parts of the body that of the lip thirty five years before entry and that of the kidney six years before. The chief point to be determined, it seems to me, is whether the gastric tumor which was discovered three months before death is related to either of these other two neoplasms.

The high lights in the history are these: an elderly man with progressive and persistent edema of the lower extremities, weakness and anemia and the obvious presence of a large tumor of the stomach. There is no evidence of marked circulatory weakness to account for the edema. It is limited to the lower extremities. It did not recede with long periods of rest. Likewise there is no evidence of marked renal impairment although one kidney was removed six years before, but the description of the terminal illness does not suggest uremia. The edema then would appear to be due to obstruction to

the return circulation in the large vessels. The cancer of the lip is dead and buried. That was thirty-five years ago and there has been no recurrence since. I do not believe it needs to be considered. A large malignant renal neoplasm was removed from this patient six years before. My compliments to the surgeon who did it. A transperitoneal nephrectomy in the first place, in the presence of such a large mass, is a difficult procedure. It was noted by the surgeon at that time that there were enlarged lymph nodes, presumably tumor-laden lymph nodes, in the region of the right renal pedicle. These probably were situated on the large vessels and it is reasonable to suppose that those large lymph nodes continued to grow larger and cause obstruction to or possible actual involvement of the large veins. Secondary tumor deposits from certain of the renal tumors grow very slowly. It is not uncommon to have recurrences five to twenty or more years after the removal of these malignant tumors called hypernephromas. They are all probably species of cancer. They most frequently, as you probably all know, metastasize to the lungs and to the bones. The exostosis of the humerus might be a secondary deposit, I do not know. There is only that to go on and frequently these tumors metastasize to bones and by choice to the long bones. There is no evidence of involvement of the lungs although such may easily be present.

Is the gastric tumor primary or secondary to the renal growth? Metastases from hypernephromas can involve any part of the body. It is unusual for them to involve the stomach. This might be an extension from the tumor in the region of the large vessels, actual tumor extension to the stomach, but if that were true I think we would expect to find a large palpable mass in the upper abdomen. Such was not present. The gastric tumor is described as polypoid in character. That sounds more like a tumor which came from the stomach itself than a metastatic nodule of tumor tissue or tumor that has extended to the stomach and involved it. I do not believe this individual is entirely free of his renal growth. It is reasonable that these lymph nodes which were discovered at the time of operation six years before have continued to grow larger and have caused obstruction to the large vessels either by pressure or by actual tumor extension. I believe that the gastric neoplasm is an independent one. That makes this individual have three different cancers. I think his liver probably is involved by the cancer and that would probably account for the pain in the right upper abdomen. I think in all likelihood he died of terminal pneumonia.

DR. TRACY B. MALLORY. Dr. O'Neil, you operated on this man. Will you tell us about it, please?

DR. RICHARD O'NEIL. I remember this patient. I saw him in consultation with the surgical service and at that time he had a large mass in the right upper quadrant. As I remember, there was no history of hematuria. When it is present of course it is a very significant element in renal diagnosis but it is not by any means constant, and it is not uncommon to see a renal tumor that does not have hematuria. Cystoscopy and pyelogram were made and were typical of renal tumor, and a transperitoneal nephrectomy was done. Incidentally, it is interesting to note that in looking over cases reported by Dr. Smith that the first time a pyelographic diagnosis of renal tumor was made in this hospital was in 1916, which seems extraordinary because pyelograms were being made some time before that.

The operation on this man was done under spinal anesthesia and the tumor removed transperitoneally, which is the best route for these large renal tumors. You can get better access to the pedicle. It was noted he had some glands which were not removed because they were adherent to the great vessels. The extraordinary thing is that this man had gone five years after an incomplete operation and had no deep x-ray therapy. He was seen by Dr. Simmons who suggested that he should have x-ray treatment. Dr. Holmes saw him and advised against it unless the man could come in and have a regular course of treatment, which he did not do.

In a series of twenty-six operative cases of hypernephroma reported from this hospital in 1925, one lived ten years, two eight years, one seven years, and one five years. In a series of thirty-four cases not operated on, the duration of life from the first symptom was in one case seven years, one five years, and on four years. So apparently some do as well without operation as with it. In a series reported by Dr. Hyman of New York, of forty-two cases, nine per cent lived five years, twenty per cent lived four years and twenty-six per cent lived three years. In another series of twenty-five cases all died within seven years. In another series of Berg of Norway, of thirty-seven cases seven lived five years. In these series the time of the appearance of the first symptom to the time of operation varies greatly—one case had hematuria for eleven years. He was operated on and lived for nine months. In contrast to this it might be interesting to say that I had a case four years ago in the Baker, a man thirty-two years old who had hematuria for one day only. He consulted his own physician that night. I cystoscoped him the next morning. At that time there was no hematuria, so a bilateral pyelogram was made which demonstrated a renal tumor. That is, the diagnosis was made within

twenty-four hours of the first occurrence of the symptom which is very unusual. He had nephrectomy four days later. That is about as quick as you can do it. He was all right a year later.

I think in this case as Dr. Colby said that there were two different types of malignancy present but that the renal condition has something to do with his death.

Dr. MALLORY: During the last two years of this patient's illness he was followed, not in this hospital but in the Chelsea Marine Hospital. Dr. Dearing will tell us their impression.

Dr. W. PALMER DEARING: As we saw him during this period of nine or ten months the striking thing was the one Dr. Colby pointed out, the edema of the lower extremities which continued to be so intractable. It did improve as the anemia was treated and did improve a little with his digitalization, but at the same time there was no definite evidence of cardiac decompensation.

The other thing about his course was that two or three times he would flare up with febrile attacks for a few days and complain more of abdominal pain, then would get better. At no time could anything definite be felt in his abdomen though he was constantly tender in the right upper quadrant. When he finally died we felt that he probably had some infected metastases in the liver from the gastric tumor and a question arose as to what the old tumor that had been incompletely removed was doing, but we felt as Dr. Colby did that the stomach tumor was something different, another neoplasm.

CLINICAL DIAGNOSES

Carcinoma of the stomach
Hepatic abscess.
Recurrence of hypernephroma?
Chronic myocarditis.
Exostosis of the right humerus.

Dr. FLETCHER H. COLBY'S DIAGNOSES

Carcinoma of the stomach
Recurrent carcinoma of the kidney with metastasis to the liver

ANATOMIC DIAGNOSES

(Renal cell adenocarcinoma, right kidney)
Operative scar. Nephrectomy right
Recurrence of the renal cell adenocarcinoma at the operative site with extension along the right spermatic vessels, the right renal vein and inferior vena cava
Hepatic abscess.
Pulmonary abscess
Pulmonary edema, bilateral
Carcinoma of the stomach
Multiple gastric polyps
Pleuritis chronic fibrous bilateral

Prostatic hyperplasia.
Trabeculation of the bladder
Osteoarthritis hypertrophic
Exostosis of the right humerus
Ventral hernia
Decubitus ulcers
(Syphilis)
Operative scar. Excision of epidermoid carcinoma of the lip

PATHOLOGIC DISCUSSION

Dr. MALLORY: The autopsy showed very close to what was predicted. He had a local recurrence of his hypernephroma at the site of the original incision and this tumor, as is so characteristic of hypernephromas as a group, had directly invaded the renal vein had grown backward down the spermatic vein had grown into the vena cava and reached nearly up to the portion of the vena cava which passes through the liver. So that his edema was undoubtedly explained primarily on the physical basis of a tumor thrombus almost completely plugging the vena cava.

The stomach proved very interesting. It showed three separate polypoid tumors, two rather small ones along the lesser curvature apparently not visualized by x-ray which histologically were perfectly benign polyps, and a large one on the anterior surface near the greater curvature. Microscopically the major part of the large polyp closely resembled the two small ones, and appeared benign in character. There was one definite focus of malignant degeneration however such as we see from time to time in tumors of the stomach that evidently start as benign lesions.

The liver showed a fair-sized abscess in the right lobe with no evidence that it was connected in any way with the tumor. It was about six or seven centimeters in diameter and there was a very small metastatic abscess in the lung half a centimeter in diameter which had nothing to do with his death. I should think death was probably due as much to sepsis from the liver abscess as any other single thing.

I think the case is interesting in pointing out one of the fallacies of the naïve era of medical statistics. It used to be taught that multiple cancers were a great rarity. The obvious reason for that is of course that the great majority of cancer patients died within a relatively short period from the first cancer that they developed and consequently very few of them lived long enough to have a chance to develop a second cancer. When adequate statistical correlations were made it has been possible to show as Dr. Lund and various other people have done that an individual who has had one cancer stands a very much better chance to develop second cancer than the laws of chance

would allow There is undoubtedly such a thing as a tendency to neoplastic growth This man had three separate malignant neoplasms The lesion in the humerus turned out to be a benign exostosis and I think it is rather questionable whether that can be brought into the same category, but I feel reasonably sure if he had been able to live five years more he would have shown still other separate distinct cancers

DR O'NEIL Any evidence of bone metastases?

DR MALLORY Nothing that we found There is one point not mentioned in the physical examination that might have been a help to Dr Colby There was bilateral varicocele which would have been additional evidence in favor of thrombosis

DR GEORGE W HOLMES What about his liver abscess?

DR MALLORY We found nothing to suggest the origin

CASE 22222

PRESENTATION OF CASE

A sixty-nine year old white housekeeper was admitted complaining of bleeding from the rectum

The patient stated that for a number of years she had had a "delicate stomach" which was relieved by four sinus operations, the last of which was performed seven years ago She remained comparatively well until about six months before entry, when she began to have vague colicky pains occasionally on one side and then on the other side of the abdomen These pains were associated with borborygmus, gaseous eructation and the passage of flatus For the last two months these attacks occurred several times a week without relation to meals and were not relieved by bowel movements Her bowel habits were unchanged but the stools, although not diarrheic were definitely looser than previously and were occasionally dark in color Four weeks prior to admission she began to have gnawing epigastric pain which was relieved by food ingestion Her appetite was increased but only for lettuce and such foods More substantial material seemed to lie heavily in her stomach There was no vomiting Three days before coming to the hospital she passed about a pint of dark blood by rectum Subsequently she passed similar material on two occasions during that day She felt weak and on the day of entry began to vomit She thought that she had lost some weight

Physical examination showed a pale, thin, feeble, sick-looking woman suffering from nausea and vomiting during the examination Slight tenderness was elicited over both maxillary sin-

uses The mucous membranes were pallid The heart was not enlarged and a soft systolic murmur was audible at the apex The blood pressure was 160/80 The lungs were clear The lower midabdomen was full and there was elastic balloon-like resistance in the right lower quadrant To the right of the umbilicus there was a firm, slightly tender rounded mass, about four centimeters in diameter which seemed to move slightly with inspiration Peristaltic sounds were slightly increased No further findings were noted

The temperature was 99°, the pulse 100 The respirations were 22

Examination of the urine showed a specific gravity of 1.020 and a slight trace of albumin The sediment was negative The blood showed a red cell count of 3,900,000, with a hemoglobin of 50 per cent The white cell count was 11,300, 89 per cent polymorphonuclears There was considerable achromia, anisocytosis, and an occasional stippled red blood cell The nonprotein nitrogen of the blood was 35 milligrams and the chlorides were 104 The serum protein was 5.2 milligrams per cent

A portable flat film of the abdomen showed a moderate amount of gas in the bowel overlying the true pelvis and in the region of the cecum and descending colon The cecum did not appear grossly dilated An indefinite rounded area of density was seen superimposed above the region of the ascending colon, just above the crest of the right ilium The diaphragm was low in position Two days later another flat film showed the gas filled colon to be normal in size The rounded areas of density, previously described over the crest of the right ilium, appeared to be within the bowel and had the appearance of a fecolith

On the second hospital day the patient received a transfusion and two days later a laparotomy was performed

DIFFERENTIAL DIAGNOSIS

DR OLIVER COPEL The cause for this patient's entry to the hospital is intestinal obstruction The problem lies in determining first the point of obstruction and secondly the cause The first symptoms of obstruction started six months ago Presumably they were intermittent until two months ago, when the frequency of the attacks of pain suggest that a chronic obstruction existed Complete obstruction apparently occurred a short time before entry and was the immediate cause of her entering the hospital Taking the history alone, the probability would be that the obstruction lies either high in the large intestine or low in the ileum If the obstruction were either in the rectum or sigmoid, in other words low in the bowel, there would have been some change

in the bowel habits. The intermittent attacks of pain would have been accompanied by intermittent constipation. The lack of change of bowel habit is consistent however with obstruction on the right side of the colon or in the terminal ileum. The complete absence of change in bowel habit is strongly suggestive of ileal obstruction. The slight increase in softness of the bowel movement is consistent again with right colon or ileal obstruction. The fact that there was no frank diarrhea again suggests that the obstruction is in the ileum and that relatively normal bowel contents existed in the right side of the colon. Again from the history, the obstruction is probably not high in the small intestine. Vomiting would have appeared much earlier and the patient would not have been able to eat so well as she has. In fact the lack of change in appetite suggests that the obstruction, if in the small intestine, must be low in the ileum. It is consistent with such an ileal obstruction as well as with large bowel obstruction.

I am unable to tie up the "delicate stomach" relieved by sinus operations with the diagnosis. The "delicate stomach" would fit well with an antecedent gallbladder disease but it was apparently relieved seven years ago. I can think of no disease which would give sinus disease relieved for seven years and then give intestinal obstruction. Were there not the long interval of relief, diffuse diseases such as lymphoma, which may present a terminal intestinal obstruction, should otherwise be considered in the differential diagnosis. I am forced to omit the sinus trouble in the discussion.

The physical examination suggests two things of importance. In the first place a small movable firm mass in the right lower quadrant and in the second place a large boggy, balloon-like mass. This latter lying in the right lower quadrant presumably would be a dilated cecum, but the small mass if it were the cause of the obstruction should be above it near the hepatic flexure. The fact that the small mass, which I presume is the cause of the obstruction is differently placed suggests that it lies in the terminal ileum and that the boggy mass must be dilated small intestine.

The laboratory examination is significant. The blood examination is consistent with the recent loss of blood. From the history it is obvious that this loss of blood must have been from the bowel. The fact that the nonprotein nitrogen and the blood chlorides are well within normal limits suggests again that the obstruction is in the ileum must be low. If the obstruction were higher in the small intestine there would have been greater loss of water and salt with an elevation of the nonprotein nitrogen and a drop in the blood chloride. The low serum

protein of 52 milligrams is consistent with hemorrhage. The x ray helps and at the same time it is quite confusing. The second flat plate definitely excludes the large bowel as the origin of the obstruction. A normal sized gas filled cecum places the obstruction in the small intestine. In the first plate a rounded area of density just above the right ileum approximately where the small mass is described in the right lower quadrant, suggests that that mass is a large gall stone. A large gall stone in the terminal ileum is occasionally a cause of acute intestinal obstruction. In the cases that I have seen however no such long history of intestinal obstruction occurred. Once the gall stone had found its way into the small bowel there followed an acute episode of obstruction. I have also never seen bleeding as a complication of gall stone ileal obstruction. Presumably it might occur but the amount of bleeding which this patient had obviously had suggests an ulcerating area of longer duration than would have been produced by a gall stone. The second plate suggests that this mass is in the large bowel and not in the dilated bowel and therefore that it is below the point of obstruction. For these three reasons I dismiss a gall stone as the cause of the obstruction.

Hemorrhage from the small bowel with subsequent acute obstruction can be due to a Meckel's diverticulum but the story of obstruction is of too long a duration. The patient is also of cancer age. If a Meckel's diverticulum is involved in this patient's disease I would go so far as to hazard the guess that it was a carcinoma of the diverticulum with hemorrhage and obstruction. Carcinoma is the most likely disease if one excludes lymphomas. I have never known a lymphoma to give ulceration and bleeding similar to that in this patient.

Carcinomas of the small intestine are very rare. Carcinomas of the large intestine are much more frequent. Carcinomas of the appendix itself which might produce obstruction to the terminal ileum are also rare. Neither a study of the patient nor the x ray examination enables us to make a flatfooted localization of the process. Therefore on the basis of probability, I believe this patient had a carcinoma of the ileocecal valve arising really from the large intestine but causing obstruction of the small bowel alone.

PREOPERATIVE DIAGNOSIS

Carcinoma of the right colon

DR. OLIVER COPELAND DIAGNOSIS

Carcinoma of the ileocecal valve

PATHOLOGIC DIAGNOSIS

Adenocarcinoma of the cecum grade II

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY This patient was explored by Dr. Daland, who found very nearly what Dr. Cope had predicted. The main position of the tumor was in the tip of the cecum, which was markedly contracted. The tumor had grown into the base of the appendix for a distance of about 2.5 centimeters. It had extended on the other side just to the margin of the ileocecal valve although anatomically this did not appear to be markedly narrowed. No

evidences of metastases other than two small lymph nodes in the mesentery could be discovered, so a resection of the cecum, ascending colon and terminal ileum was done. The stump of the ileum was anastomosed to the transverse colon. Microscopic examination showed a well differentiated adenocarcinoma and also proved that the palpable lymph nodes were free from metastasis and enlarged only by an inflammatory reaction. Following operation the patient did well and was discharged relieved three weeks after operation.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1823

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$5.00 per year in advance postage paid
for the United States, Canada \$7.00 per year \$8.00 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received, or late
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston, Mass.

THE INCREASE IN INCIDENCE OF DIABETES MELLITUS

It is true that diabetes has been increasing and it is also true that the highest incidence of diabetes is in the United States. However there are several factors which are often overlooked when startling statistics of this nature are published. Thus, in a recent compilation upon the Diabetes Record of 1934¹ we read that the death rate increased from 18.3 per 100,000 in 113 American cities in 1925 to 25.4 per 100,000 in 169 cities in 1934. As a matter of fact the death rate from diabetes in the Original Registration States increased from 20.4 in 1920 to 28.8 in 1934 or 41 per cent. The corresponding figures for the Registration States of 1920 are 16.1 and 24.1 or 50 per cent. Now it happens that elsewhere in the world where the rates have been much lower the percentage increases have been much more rapid. Thus, in England and Wales in 1920 the rate was 10 and in 1934 was 16.0 per 100,000 and the increase therefore was 60 per cent. In Scotland in 1924 it was 10

per 100,000 but in 1934 15 per 100,000 or an increase of 50 per cent. In Italy in 1920 the rate was 4.5 but in 1934 it was 9.5 per 100,000 or an increase of 111 per cent. In Montreal in 1920 the rate was 12 and in 1934 18.7 or an increase of 56 per cent. Consequently although the incidence of diabetes is increasing rapidly both in the United States as a whole and in its cities the statistical increases are outdistanced in some other countries and cities and are gradually approaching the United States level.

In estimating the statistical evidence of diabetes in various parts of the world one must always bear in mind the accuracy with which the data are collected. Thus in Canada, statistics show in 1934 the rate to be 12.2 per 100,000 for the whole country whereas for Montreal 18.7 and for Toronto 16.6. Naturally the question arises as to whether in the rural areas in Canada diabetes is as assiduously sought for and diagnosed as in the urban areas and the same thought arises regarding rates in the rural and urban areas of the United States and in different sections of the country.

Other factors likewise must be borne in mind. Diabetes is a disease of middle age and adult life. The older the population the more diabetes can be expected and it is not strange that in New England the diabetes death rate per 100,000 for 1930 was 24.4 the Middle Atlantic States 25.5, East and West North Central States 21.4 and 20.6 respectively and Mountain States 13.3 per 100,000. Whereas the population of Vermont is small and therefore not quite suitable for comparison the rate varied between 29.4 per 100,000 in 1933 and 38.5 per 100,000 in 1934. In Russia according to a recent announcement in the daily press, 46 per cent of the population had been born since 1917 and therefore were nineteen years of age or less. In Massachusetts only 35 per cent of the population in 1930 was under twenty years of age.

The Vermont figures also bring up another fact of importance in evaluating the significance of incidence. Thus there were only 106 deaths in 1933 and 139 deaths in 1934 producing changes in rates from 29.4 to 38.5 per 100,000 respectively. Obviously when dealing with such small numbers there is opportunity for misinterpretation of the facts. Even in a city as large as Boston the deaths changed from 331 in 1934 to less than 300 in 1935. The rate for 1934 was 42.3 per 100,000.

Other factors are of consequence, racial urban versus rural types of population, environmental conditions particularly those leading to obesity due either to ease in securing food or reduction in necessity for muscular work. These conditions cannot be entered into here. They have been considered in detail elsewhere.²

The incidence of diabetes is rising but in general it is increasing now more rapidly in

some other countries than in the United States. The age of the population is a great factor. Two-thirds of all cases of diabetes originate after the age of forty. Consequently, the per cent of the population above forty is important. Thus, in the United States in 1900 23.4 per cent of the population was above the age of forty, whereas 29.4 per cent in 1930. In 1845 in Boston, 80 per cent of the population died under forty years of age, but in Massachusetts in 1935, 80 per cent of the population died above the age of forty years. The increase of diabetes in the United States due to ageing of the population can be expected to go on until the average age of all deaths advances from its present level of 48.7 years to nearly fifty-five years, because this represents about the maximum age incidence for the onset of diabetes. It is true that in the United States the average age at death has advanced nearly one year for each two years (actually from 26.9 to 48.7 years) between 1880 and 1930 but it is logical to infer that increases of longevity and of diabetes in the future will proceed at a much slower pace. However, if one accepts the figures from Thompson and Whelpton's³ book on "Population Trends in the United States" it is evident that the basis for further advances in the number of diabetics will continue for another generation. Thus, in 1900 17.8 per cent of the population was forty-five years of age and over and 4.1 per cent sixty-five years and over. In 1930 these figures were respectively 22.9 and 5.4 per cent, but it is calculated that by 1960 they will rise to 32.6 for forty-five years and above and 9.8 for sixty-five years and over.

REFERENCES

- 1 Hoffman Frederick L. The Spectator October 31 1935
- 2 Joslin E. P. Dublin L. I. and Marks H. H. Studies in diabetes mellitus interpretation of variations in diabetes incidence. Am J M Sc 189:163 (Feb) 1935
- 3 Thompson W. S. and Whelpton P. K. Population Trends in the United States McGraw-Hill

THE EFFECT OF RADIATION ON MALIGNANT TUMORS

A CONTROVERSY as long standing as the application of radiotherapy to malignant disease is still unsettled as to the relative importance of the effect of radiation on tumor cells and on the stroma of the tumor and the supporting structures. Most experimental work has centered about the effect of radiation directly on the tumor cell. The work of the French school established the principle that actively proliferating tissues are peculiarly radiosensitive. With this so-called "law of Bergonié and Tribondeau" as a starting point, much attention has been paid to the effects on mitosis, with rather contradictory results owing to the variety of cells and the variety of types of radiation used. In general, the prophase of mitosis is considered the most easily injured.

The one finding on which all experimenters agree is that in any type of tissue, no matter how homogeneous it may appear, whether in the body or growing in tissue culture, the cells fail to respond identically to the radiation. A portion of this different response may be explained by variation in age of the cell, but it must also be influenced by inherent physiological differences in the various cells, irrespective of their age.

We are accustomed to speak of certain tumors as radiosensitive, in view of their marked regression after irradiation. On the other hand, after a satisfactory initial response, the same tumors, once they have recurred, fail to respond anywhere near so favorably, or indeed may not respond at all to the same dosage which gave good results the first time. In spite of the fact that the tumor has changed from radiosensitive to radioresistant, there is no demonstrable difference in the appearance of the tumor cell.

In this regard it is interesting to note that Strangeways and Hopwood found that even in irradiation of cells in tissue culture 100 erythema doses failed to kill every cell in the culture. This amount of x-ray dosage is, of course, far more than any human being could stand. A similar amount of radiation from radium was required to kill all the cells in tissue culture, as is demonstrated in the experiment of Speare.

A most interesting point is that there is a threshold of intensity below which no effect is obtained, no matter how long the radiation may be applied. In other words, even though a dosage of 500 mg hrs of radium be given, if the source be of very low intensity practically no effect would be obtained, whereas with a source of greater intensity a marked effect would be obtained.

Study of the histology of x-ray burns led Wolbach and Porter over twenty years ago to emphasize the importance of the effect of irradiation on the supporting tissues. This has been recognized clinically for a considerable period, one of the most striking examples being in the varying response of tumors of the same type according to the position in which they occur. Thus, basal cell cancers of the skin which normally respond well to irradiation when overlying connective tissue or muscle, respond poorly when overlying fat and even more poorly when invading cartilage or bone.

Histologic study of irradiated tumors showed two definite types of effect: an immediate effect on the tumor cell itself, in part exerted on cells in mitosis at the time of irradiation and in part, though to a lesser degree, on the other cells of the tumor. Subsequent to this immediate effect, a delayed effect on the vessels and on the subcutaneous tissue and the connective tissue of the stroma becomes increasingly important.

Thus we may well regard the radiation effect on a given tumor as the summation of the effect on tumor cells in mitosis, on resting tumor cells, on the vascular supply and on the connective tissue of the stroma and the surrounding tissues. That a dosage of x ray or radium will destroy a tumor in the body when it would be insufficient to destroy the cells of that tumor growing in tissue culture shows that there is more than a simple destructive effect on the tumor cells themselves. There must be a secondary effect on the surrounding tissues which leads to the formation of a definitely unfavorable environment for the further development of the tumor cells.

"DEBUNKING" THE SURE CURES

PROFESSOR E V McCollum of Johns Hopkins University in addressing the Kings County Medical Society of Brooklyn, according to our learned contemporary, the *New York Times*, urged the medical profession to forestall the extravagant claims of retailers for the qualities of their medicinal preparations by thoroughly investigating all important new scientific discoveries.

Dr McCollum has added greatly to our knowledge of the vitamins, and is consequently anxious that information which is practically applied should be approximately correct. While conceding that the secretory powers of mucous glands decrease for lack of vitamin A and that the secretions of those glands contain an antibacterial substance he sought to dispel the widespread belief that substances rich in vitamin A can prevent infectious diseases. Little if any improvement has been found in the incidence of common colds despite the regular ingestion of cod liver oil, although colds in the cod liver oil groups seem to be milder than in those not so indulging themselves. Vitamin A, however, he considers to be very important to the newly born, and its ingestion should be started early to prevent the cracking of teeth enamel and permanent injury to the tooth structure.

Vitamin B-1 is considered by Dr McCollum to be highly important to the infant, and since milk is relatively poor in this substance, it should be added early to the infant dietary in the form of yeast extracts or other concentrates. Vitamin B-1 has also been found of value to chronic alcoholics, presumably on account of its anti-neuritic properties.

No fairer field for commercial exploitation has been found than that afforded the vitamins, but the success or failure of this exploitation, as Dr McCollum indicates, is largely in the hands of the medical profession.

THE CANVASS OF CHRONIC AND DISABLING ILLNESS

In a letter* to the Secretary of the Massachusetts Medical Society Dr L R Thompson, Acting Surgeon General of the United States Public Health Service makes public the plan for securing the co-operation of physicians in the accumulation of accurate data relating to the incidence of chronic and disabling illness.

This means that as cases of illness of these types are found by the investigators, the attending physicians will fill out and sign blank forms, setting forth the diagnosis in each case which the doctor has attended. For this service a fee of twenty five cents will be paid.

This movement is commendable and should receive the effective support of the medical profession even though the service entailed may not be adequately remunerated.

If this plan is efficiently carried out, a great deal of valuable information will be at the disposal of the Public Health Service and should be the basis for constructive measures in dealing with the problems involved.

We hope that the medical profession will co-operate in this movement.

See page 111

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

JOSLIN, ELLIOTT P. B.A. M.A., M.D. Harvard University Medical School 1895. Medical Director, George F. Baker Clinic, New England Deaconess Hospital. Address: 81 Bay State Road, Boston, Mass. Associated with him are Root, HOWARD F. A.B., M.D. Harvard University Medical School 1919. Physician to the New England Deaconess Hospital. Address: 81 Bay State Road, Boston, Mass. And

MARBLE, ALEXANDER. A.B., A.M. M.D. Harvard University Medical School 1927. Physician to the New England Deaconess Hospital. Address: 81 Bay State Road, Boston, Mass. And

WHITE, PRISCILLA. M.D. Tufts College Medical School 1923. Physician to the New England Deaconess Hospital. Address: 81 Bay State Road, Boston, Mass. And

JOSLIN, ALLEN P. M.D. Tufts College Medical School 1932. Address: 81 Bay State Road, Boston, Mass. And

LYNCH, GEORGE W. M.D. Harvard University Medical School 1933. Address: 81 Bay State Road, Boston, Mass. Their subject is Protamine Insulin. Page 1079.

HOUSSEY, BERNARDO A. M.D. For information see This Week's Issue page 946, issue of May 7. His subject is Hypophysis and Blood

Pressure Page 1086 Address University of
Buenos Aires, Buenos Aires Argentina, S A

FULTON, MARSHALL N Ph B, B A, M D
Johns Hopkins University School of Medicine
1925 Physician Peter Bent Bigham Hospi-
tal Instructor in Medicine, Harvard Univer-
sity Medical School His subject is Mercurin
Suppositories as a Diuretic in the Treatment
of Edema Page 1092 Address Peter Bent
Bigham Hospital Boston Mass

KENNEDY, FOSTER M D National Univer-
sity of Ireland 1906 F R S (Edin) Profes-
sor of Clinical Neurology, Cornell University
Medical College Director, Department of Neu-
rology, Bellevue Hospital, New York City His
subject is The Biopsychic Approach to Diseases
of the Mind Its Dependence on Neurology and
General Medicine Page 1095 Address Belle-
vue Hospital, New York City

The Massachusetts Medical Society

ANNUAL MEETING OF THE COUNCIL

The annual meeting of the Council will be
held in the Ballroom of the Hotel Kimball,
Springfield on Tuesday June 9, 1936 at 10 30
o'clock

Please note the change of time

Business

- 1 Reading record of last meeting in abstract
- 2 Nominating Committee retire to deliberate
- 3 Report of Committee on Membership and
Finance
- 4 Reports of committees to consider peti-
tions for restoration to the privileges of
fellowship and new committees to be
appointed
- 5 Report of the Treasurer
- 6 Reports of Standing Committees and
Special Committees
- 7 Election of Officers and Orator by ballot
- 8 Appointment of committees for ensuing
year, both Standing and Special
- 9 Incidental business

Boston

ALEXANDER S BEGG, *Secretary*

Councilors are asked to sign one of the two
attendance books before the meeting
The Cotting Luncheon will be served imme-
diately after the meeting

SECTION OF OBSTETRICS AND GYNECOLOGY*

C J KICKHAM, M D.,
Chairman
524 Commonwealth Ave.,
Boston, Mass

R. S. TITUS, M D.,
Secretary
472 Commonwealth Ave.,
Boston, Mass

BRIGHT'S DISEASE IN PREGNANCY

During pregnancy certain kidney complica-
tions often occur. The presence of kidney dis-
ease before pregnancy may make it either im-
possible for the patient to give birth to chil-
dren or inadvisable to make the attempt. Fur-
thermore, the occurrence of kidney complica-
tions during pregnancy may and frequently does
cause loss of life either to the mother or to
the unborn child or perhaps to both. It is ex-
tremely important therefore, both for the pa-
tient and for the physician to know something
of what has gone on before pregnancy and a
great deal of what is going on during it. For
the purpose of this discussion we may classify
the complications which involve or may involve
the problem of nephritis as follows: (a) a group
of complications spoken of as toxemia of preg-
nancy, a group that includes mild toxemia,
sometimes designated as pre-eclampsia, and se-
vere toxemia, which is termed eclampsia and
which is always accompanied by convulsions,
(b) a group of complications depending upon
pre-existing Bright's disease or hypertension or
on both, (c) pyelitis.

Toxemia of pregnancy probably has nothing
much to do with any previous kidney disease.
Its cause is really unknown. It is accompanied
by hypertension albuminuria and evidence of
some disturbance of kidney and liver function.
All of these signs and symptoms generally dis-
appear as soon as pregnancy ends. Numerous
attempts have been made to differentiate the
toxemias of pregnancy and chronic nephritis
and to demonstrate the return of function of
the kidneys acutely damaged by severe toxemia
or eclampsia. It has been demonstrated that
ordinary procedures such as blood chemical
studies, the phenolsulphonphthalein test and
urine concentration test do not help differenti-
ate chronic nephritis and acute toxemias. Re-
cently the urea clearance test has been used for
such a differential study. It was found that the
results of this test checked up well with the
clinical diagnosis, with only a few exceptions,
and that the test gave normal readings in mild
toxemias, decreased readings in severe toxemia
or eclampsia and that the readings were defi-
nitely low with a high degree of consistency in
chronic nephritis. Whether one can reclassify
cases which ordinarily fall in the toxemia group

*This is the last of the series of short selected articles by
members of the Section until Fall
Comments and questions by subscribers are solicited and
to be discussed by members of the Section

as a result of urea clearance studies, can only be determined by following such cases over a long period of time

The problem of pre-existing Bright's disease is naturally one of careful diagnosis. Severe Bright's disease hardly need be discussed for the patient is so ill that pregnancy generally is not to be considered and the chances of obtaining a live baby are so remote as to make the attempt questionable. On the other hand mild Bright's disease may exist without the patient's knowledge and definite signs and symptoms may not occur until the kidney begins to demonstrate the strain of advancing pregnancy. Obviously, in mild cases diagnosis of the condition before pregnancy is contemplated is the important point. The above statements apply to any case of pregnancy but perhaps more particularly to those cases that have suffered some form of toxemia in the course of previous pregnancies. In other words physicians are constantly confronted with the question of whether it is safe to allow a patient with a previous history of toxemia to become pregnant again.

The diagnosis of nephritis is not easy. In addition to a careful history and physical examination and careful examinations of repeated single urine specimens such function tests as the fifteen minute phenolsulphonephthalein and the urea concentration tests are frequently necessary. This is especially true in those cases where there is any question of a previous nephritis or where there is a history of previous toxemia or repeated attacks of pyelitis. It is possible that the urea clearance test should be included in this diagnostic study but the test is too difficult to be practical and furthermore the results are not so clear-cut as claimed originally.

The difficulty with the problem is that all of the known diagnostic procedures may be used and all may give absolutely normal results and yet the problem may remain unsettled. The point is that there is no test which will indicate the type of response which the kidney will make to some future strain. Not only is this true but the nature of the problem itself is such as to increase the difficulties for all concerned. For example we know that so-called essential hypertension exists in various grades from mild to severe and that the grade depends upon the degree of vascular damage. We also know that in the mild grade frequently no evidence of kidney involvement can be determined and yet this mild grade may at any time shift into a more severe type. A condition like toxemia of pregnancy constitutes a vascular insult from which the patient may entirely recover. We do not know the cause of the toxemia but when we consider the problem of a second pregnancy we must remember that two of the factors which

had something to do with the first attack are still present, namely the type of the individual and the pregnancy. And in addition there is the question of residual damage to the kidney undetermined by any test now available.

The problem of the existence of a mild degree of Bright's disease in its relation to the question of pregnancy still remains unsettled. This is due to the fact that our methods of examination are not sufficiently delicate and that we have no method of determining the nature of kidney response to some future strain. Given a history of previous toxemia or repeated attacks of pyelitis or previous hypertension, careful diagnostic studies should be made before pregnancy is contemplated but, even after all this has been done it is frequently necessary to settle the problem on the basis of clinical judgment with the full realization that one can never be certain what may or may not happen.

ADDITIONAL EXHIBITS AT THE ANNUAL MEETING

The Committee of Arrangements is pleased to announce that since the last issue of the *Journal*, it has secured two additional Scientific Exhibits that were shown at the recent American Medical Association Meeting in Kansas City.

These two exhibits will be placed on the Lower Floor of the Auditorium, just outside the Lower Section Room. They consist of the following:

Booths A, B, C and D—

Diabetes, with Special Reference to the Use of Protamine Insulin

- 1 Diabetic Coma
- 2 Protamine Insulin
- 3 Diabetic Surgery
- 4 Diabetic Statistics

From the George F. Baker Clinic, New England Deaconess Hospital, Boston and the Metropolitan Life Insurance Co., New York City

Booths E and F—

Röntgenologic Study of the Heart. A Series of Mechanical Models

From the Robert Dawson Evans Department for Clinical Research and Preventive Medicine, Massachusetts Memorial Hospitals

By George Levene and Henry H. Lerner, Boston

Booths G, H and I—

Moving Pictures

The Technique of Röntgenologic Study of the Heart

From the Robert Dawson Evans Department for Clinical Research and Preventive Medicine, Massachusetts Memorial Hospitals

By George Levene and Henry H Lerner, Boston

CHANGE IN THE LADIES' PROGRAM

As a result of the flood, it is not possible for the ladies to have their tea at the Old New England Village as was originally planned. In place of this the Committee has arranged for a tea on Monday, June 8, at the George Walter Vincent Smith Art Gallery, 222 State Street, Springfield. Bus leaves Hotel Kimball at 2 45 P.M.

HOW TO REACH THE SPRINGFIELD COUNTRY CLUB

A BUS will leave Hotel Kimball, Monday, June 8, at 3 45 P.M. Members driving their own cars, cross the Connecticut River on the Memorial Bridge, turn right on leaving bridge, toward Holyoke. The club is about a mile from the bridge on the left side of the street.

MISCELLANY

THE CONTRIBUTION OF THE MEDICAL PROFESSION TO SPRINGFIELD'S TERCENTENARY CELEBRATION

The general committee of physicians consists of a representative from the staff of every hospital in Springfield and a representative from every medical club or society. Following several meetings during which the final plans were formulated, a subcommittee was organized. This committee has been busy in developing the first event of the Medical Profession's observance. It consists of Dr Arthur J Horgan, Dr Mary Burke, Dr Charles Jurist, Dr James A Seaman and Dr George L Schadt, Chairman.

The Medical Profession's observance of the Tercentenary consisted of three parts. The first event was on Monday evening, May 18. On that day the committee entertained Dr Henry E Sigerist, Director of the Institute of the History of Medicine of The Johns Hopkins University, who delivered the main address at the evening meeting. During the afternoon a number of the local doctors with Dr Sigerist made a pilgrimage to the grave of Dr John Leonard, the first doctor who practiced in Springfield. Dr Leonard probably arrived some time during the first third of the 18th century, or about 1736. Though little is known with reference to him, whence he came or from what school he received his degree, we know he died here on November 28, 1744, in his 69th year and lies buried in the Old Agawam cemetery which is in the town of Agawam directly across the river from Springfield. The doctors placed on the grave of John Leonard a wreath as a token of the local profession's respect and remembrance.

At 6 30 that evening, Dr Sigerist was tendered a complimentary dinner at the Hotel Stonehaven by the physicians of the city.

At 8 30, an open meeting was held in the new auditorium of the Springfield Technical High School. As mentioned above, Dr Sigerist delivered the main address of the evening entitled "The Development of Medicine and Its Trends in the United States, 1636-1936."

This period, as you will note, covers the years of our city.

The second phase of the Medical Profession's Observance of the Tercentenary is the development of a medical exhibit sponsored by the Hampden District Medical Society during the meeting of the State Society at the Springfield Auditorium on June 8, 9, and 10. The committee in charge of this exhibit consists of Dr Gary deN Hough, Dr James M Smead, Dr Fred H Allen of Holyoke, Dr Archibald J Douglas of Westfield, and Dr George L Schadt as chairman. The committee hopes to present an exceedingly interesting exhibit.

As part of the exhibit there will be shown for the first time a series of six panels done in oil by a well known local artist depicting the development of the doctor in fifty-year periods from 1636 to 1936. The artist is already at work on these panels and they will, undoubtedly, develop much interest among the members of the Society.

The final event in our program will take place in the fall when the series of six panels mentioned above will be presented to the Springfield Academy of Medicine by the families, friends and medical societies as a memorial to a number of physicians whose contributions to the life of their city were of outstanding significance. There will be placed on the walls of the Academy a bronze plaque listing the names of these gentlemen.

PHYSICIANS CERTIFIED AS QUALIFIED PSYCHIATRISTS

In our issue of May 7, on page 956, under the title Certification of Massachusetts Psychiatrists, were listed twenty-six physicians certified by the American Board of Psychiatry and Neurology as qualified to practice this specialty.

In our issue of May 14, the statement was made that Dr Riley H Guthrie was also certified as a qualified psychiatrist.

Other Massachusetts physicians certified are Dr Gerald F House, Dr Frank E Leslie, Dr Henry R Viets, Dr W Franklin Wood, Dr Hiram H Merritt, Jr, Dr Tracy J Putnam, Dr M Ralph Kaufman and Dr Kenneth J Tillotson.

AN ADDRESS BY DR WALTER B CANNON

On April 29, 1936, Dr Walter B Cannon, George Higginson Professor of Physiology at the Harvard Medical School, delivered an address on "Sensitization of Denervated Structures" at the seventy-eighth meeting of the Maryland Biological Society of Baltimore—*Science*.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1935
AND SEVEN YEAR AVERAGE

MONTH ENDING APRIL 25 1936

Diseases	1936				Average cases reported for week corresponding to Apr 25 for past seven years	1935			
	Week ending Apr 4	Week ending Apr 11	Week ending Apr 18	Week ending Apr 25		Week ending Apr 6	Week ending Apr 13	Week ending Apr 20	Week ending Apr 27
Amebiasis	—	—	—	—	—	—	1	—	—
Chickenpox	71	84	91	135	103	123	116	128	137
Conjunctivitis Infectious	9	3	6	—	4	7	12	6	—
Diphtheria	1	3	2	1	12	4	5	2	2
Encephalitis Epidemic	1	—	—	—	—	—	—	—	—
German, Measles	30	184	269	897	40	93	125	149	222
Influenza	24	3	6	4	6	5	7	6	8
Malaria	—	—	—	1	—	—	—	—	—
Measles	50	91	104	109	310	1191	1779	1055	1263
Meningococcus Meningitis	2	4	—	1	2	1	2	1	—
Mumps	73	43	132	117	93	67	84	91	53
Paratyphoid Fever	—	—	2	—	—	—	—	—	—
Pneumonia (Broncho)	27	24	30	22	32	34	34	25	23
Pneumonia (Lobar)	31	33	57	36	41	46	58	44	43
Poliomyelitis	—	—	—	—	—	1	—	—	—
Scarlet Fever	102	41	63	57	83	130	105	110	16
Smallpox	—	—	—	—	2	—	—	—	—
Streptococcus Sore Throat	21	1	3	1	1	6	14	9	5
Tetanus	—	—	—	—	—	1	1	—	—
Trachoma	—	—	—	—	—	1	—	—	—
Trichinosis	1	—	—	—	—	—	—	—	—
Tuberculosis (Pul)	22	22	46	40	31	34	25	41	34
Tuberculosis (O F)	6	—	6	—	3	1	1	5	1
Typhoid Fever	5	—	2	3	—	—	1	1	—
Undulant Fever	2	3	1	—	—	2	1	—	—
Whooping Cough	94	102	151	166	77	40	44	46	39
Gonorrhea	34	18	20	15	30	21	16	19	11
Syphilis	90	30	34	29	60	67	47	32	40

Remarks No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years

THE AWARD OF THE LESLIE DANA MEDAL
TO DR. JOHN M. WHEELER

Dr. John M. Wheeler, professor of ophthalmology in the Medical School of Columbia University and director of the Eye Institute at the Columbia Presbyterian Medical Center in New York, was presented with the Leslie Dana Gold Medal for "outstanding achievements in the prevention of blindness and the conservation of vision" at a dinner given in St. Louis, in his honor on the evening of May 9. Dr. Wheeler was selected for the award by the National Society for the Prevention of Blindness in co-operation with the St. Louis Society for the Blind

which offers this highly prized mark of recognition annually.

The inscription on the medal reads: "Skilled Surgeon — Great Teacher — Understanding and Sympathetic Friend."

Dr. Wheeler is a former president of the American Academy of Ophthalmology and Otolaryngology. In addition to his work at the Eye Institute of the Medical Center, he is a consultant at six other large New York hospitals. His most publicized operation was performed in 1931 when he removed a cataract from the left eye of the King of Siam — *Builein* National Society for the Prevention of Blindness.

CORRESPONDENCE

A SUGGESTED PLAN

May 11, 1936

Editor, *New England Journal of Medicine*

One cannot refrain from saying something when one reads in *The New England Journal of Medicine* of May 7, 1936, page 957, under the heading of "Two Worthy Indigent Physicians" a plea, for anyone interested to aid two elderly women physicians

We physicians are supposed to be educated, worldly and broadminded and expect to be respected. What regard can we expect from the people, if such a situation is called to their attention? Their only answer may be, is it possible that the physicians or the Massachusetts Medical Society has no means to help physicians who may be in need of material assistance due to no fault of theirs?

Every other organization consisting of so-called noncollege graduates with degrees or license has ways and means of helping its needy members but we "The Massachusetts Medical Society" have no such ways and means, and an appeal must be made through the columns of *The New England Journal of Medicine* to those who may be interested in contributing money or food. We should all be interested to help.

The Massachusetts Medical Society should bow its head in shame. We should have a special fund and each Fellow should be requested to contribute a reasonable sum yearly and such funds should be put away and used to help any Fellow who may be unable to support his family or himself.

We can easily raise funds for such a worthy cause and many of those who are more fortunate than others, may contribute additional sums to the Fund.

Our Annual Meeting is scheduled for June 8, 9 and 10 in Springfield. The Fellows should be interested enough to bring in resolutions whereby such a fund could be established for the use of any Fellow who may need aid.

BERNARD ZUCKERMAN, M D

978 Blue Hill Avenue,
Dorchester, MassTHE CANVASS OF CHRONIC AND DISABLING
ILLNESS*Treasury Department
Public Health Service
Washington

May 12, 1936

Secretary, Massachusetts Medical Society

Dear Dr Begg

The field staff of the National Health Survey, carefully trained in gathering detailed, accurate information, has completed the extensive canvass of chronic and disabling illness conducted by the

*In a personal letter to Dr Begg, Secretary of the Massachusetts Medical Society, Dr Thompson requests that this letter be read at meetings of the District Medical Societies of which physicians of Boston, Fall River, Greenfield, Ipswich and Pittsfield are members because the study was conducted in the several cities named.

United States Public Health Service in nineteen states

When the study was initiated last fall, the program was discussed in the October 5 issue of *The Journal of the American Medical Association*. As announced at that time, there was special realization of the great value that would accrue to this scientific survey if supplementary facts could be obtained from physicians in cases of medically attended illnesses. Accordingly, when medical attendance was reported, permission to secure additional data from the doctor was requested of the family by the field worker. Assured that the information would be regarded as confidential and would be used for purposes of statistical compilation only, families were co-operative in granting the privilege of confirming diagnoses.

Appropriate forms are now being received by the attending physicians named by informants, and the Health Survey is asking the co-operation of members of the medical profession in this very important phase of the study. It will be appreciated if you will announce the confirmation plan to your Society, urging the desirability of having the forms returned as promptly as possible.

For each form filled and returned the physician will receive a fee of twenty five cents, a small compensation for the service he will render in executing the blank. By supplying the information requested he will contribute invaluable data to this study and assure the scientific accuracy of the results.

Very sincerely yours,

L R THOMPSON,

Acting Surgeon General

TO THE MEDICAL PROFESSION OF MASSACHUSETTS

From

L R. Thompson

Assistant Surgeon General

Within a short while, many physicians will receive from the Surgeon General of the United States Public Health Service a request for information relative to the correctness of the diagnoses as reported by certain of their patients. The information solicited is to be returned by mail directly to the Surgeon General. *It will be treated as strictly confidential and will be used for statistical analysis only.* Thus, the ethical and legal standards of the medical profession are in no way violated.

A sum of \$200,000 has been set aside from which to pay twenty five cents (25¢) for the filling out of each medical report by the physician. Physicians will receive report forms to be filled out in groups of ten or more.

During the past five months, the United States Public Health Service has been conducting a National Health Inventory, which has comprised the collection of data from 800,000 families, representing various economic and social levels of the general population.

The survey was designed primarily to obtain use-

ful statistics upon the incidence of the chronic and disabling illnesses as well as upon the various economic, social and material factors in the environment which may predispose to such conditions

The actual collection of factual data from the 800,000 selected families by specially trained lay canvassers has now been brought to a close. Care has been taken to avoid having the lay enumerators collect actual medical information. In every instance the enumerator has simply asked the household what diseases have occurred in the household during the past twelve months and has recorded only the exact words of the informant. Many of the schedules have of course recorded no illness at all.

For those family schedules upon which an illness is recorded the attending physician is also recorded and the head of the household or wife or some member of the household in a position to give such permission has been asked to grant the Surgeon General permission to confirm the reported illness or illnesses with the attending physician.

It is now planned to obtain additional information as to the recorded illness from the physician who treated the case. In all of the 95 cities where the survey is being conducted the co-operation of the local medical society has been obtained.

The United States Public Health Service in initiating this survey has used every precaution to make the study scientifically accurate. It has been conducted on the same lines and in accord with the policies laid down by the Service many years ago. The doctor holds a most important position in supporting the scientific value of the material collected. Therefore I am taking the liberty of requesting on behalf of the Service your active co-operation in securing from those physicians concerned in the actual reporting of cases recorded in the survey and from those interested in collection and dissemination of epidemiological statistics.

SAMPLE SCHEDULE (DIABETES)

Serial _____	Doctor's _____
No. _____	Name _____
Survey _____	
City _____	Address _____
	City _____
	State _____

United States Public Health Service

HEALTH SURVEY

CONFIDENTIAL Data will be used for statistical purposes only

Patient's Name _____ Person's No. _____

Address _____

Nature of illness as reported by family _____

Is report correct? (Yes or No) _____

If report is incorrect please give your precise or Provisional diagnosis _____

Has patient been receiving insulin? (Yes or No) _____
Complications (check) Cataract _____ Arteriosclerosis _____
Others (Specify) _____

H.S. FORM 40F

U.S.P.H.S.

Health Survey

RECENT DEATHS

CURRAN—SIMON FRANCIS CURRAN M.D., of 104 Norfolk Street Dorchester died at his home May 19 1936

Dr. Curran was born in 1874 and graduated from the Tufts College Medical School in 1902. His pre-medical education was acquired at Tufts College where he was prominent in athletic activities. He served as captain and later as major in the World War and had been President of the St. Vincent de Paul Society at St. Matthew's Church in Dorchester.

Dr. Curran had been in poor health since he was injured by a fall in 1935 and had recently submitted to a surgical operation at the Boston City Hospital. Two brothers William B. of Winthrop and John J. of Dorchester and three sisters Mrs. Katherine Gillis of Dorchester Mrs. Elizabeth Brown of Lowell and Miss Gertrude A. Curran of Dorchester survive him.

JENCKES—JOSEPH FRANKLIN JENCKES M.D., of Wrentham Massachusetts died at the home of his son in Providence R. I., May 18 1936. Dr. Jenckes was born in 1848 the son of Joseph Smith Jenckes and Harriet Blomore Jenckes of New Bedford.

His medical degree was conferred by the University of Vermont College of Medicine in 1882. He practiced in Wrentham for more than fifty years.

Dr. Jenckes was Chairman of the Board of Trustees of the Fiske Public Library from 1892 until his death and had served on the Wrentham School Committee and Board of Health. Dr. Jenckes was an Odd Fellow a Mason and a member of the Thurber Medical Association.

HASKINS—FRANK EUGENE HASKINS M.D. of 204 Huntington Avenue Boston died at his home May 24 1936 after a long illness. He was born in 1874.

Before studying medicine Dr. Haskins was a graduate of the Massachusetts College of Pharmacy. He later entered the Tufts College Medical School and graduated therefrom in 1903 later becoming Professor of Pharmacology and had also served as Secretary of the Medical and Dental School Faculty.

He was a Fellow of the Massachusetts Medical Society and the American Medical Association and several other medical organizations.

NOTICE

LAWRENCE J. MCCARTHY M.D. announces the removal of his office to 574 Commonwealth Avenue Boston Telephone Kenmore 0600

REPORTS OF MEETINGS

HARVARD MEDICAL SOCIETY

The stated meeting of the Harvard Medical Society was held in the amphitheatre of the Peter Bent Brigham Hospital on Tuesday evening, April 14, at 8 15 P M Dr David Cheever presided

Medical and surgical cases were first presented The first patient, shown by Dr A G Friend, was a twenty-eight year old woman who entered the hospital with the chief complaints of fatigue and moderate diarrhea In December, 1932, the patient had been operated on for a fistula in ano, and the sinus tract had been shown to be tuberculous on pathological examination Past history and family history were not otherwise remarkable The patient entered again in April, 1934, with a story of gradually increasing diarrhea, weakness and fatigue There was marked pallor, and the hemoglobin had fallen to 25 per cent and the red blood count to 2,000,000 The patient responded well to iron and hydrochloric acid (there was an achylia gastrica) therapy, and at discharge the hemoglobin had risen to 52 per cent and the red count to 3,000,000 Four months before the present admission, the patient ran out of iron and failed to continue to take it Three months before re-entry, weakness, vague periumbilical pain, and loose bloody stools had their insidious onset The patient was readmitted with a hemoglobin of 35 per cent and red count of 2,000,000 She has again responded well to increased iron, hydrochloric acid, and protein intakes The presumptive diagnosis is chlorosis In discussing the case, Dr C Sidney Burwell mentioned the fact that chlorosis is a vanishing disease and drew attention to the similarity between it and the "primary hypochromic anemia" of adults There was no evidence of disseminated tuberculosis in this patient.

A fifty year old Negro housewife was presented by Dr Anderson of the Surgical Service The patient had entered the hospital on April 7 with chief complaints of itching skin and a gradually enlarging abdomen Family history and past history did not seem relevant The menopause had come five months before entry There was no history of indulgence in alcohol On entry there was a definite icteric tint to the sclerae, and a nonspecific maculo-papulopustular skin eruption The heart, lungs, and extremities were not remarkable The abdomen was greatly enlarged and with flatness in the flanks and shifting dullness No masses were palpable The blood counts were essentially normal, the icteric index was 40, the nonprotein nitrogen of the blood 24 mg per cent, and the Wassermann reaction was negative Two days after entry the abdomen was tapped and five liters of fluid removed Examination of the fluid showed a specific gravity of 1.010 and a cell count of 150 white blood cells per cubic millimeter, with 90 per cent mononuclear forms No masses were palpable after the paracentesis The diagnosis was cirrhosis of the liver with ascites Va-

rious palliative procedures were discussed and exploration was advised

The chief speaker of the evening was Dr Reginald Fitz who had chosen "Medical Inheritance" for his subject Dr Fitz presented a very interesting discussion of many ramifications of the subject, graphically illustrated with lantern slides Of eight hundred men admitted to the Harvard Medical School 20 per cent were sons of doctors This group of young doctors stood abnormally high in the mental aptitude tests given in medical school, although in actual school grades such a situation did not obtain Thirty-three per cent of 1725 doctors queried by Dr Fitz showed a familial tendency toward medicine as a profession Doctors listed in "Who's Who" had a 45 per cent family inheritance Professors in medical schools showed a similar percentage, whereas the so-called "ordinary graduates" showed a 20 per cent "inheritance" The speaker went on to discuss other aspects of "inheritance" in medicine considered in a general way Whereas 4500 persons enter the "melting pot" of medicine each year, only 2600 leave by death Thirty-eight per cent of our doctors fall in the age group of twenty-five to forty-four, 50 per cent forty-five to sixty-four, and 12 per cent over sixty-five years of age Since 1790, the membership in the Massachusetts Medical Society has increased about proportionally to the increase in population, but the actual increase of doctors in Massachusetts has been much greater Dr Fitz traced cursorily the profound effects on the practice of medicine and the doctor's social inheritance induced by the development of the telephone, the automobile, electricity, and the influence of the Civil War, the Spanish War, and the World War He raised the question of whether lay people should have some control over the general regulation of medicine as well as doctors, and personally thinks they should He traced the development of the State Board of Health and State production of vaccines after the turn of the last century, and mentioned the lessons in efficiency and organization that have been learned from the World War He showed graphic charts of the influence of the depression on hospital and medical incomes and budgets, and mentioned the great increase in interest of the medical world in socioeconomic problems, as the future and fortunes of medicine become indissolubly linked with the prosperity of the country as a whole Dr Fitz cannot help but feel that medicine is on the "State Road" Dr Burwell emphasized the modern trends in the way of organization taking place, in discussing the paper, and Dr T B Quigley told briefly of the "middle way" Sweden has taken along the path of socialization

FAULKNER HOSPITAL CLINICAL MEETING

The last clinical meeting for the current year was held at The Faulkner Hospital on Thursday afternoon, May 7, at 5 00 P M

Two interesting cases of jaundice which had come to autopsy during the past month were discussed. The first case was one of a fifty six year old woman, who had had one attack of pain followed by jaundice with subsidence of all symptoms a few months before the present illness. The present illness started with epigastric pain and jaundice. When the jaundice developed the pain subsided. The jaundice persisted. There was no evidence of bile in the stools. It was felt that there was a stone in the common duct which was verified at operation. With out apparent cause clinically or at autopsy following the operation the patient went into collapse and died. The lesson to be learned from this case is the importance of operating on gallstones which are giving symptoms at a time when the patient is not jaundiced or the gallbladder acutely inflamed. Had this patient been operated on in the period between the two attacks when she was not jaundiced the result might have been different.

The other case was one of painless jaundice which had persisted for three and a half months. During the early stages of the jaundice no observation had been made as to the character of the stools. When the patient was admitted to the hospital there was intense jaundice with marked excoriations of the skin due to intense itching. The stools were clay colored. The physical examination except for a palpable liver in the epigastrium was essentially negative. It was felt that exploration was indicated on the chance that there might be a silent stone in the common duct. It was also hoped that the gallbladder could be anastomosed to the intestine if an obstruction was found at the lower end of the common duct, thus relieving the distressing symptom of itching. At exploration a small common duct and a small gallbladder were found showing that there was no obstruction. A probe passed up toward the hepatic ducts easily penetrated into the liver. Just what caused the intense jaundice with absence of bile entering the intestine was not made clear at operation and it was felt that there must be serious damage to the liver in the nature of a hepatitis, although the absence of bile in the intestines would be unusual in such a condition. Following the operation there was considerable hemorrhage which was controlled by placental extract by mouth and thromboplastin inserted into the wound on gauze. Again the actual cause of the patient's death was not established clinically or at autopsy but was felt to be associated with the intense jaundice. At autopsy a carcinoma originating from the bile passages in the neighborhood of the hepatic ducts was found which had become extensive enough to occlude both hepatic ducts. At operation the probe passed up toward the hepatic ducts and had gone through this pliable tissue with out any obstruction. This location for a primary carcinoma is exceedingly unusual and although this case does not in any way contraindicate exploration as a diagnostic procedure it warns one to be careful about making a promise of relieving itching with

an anastomosis between the gallbladder and the intestines.

Following the presentation of these two cases Dr John S. Hodgson gave a very interesting and instructive talk in regard to some of the points which practitioners should bear in mind when meeting with cases of head injuries which are so common in these days of automobile accidents.

He called attention to the fact that twenty years ago there was too much operating on cerebral accidents and fifteen years ago the pendulum had swung the other way and there was perhaps too much conservatism. The important point is to realize the possible types of injury and appreciate which ones are benefited by operation which by repeated lumbar puncture and which by expectant treatment.

He emphasized the importance of treating the shock which often accompanies these cases and made it clear that there was no hurry in determining by x ray examination whether the skull was fractured because pressure within the skull rather than the actual break in the bones is the important point in most cases.

In instances where there is suspected bleeding from the middle meningeal arteries it is of interest to know whether the break is in that region and also in certain cases of depressed fracture of the skull, an x ray is helpful.

He emphasized the importance of palpation of the scalp especially of the bone underlying a break in the skin and warned against confusion between depression in a hematoma of the scalp and depression in the bones of the skull.

He believes in scrupulously cleaning up a scalp wound associated with trauma so that it can be sewed up tight. The history of the case is always important especially in regard to the onset of unconsciousness whether it occurs instantly or develops gradually.

He also emphasized the importance of frequent, careful neurological examinations in order to detect changes in reflexes and muscle weaknesses.

He emphasized the importance of the slow and bounding pulse and of stertorous or irregular or slow respiration. Rising temperature is a bad sign and a steadily rising blood pressure is a bad prognostic sign but in some cases the blood pressure is very little affected. Lumbar puncture in these cases is of considerable diagnostic value and may be of help in treatment. Dr Hodgson does not have the fear expressed by some of the dangers of lumbar puncture if it is carefully done and attention paid to the amount of fluid withdrawn.

If the lesion in the brain is due to a subarachnoid hemorrhage the spinal fluid will show blood and these cases can be cleared up often by lumbar punctures repeated often enough to control the intracranial pressure.

If it is an extradural hemorrhage due to a tear in the middle meningeal arteries a lumbar puncture

will probably not show blood unless the dura is torn also, and these cases must be treated surgically.

The most subtle of the head injuries is the subdural hematoma which is usually over the cortex but may be located at the base. The lumbar puncture in these cases may or may not show blood in the spinal fluid, and if there is blood at the start, it may gradually disappear as these hematomas tend to wall off. The clinical course in these cases is often of valuable aid, for the patients show gradual improvement for a few days and then the condition becomes stationary or the signs and symptoms become more pronounced and positive evidence may or may not be picked up on neurological examination. In these cases, operation is the proper procedure.

He called attention to the cases of concussion and cases of contusion with local or general edema some of which may even have laceration of the brain. These cases usually clear up simply by expectant treatment.

There will be no clinical meetings at The Faulkner Hospital during the summer months, but these meetings will begin again in October.

MASSACHUSETTS GENERAL HOSPITAL CLINICAL MEETING

A clinical meeting of the staff of the Massachusetts General Hospital was held on the evening of March 26, 1936, Dr. Marshall K. Bartlett presiding.

Dr. John Hodgson presented the first paper of the evening on "Lyndau's Disease." This term was first used in 1926 when Lyndau described a group of cases with multiple congenital blood vessel tumors, which are especially apt to involve the retinae and cerebellum. There have been no authentic cases effecting the brain above the tentorium. These congenital abnormalities arise from the mesoderm and are laid down in the third fetal month. The blood vessel abnormalities vary from the capillary to the cavernous type and are most commonly solitary though they may be multiple and occasionally occur in the spinal cord. Pathologically the lesions in the central nervous system are classified as hemangioblastoma and tend to form cysts from the exudation of plasma. The cyst walls are formed of glial tissue. In 20 per cent of the cases reported, more than one member of the family has the condition. The diagnosis is usually made on the discovery of an enlarged artery and vein which proceeds from the central disc to the periphery of the retinae and into a rounded tumor which may be raised several diopters. Dr. Hodgson stressed the necessity of careful ophthalmologic examination, because these lesions may be small and are usually in the periphery. They may later cause glaucoma or separation of the retina. The clinical picture is of a progressive diminution of vision and sometimes pain and cerebellar symptoms. Any of these symptoms may appear first. The eye lesions usually require enucleation, and the cerebellar tumor may at times be completely removed, because they are usual-

ly small and near the surface of the brain. When it is impossible to remove them, radiation is of definite benefit. At times there is also a coexistence of this condition with cystic disease of the pancreas and kidneys. The condition is slightly more prevalent in males and a history of injury is frequent. There have been three proved cases at the Massachusetts General Hospital and a fourth probable one.

Dr. Hodgson related the history of these cases, all were males and varied from twenty to forty-five years of age. The cysts were drained in three cases with marked improvement following, but in none could the tumor be entirely excised. In the fourth one, no tumor could be found until postmortem, although a cyst was found in the left cerebellum. Slides were shown of the retinal tumors and of the cerebellum. One of these cases was the first ever to be diagnosed antemortem. Dr. Viets discussed the condition briefly and stressed the importance of wide dilatation of the eyes and a careful ophthalmologic examination.

The second paper was by Dr. W. J. Mixer on the "Operative Treatment of Syringomyelia." A patient was shown with this condition, who, ten years ago had had scoliosis and recently noted weakness and atrophy of the muscles of the right hand and question of some atrophy of the left hand. There was tingling of the extremities, dizziness and headaches. Examination showed a loss of temperature sensation over the right shoulder and some spasticity in both legs. The spinal fluid was negative. The patient was operated on, the cervical cord exposed, found to be enlarged with a cystic cavity within its substance. This cyst was opened in the midline and the inner lining sutured firmly to the arachnoid. The patient is improving rather slowly, but definitely.

These cases frequently have scoliosis and the spinal canal in the cervical region is usually greatly enlarged, as shown by x-ray. The cavity is lined with a smooth membrane which is easily sutured to the arachnoid. Five cases have been treated in the above manner. All had scoliosis and all had cavities in the cervical cord. Three of these have shown improvement and there is hope of greater success in the future when the condition is recognized at an earlier date. Dr. Mixer stressed the fact that all cases of existing scoliosis should have careful examination of the cervical spine, both by x-ray examination and neurological studies.

The third paper was presented by Dr. J. C. White on "Blood Loss in Cranial Operations." Dr. White contrasted neurosurgery and general surgery as to the increased importance of hemostasis in the former type, also a proper fluid balance is more important because of the danger of cerebral edema. He described, briefly, an efficient method of determining the blood loss in any operation. All of the hemoglobin is carefully washed from the drapes and all the blood saved. The amount of hemoglobin is determined, and from it the total blood loss calculated. It was found that in the excision of a meningioma, there is usually a loss of about 2000 cc of blood. In

a bone flap for exploration 500 to 1500 cc. is lost and in a laminectomy 300 cc. This blood loss has been greatly reduced by the use of adrenalin.

Besides the loss of blood at operation there is a great deal of fluid also lost from both sensible and insensible perspiration and from the lungs. In general, a neurological operation results in less sweating than in general operations because there is less sympathetic stimulation. Several cases were studied in detail as to the fluid balance and it was found that a postoperative patient with a temperature of 101 degrees lost one liter of fluid by insensible perspiration per day. If the temperature was 102 degrees, two liters were lost. A normal person lying in bed loses about 700 cc. in this way. In preventing loss of fluid during operation straight ether is not a good anesthetic because it dilates the brain vessels nor is nitrous oxide and oxygen because here the blood pressure is raised. The ideal anesthetic is avertin (about 90 mg. per kilogram of body weight) followed by novocain and adrenalin locally. Luminal is a good preoperative medication. Dr. White has found that the use of adrenalin diminishes the loss of blood by twenty-five per cent in turning down a bone flap. He said that about 300 to 500 cc. is lost in turning down a bone flap under these conditions and for the removal of an avascular tumor there is some 200 to 500 cc. additional loss. In a vascular tumor 1000 to 1500 additional loss of fluid takes place. For the replacement of blood loss he recommended: (1) If the blood loss is 500 cc. or less, the patient should be given 2000 cc. of intravenous saline. (2) If the blood loss amounts to 1000 cc. the patient should be transfused postoperatively and receive 2000 cc. of saline intravenously. (3) If the blood loss is 1200 cc. or above there should be a saline intravenous and multiple transfusions going on during the operation. The patient can take what he needs by mouth usually after the first twenty-four hours. A careful calculation of the intake and output is essential. An excessive fluid intake may do a great deal of damage by causing cerebellar edema. If the patient's kidneys are normal, he can excrete the normal nitrogenous materials in 500 cc. of urine but if he can only concentrate his urine to 1:10 he needs to excrete 1500 cc. in a day. A house diet contains about 1000 cc. of fluid whereas a soft-solid diet contains 500 cc., and the water of oxidation from the food intake is about 250 cc.

Dr. Reginald Smithwick spoke on "Hypertension." It has been found in the study of essential hypertension that no treatment thus far described materially influences the course of the disease. It occurs in a wide age range, occasionally coming in the second decade of life and occurring with increasing frequency after this. In the early stages the blood pressure is variable and frequently normal. But as the disease progresses, the average level rises to a high figure and never becomes normal. The pathological changes that occur are arteriolar and are most marked in the eyes, brain, heart and kidneys. Death in 60 per cent is due to heart failure in 20

per cent to cerebral accident and in 10 per cent to renal failure. These patients have a high degree of emotional instability and show a blood pressure rise in response to change of temperature. If the hands of one of these patients are dipped in ice water for a few minutes there will be a marked rise in blood pressure. Sympathectomy at times has been shown to offer relief in a carefully selected group of cases. The several operations which are possible to cut the sympathetic fibers in their course were shown diagrammatically. Following the section of these fibers the blood vessels become sensitized to circulating hormones particularly adrenalin so that the effect of lowering blood pressure is definitely diminished. However this sensitivity occurs to a much less extent if the preganglionic fibers rather than the postganglionic fibers are sectioned although this does not completely abolish this sensitivity. If the adrenals are denervated the effect is greater and the blood vessels react to blood hormones less. The ideal operation accomplishes the sympathectomy of a large blood vessel area by a simple procedure. Some people have sectioned the anterior roots from the sixth thoracic to the second lumbar vertebra but this is a dangerous procedure with a high mortality and results in considerable muscular paralysis.

There are several other possible approaches and Dr. Smithwick pointed out that if the adrenal glands are denervated it is not so important to cut the preganglionic rather than the postganglionic fibers. It has been the feeling at the Massachusetts General Hospital that the most logical operation cuts the three splanchnic nerves. When these are cut the kidneys and adrenals are denervated and these fibers are presumably preganglionic. This operation has had widespread popularity in the past three or four years. At the Massachusetts General Hospital there have been six patients who have had these nerves injected with alcohol and the effects have been slight to striking. Slides were shown on the approach used at the present time at this hospital in which five to six inches of the trunks of the splanchnic nerves are removed. Results from nine cases were reported. Three of the cases were in young people with marked fluctuation of the blood pressure which at times was normal. These patients were then in the early stages of the disease and following operation showed a very definite diminution and a stabilization of the blood pressure with a lowering of the average reading. Three other cases were more advanced with a more striking fluctuation and a blood pressure that was always above normal. In this group there was a material reduction of the blood pressure. In the third group also consisting of three cases the blood pressure was higher, the patients were older and following operation there was no change. Dr. Smithwick summed up his talk by concluding that this was a definitely beneficial procedure in the group of cases in which the disease was in its early stages but was of practically no benefit in the more advanced ones.

Dr Palmer spoke briefly on the medical aspect of the disease and pointed out with the exception of age and weight, that in the younger group of individuals the disease is apt to be very intense and rapidly progressive. It occurs more frequently in females and especially if abnormalities of the catamenia are present.

BOSTON SOCIETY OF BIOLOGISTS

A meeting of the Boston Society of Biologists was held on the fifteenth of April in the Harvard Biological Laboratories in Cambridge.

Dorothy R Gilligan spoke on "The Distribution of Solutes Between Plasma and Body Fluids." Edema fluid, pleural fluid, ascitic fluid, lymph, joint fluid and spinal fluid were studied. The chloride ion is always higher in these liquids than in serum and varies with the protein content of the fluid. Careful calculations were made according to the Donnan theory of equilibrium and then compared with the actual ratios figured on experimental data. Except in the cases of calcium and potassium, these experimental and calculated ratios closely resemble each other. It is known that some of the calcium is bound and probably some of the potassium is also bound, thus accounting for the discrepancy in regard to these two ions. Lymph has almost the same composition as serum fluid except that the potassium content of the former is higher. Amniotic fluid approaches the content of serum in early pregnancy, but becomes hypotonic in the later months possibly due to the dilution with fetal urine. Synovial fluid has a high protein content and contains mucin but otherwise is similar to edema. In studying cerebrospinal fluid, it was found that this fluid does not correspond well with Donnan's Law of equilibrium and it is therefore felt that it is not a pure dialysate. The bicarbonate and phosphate content of spinal fluid is lower than it would be if it were a simple dialysate. Mrs Gilligan concluded that subcutaneous fluid, chest fluid, abdominal fluid, synovial fluid, early amniotic fluid, and lymph are simple dialysates in equilibrium with plasma, but that spinal fluid does not fall in the same category.

Dr Robert E Johnson spoke on "Funk's Fat Metabolism Hormone." In 1932 a water soluble substance was extracted from urine and when injected into rats, it caused an increase in acetone bodies, sugar, and lactate in the blood. It is extracted by Doisy's method of extracting sex hormone from urine. The "hormone" is relatively unstable and is completely destroyed in twenty-four hours. It has been found that dogs excrete approximately three times as much following hypophysectomy as they did before, and for this reason it is believed that the substance is not excreted by the pituitary gland. There is no difference before and after thyroidectomy in the excretion of this substance. In normal human beings one liter of urine contains about one unit of this "hormone" but if the calculation is made after the patient has exercised

while fasting, there are about seven units per liter excreted. To date there has been no conclusive proof that this substance is a true hormone.

Dr Morgan Upton spoke on "The Time Factor in the Discrimination of Successive Stimuli with Especial Reference to Sound." The so-called "time error" phenomenon has been known for some time. When a second stimulus of the same intensity as the first is heard, it is judged greater or less than the first, depending on the time elapsing between the two stimuli. Doctor Upton has studied this phenomenon and feels that the difference which occurs in the early small intervals of time is representative of some rapidly decaying cortical process and in the longer intervals it is a function of memory. He discussed the various theories that have been promulgated to explain the above effect. Experimentally it is found that if the interval is less than 15 seconds, the second stimulus seems greater than the first. The work of other investigators indicates that there is a range between 15 seconds and 3 seconds where the second stimulus appears to be smaller than the first, while beyond three seconds the second again appears to be greater.

WORCESTER DISTRICT MEDICAL SOCIETY

At the Annual Meeting of the Worcester District Medical Society on May 13, 1936, the following officers were elected:

President, Roy J Ward, Worcester, Vice President, William A Bryan, Worcester, Secretary, Erwin C Miller, Worcester, Treasurer, Edward P Disbrow, Worcester, Commissioner of Trials, Walter P Bowers, Clinton, Censors, Supervisor, George A Dix, Worcester, Charles N Church, Millbury, John J Dumphy, Worcester, Joseph P Mulhern, Worcester, Bancroft C Wheeler, Worcester.

Councillors: James C Austin, Spencer, Walter P Bowers, Clinton, Leslie R Bragg, Webster, Philip H Cook, Worcester, William J Delahanty, Worcester, George A Dix, Worcester, Ernest B Emerson, Rutland, George E Emery, Worcester, Michael F Fallon, Worcester, Homer Gage, Worcester, James J Goodwin, Clinton, David Harrower, Worcester, Ernest L Hunt, Worcester, Edwin R Leib, Worcester, William F Lynch, Worcester, Arthur W Marsh, Worcester, Erwin C Miller (Secretary), Worcester, Joseph W O'Connor, Worcester, Walter C Seelye, Worcester, Edward R Trowbridge, Worcester, Roy J Ward (President), Worcester, Frank H Washburn, Holden, Royal P Watkins, Worcester, Samuel B Woodward, Worcester.

Councillor for Nominating Committee: Principal, David Harrower, Worcester, Alternate, Royal P Watkins, Worcester.

ERWIN C MILLER, M.D., Secretary

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

A stated meeting of the Essex South District Medical Society was held at the Salem Country Club, Peabody, Mass., on May 13, 1936.

Following the dinner at 7 P M the Annual Meeting was held. The following officers were elected:

President—C A Bonner Hathorne Vice-President—E D Reynolds Danvers Secretary—R E Stone Beverly Treasurer—Andrew Nichols III Danvers Commissioner of Trials—O C Blair Lynn Censors—A E Parkhurst (Supervisor) Beverly S N Gardner Salem S R Davis Lynn J J Hick ey Peabody L B Hull Gloucester Nominating Councilor—Hanford Carvell Gloucester Alternate Nominating—R E Foss Peabody Councilors—C F Deering Danvers R E Foss Peabody J F Jordan Peabody C L Curtis Salem N P Breed Lynn J W Trask Lynn C H Phillips Beverly W G Philpen Salem J F Donaldson, Salem O S Pettingill Middleton A E Parkhurst Beverly Hanford Carvell Gloucester B B Mansfield Ipswich J G Corcoran Hamilton Executive Committee—J R Shaughnessy Salem R P Hallett, Gloucester C F Twomey Lynn Sherman Golden, Beverly O S Pettingill Middleton E C Yerbury Hathorne C A Bonner and R E Stone are also Councilors by reason of their office.

Dr Paul Dudley White of Boston then gave a very interesting description of his travels to the ancient shrines of medicine in Greece and Italy. Beautiful moving pictures and lantern slides enhanced the charm of his presentation.

NATHANIEL P BRELD M.D.

THE HARVEY CUSHING SOCIETY

The fifth annual meeting of the Harvey Cushing Society was held in the Mayo Clinic, Rochester, Minnesota, May 15 and 16 1936. The following officers were elected: Dr Kenneth G McKenzie Toronto, Canada, President; Dr Richard Mengher, New York City, Vice-President; Dr Louise Eisenhardt, New Haven, Secretary and Treasurer; Dr Ernest Sachs, St. Louis, was elected an Honorary Member. Corresponding Members chosen were Dr Herbert Olivecrona, Stockholm; Dr Otfried Foerster, Breslau; and Mr Hugh Cairns, London.

The morning sessions were devoted to a program by the members of the Mayo Clinic with presentations of preoperative and postoperative cases and neurosurgical clinics. Contributions by members of the Society included notes on the conservative treatment of tumors of the third ventricle, by Dr Glen Spurling, Louisville; the management of intra-cranial arteriovenous varices by Dr R. E Semmes, Memphis; trauma of the head by Dr Nicholas Gotten, Philadelphia; osteomyelitis of the skull by Dr Edgar Fincher, ureterodural anastomoses in hydrocephalus by Dr Frederic Schreiber, Detroit; certain peculiarities of the trigeminal nerve by Dr Temple Fay, Philadelphia; pneumocephalus following operation upon the sensory root of the fifth nerve by Dr W G Crutchfield, Richmond; and experimental cerebral edema by Dr Cobb Pilcher, Nashville.

A round table discussion was held on the subject of the surgery of hypertension and peripheral vascular disease. Mr Peter Ascroft of London reported

results of his studies in the Department of Physiology, Yale School of Medicine on the treatment of vasospastic states; an experimental analysis in monkeys.

At the annual dinner on Friday evening Dr John Fulton described the various activities of the Second International Neurological Congress in London. The presidential address 'The Roentgenologist and the Orchestra' was given by Dr Merrill Sosman.

The next meeting is to be held in Philadelphia.

THE GLOUCESTER CANCER CLINIC

The Gloucester Cancer Clinic Committee reports its spring clinic conference which was held at the Addison Gilbert Hospital on May 20 1936. The officiating consultant was Dr George A Leland, Jr., visiting surgeon at the Massachusetts General and the Palmer Memorial Hospital, Boston.

There were approximately twenty-five doctors in attendance from Beverly, Manchester, Hamilton, Essex, Rockport, Gloucester.

Number of patients examined	13
Number of new patients	8
Diagnoses on new patients were	
Cancer of colon	1
Cancer of cervix	2
Question of cancer of stomach	1
Question of early cancer of breast	1
Postoperative cancer no evidence of malignancy	1
Sebaceous cyst	1

Dr Leland reviewed the patients examined by him at the clinic in January 1936 in order that the visiting physicians might know the types of treatment these patients had received and observe the present postoperative results.

Luncheon was served at the close of the clinical conference.

Submitted by

GLOUCESTER CANCER CLINIC COMMITTEE,

E E Cleaves, M.D. *Chairman*
Scott W Mooring, M.D.,
Ira B Hull, M.D.
William W Babson, M.D.,
William R. Irving, M.D.
Harry C Burrell, M.D.

OFFICERS OF THE MASSACHUSETTS SOCIETY FOR SOCIAL HYGIENE

At the Annual Meeting of the Massachusetts Society for Social Hygiene held April 30 1936 the following designated officers were elected: Dr E Granville Crabtree, president; Mrs Maida H Solomon, vice-president; Elizabeth Ross, secretary; Mrs William Wadsworth, treasurer. Directors for the ensuing year are Dr Harold L. Leland, Dr Gaylord W Anderson, Herbert C. Parsons, Dr George Gilbert Smith, Dr Wilson G Smilie, and Mrs Eva Whiting White, elected on the executive committee. And Dr Anderson, Dr John J Carroll, Dean Lucy

Jenkins Franklin, Dr Homer Gage, Dr Smith, Dr Harry C Solomon, Mrs George Whiting, Dr Alfred Worcester, the Rev Robert P Barry, Dr William B Keeler, Wilford Cook Saeger, Miss Rosanna D Thorndike, Dr L Jackson Smith and Mrs I Tucker Burr

CAPE COD HEALTH BUREAU ASSOCIATION

The spring meeting of the Cape Cod Health Bureau Association was convened in Hyannis on Friday, May 8, Vice-President Howes in the chair. At the business session the routine reports were followed by a vote to devote \$250 of the reserve fund to the equipping of the proposed local milk and water laboratory in the Court House in Barnstable. This, with milk inspector George F Crocker, Jr, in charge, will furnish to the Cape a home laboratory, and avoid the delay and costs now incident to the testing of samples in Boston or in Amherst.

The election of officers to serve for the coming year resulted in the following: President, Mr I Grafton Howes of Dennis, Vice-President, Mrs Jeanette M White of Sandwich, Secretary-Treasurer, Mr C R Bassett of Yarmouth, and Executive Council, Dr Richard P MacKnight of New Bedford, Dr A P Goff of Hyannis, Mr E T Ward of Yarmouth and Dr J G Kelley of Pocasset.

Dr R P MacKnight, State District Health Officer for southeastern Massachusetts, was the principal speaker, discussing various duties of boards of health and emphasizing the need of accurate and complete records. In his work Dr MacKnight very frequently encounters unfortunate conditions. When a case of diphtheria is reported, for example, it is important for the nurse to know the immunization conditions of possible contacts, and the absence of records makes her work uncertain and difficult. A mere notebook record is really not sufficient, there should be card records, kept up-to-date, and records of those not immunized should be included.

The same is true of tuberculosis, for the nurse looks at once through the family and other contacts. In populations which include many foreigners, and this is characteristic of a good many towns and cities in southeastern Massachusetts, the problem, if records are not available, becomes difficult.

Incidentally, the speaker noted that good records have their effect on the incidence of some diseases, since the authorities can employ preventive measures, and as in Falmouth, which has had no case of diphtheria in three years, be reasonably assured of improved health conditions.

In scarlet fever, attention should be given to the milk supply, with inquiries as to its distribution and care, and health conditions of milkers and the stables, whether clean or dirty. These items should be of record in form available for consultation. The pasteurization of milk is an effective precaution.

Dr MacKnight next discussed venereal diseases, one of the important problems in this section, due in part to the character of its population, and the secrecy incident to the disease. Health departments

might declare individual cases to be dangerous to the community, but the evidence is very difficult to obtain and the law limits the use of this information when it is obtained.

In closing, Dr MacKnight stated it to be his opinion that measles ought to be better controlled. With typhoid fever, examinations have increased the number of known carriers, and these can be controlled.

The round table discussion that customarily follows the papers read at these meetings was devoted largely to various aspects of the venereal disease problems.

Mr J L Glennon, chairman of the New Bedford Board of Health, spoke of the milk control in his city, noting that in 1923, 700 babies died in the first year of life, while in 1935, the figure was only 97. Mr W G Kirschbaum, of the same board, stated that there are only two houses placarded for communicable diseases today in his city, with a population of 110,000. New Bedford has, for twenty-nine months, been without a death from diphtheria. Dr J G Kelley, superintendent of the hospital at Pocasset, said that his institution is conducting a clinic for venereal diseases. Two babies that under former conditions would have had congenital syphilis had been born free from the disease. The clinic is as yet only an experiment.

WILLIAM HARVEY SOCIETY

The April meeting of the William Harvey Society was held on April 10 in the Beth Israel Hospital, Boston.

Dr Elliott C Cutler spoke on "War Surgery." He began his talk by pointing out the better side of war and discussed the mechanism by which capable men are advanced much more rapidly than could occur in civil life, while the less capable ones quickly find their place in a corresponding position on the military scale. Dr Cutler gave a very interesting and highly entertaining account of some of his numerous experiences at or near the front during the World War. He amply illustrated his speech with maps and lantern slides. He took his material from three large volumes of papers that he collected and wrote during the trying years of the war. This often meant spending thirty minutes' writing, out of the five hours that was allowed for sleep. All of the experiences that he recounted from the occasion when the hospital was bombed to the organization of an evacuation hospital, which had to dispose of a thousand wounded daily, were told in Dr Cutler's fascinating manner and contributed to a thoroughly enjoyable evening.

THE FRANKLIN COUNTY PUBLIC HEALTH ASSOCIATION

Miss Elsie F Smith, Executive Secretary of the Franklin County Public Health Association, reported at the annual meeting of the Association held in Greenfield, Massachusetts, April 1936, that during 1920 thirty-five persons died of tuberculosis, whereas in 1934 only ten deaths from this disease were

recorded. The number of cases of tuberculosis has declined from 630 in 1920 to an average of 147 pulmonary cases in the past five-year period and 81 childhood cases.

The Treasurer reported a satisfactory financial condition of the Association. Dr. John B. Hawes, 2d, of Boston gave an inspiring address explaining that there are three fundamental functions which should be actively in operation in the fight against tuberculosis. These are education, demonstration of existing conditions and intelligent research directed against the etiologic factors underlying the incidence of tuberculosis in any community. He especially emphasized the importance of follow-up work in dealing with contact cases as well as those with a demonstrative infection.

The meeting was presided over by Dr. Charles Moline. The officers elected for the ensuing year are the following: President, Dr. Charles Moline; First Vice-President, Mrs. H. R. Sargent; Second Vice-President, Mr. W. Herbert Nichols; Secretary, Mrs. A. L. Johnson; Treasurer, Mr. Herbert V. Erickson. Mr. Marvin E. Jones and Mrs. Raymond L. Dunnell were elected to the Board of Directors for three years. Miss E. F. Smith was reappointed Executive Secretary.

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JUNE 1, 1936

- Tuesday, June 2—**
9:30 A.M. Massachusetts General Hospital. Thoracic Clinic.
- Wednesday, June 3—**
8 A.M. Massachusetts General Hospital. Orthopedic Grand Rounds.
11:20 A.M. Clinico Pathological Conference. Children's Hospital.
- Thursday, June 4—**
8 A.M. Massachusetts General Hospital. Circulatory Clinic.
9:30 & 10 A.M. Clinico, Surgical and Orthopedic Staffs of the Children's Hospital at the Children's Hospital.
9:15 A.M. Massachusetts General Hospital. Neurological Conference.
1 P.M. Massachusetts General Hospital. Clinico Pathological Conference.
- Friday, June 5—**
10:30 A.M. Massachusetts General Hospital. Fracture Clinic.
- Saturday, June 6—**
10 A.M. 12 M. Staff Rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Henry A. Christian.

*Open to the medical profession
†Open to Fellows of the Massachusetts Medical Society

- May 28—New England Obstetrical and Gynecological Society will meet at Providence R. I.
May 28—Clover Hill Hospital Medical Lecture 161 Berkeley Street at Lawrence at 9 P.M.
May 28—Brocton Medical Society will meet at the Commercial Club, Brockton at 8 P.M.
May 31, June 1—International Cardiological Meeting Royal (Australasian) Assembly of Physiologists, Pathologists and Therapists. See page 74 issue of April 9.
June 2—Lawrence Cancer Clinic Lecture General Hospital, 1 Garden Street at 10 A.M.
June 4, 5 and 6—Annual Meeting of the American Dermatological Association at the N. W. Ocean House, Swampscott.

June 4, July 3—Massachusetts Institute of Technology Department of Biology and Public Health. See page 1012, issue of May 14.

June 8—Tufts Medical Alumni Luncheon. See page 1017, issue of May 1.

June 8, 9 and 10—American Association for the Study of Gout. See page 1078, issue of May 1.

June 9—New England Alumni. See page 1047, issue of May 21.

June 9—Massachusetts Medical Legal Society. See page 1047, issue of May 1.

June 9—Massachusetts Diplomates of the National Board of Medical Examiners. See page 1047, issue of May 1.

June 15, 19—The Executive Board of the Catholic Hospital Association will meet at the Fifth Regiment Armory, Baltimore, Md.

June 16, July 28—Summer Course in Bacteriology. See page 355, issue of February 20.

June 22 and 23—The Medical Library Association. See page 1075, issue of May 21.

June 29, July 11—Hospital Administration. See page 637, issue of May 7.

September 1936—First International Congress of Sanatoria and Private Nursing Homes. See page 303, issue of April 16.

September 7, 10—International Union against Tuberculosis. See page 654, issue of March 1.

September 29, October 3—First International Conference on Fever Therapy. See page 1375, issue of December 6, 1935 and page 1075, issue of May 1.

October 12, 15—Third International Congress on Malaria. See page 1076, issue of May 1.

October 19, 23—Clinical Congress of the American College of Surgeons. See page 180, issue of January 23.

April 21, 24, 1937—American Society for Experimental Pathology. See page 1076, issue of May 1.

BOOK REVIEWS

Consultations de Cardiologie. Georges Marchal. 227 pp. Paris: Masson et Cie. 25 fr.

This small volume of some two hundred pages presents in an interesting way by case histories and discussion the clinical points of view concerning diagnosis and treatment of one group of the French cardiological school namely that under Charles Laubry. There are thirty chapters mostly short, of a few pages each discussing the following subjects:

1. The evolution of mitral stenosis
2. The rheumatic origin of aortic insufficiency
3. The evolution of cardiac rheumatism with heart failure and enlarged liver
4. Rheumatic pericarditis
5. Disappearance of signs of valvular defect in a case of acute articular rheumatism
6. Subacute streptococcus endocarditis
7. Syphilitic aortitis with left ventricular insufficiency
8. Neurocirculatory asthenia with an erroneous diagnosis of aortitis
9. Syphilitic myocarditis with latent aortitis
10. Juvenile aortitis due to congenital syphilis
11. Aneurysm of the arch of the aorta
12. Senile heart with stationary sclerotic valvular lesions
13. Senile heart with left ventricular insufficiency
14. Appearance of ulcer of the stomach due to cardiac insufficiency
15. Myocardial infarct
16. A case of extrasystoles
17. Nodal paroxysmal tachycardia
18. Syndrome of Adams Stokes with total bradycardia.

- 19 Syndrome of Adams Stokes, with complete dissociation
- 20 Syndrome of Adams Stokes, with mixed bradycardia
- 21 Syphilitic pulmonary arteritis with right ventricular insufficiency
- 22 Maladie bleue, with polycythemia
- 23 Cardiac neurosis of the menopause
- 24 Aerophagia masked as angina pectoris
- 25 Malignant arterial hypertension with aortic insufficiency
- 26 Complete arrhythmia with cardiac insufficiency in thyrotoxicosis
- 27 Case of "curable" myocardial infarct
- 28 Grippe with cardiopulmonary symptoms
- 29 Severe cardiac insufficiency in a case of filariasis cured by x ray therapy of the spleen
- 30 Cardiac insufficiency in the course of pernicious anemia

There is a preface by Professor Laubry

The "consultations" are entertainingly written, and contain many points of interest and value, for example, (1) the comments about the erroneous diagnosis of aortitis with dilatation of the aorta made on x ray study in a patient who had had syphilis at one time, but at the time of the examination only neurocirculatory asthenia (Case 8), (2) the recognition of the prolonged activity of the rheumatic infection, and (3) the insistence on rations of rest in the treatment of heart weakness

There are a good many points in the discussion of the cases with which most of us on this side of the water would not agree, for example, in Case 1 the likelihood of a presystolic murmur in the presence of auricular fibrillation, aortic regurgitation produced by the displacement of the aortic cusp by a sclerosed mitral valve, the combined use of digitalis and ouabain, the routine use of much salicylate therapy in rheumatic cases, the use of iodine and sulphur in cardiovascular disease, the possibility of valvular disease subsiding with a disappearance of the murmurs instead of the more rational explanation of the causation of the murmurs in dilatation of the heart, and the failure to treat thyrotoxicosis with cardiac involvement by subtotal thyroidectomy. In general one is unfavorably impressed by the polypharmacy

One suggestion of particular interest that comes from several of the chapters is the plan of giving prophylactic antistreptococcus injections in cases of valvular disease to prevent the complication of subacute bacterial endocarditis. On page 47 there is a statement that one case of secondary streptococcus endocarditis did develop despite the use of regular injections of vaccine in a number of cases over a period of four years. However, it is to be remembered that only about one case of twenty five or more of rheumatic valvular disease develops subacute bacterial endocarditis anyway. Nevertheless the subject is an interesting one, and the procedure may possibly be of value

For a survey of many of the views of the French cardiologists this volume can be recommended, but it must be read very critically

The Treatment of Diabetes Mellitus Elliott P. Joslin 620 pp Philadelphia Lea & Febiger \$6.00

In 1814, was published the first edition of Dr Jacob Bigelow's famous "Florula Bostoniensis". With characteristic modesty of the time he remarked of this book, "I flatter myself that among its faults, the most numerous will not be its errors, and whatever may be its fate with the public, I shall retain the consciousness that it has not been the result of superficial inquiry or negligent observation."

Dr Joslin's "Treatment of Diabetes Mellitus" has come to be regarded by all New Englanders as one of the most distinguished of Boston's perennials. Appearing for the first time in 1916, subsequent plantings have budded forth in 1917, 1923, 1928 and 1935, each one breeding true to form and demonstrating to the medical world everything that is worth knowing about *Lathyrus odoratus*.

The 1935 specimen is much like its predecessors. It has been developed primarily, as were the earlier ones, to record for others those facts which have proved of particular service to Dr Joslin in the treatment of diabetes. The knowledge of this disease has grown rapidly. All that Dr Joslin knew of the treatment of diabetes in 1916 could be encompassed in 440 pages, twelve years later, a book of 998 pages was necessary to yield the information which he regarded as essential. The latest volume has been shortened perceptibly without, however, losing anything vital from its contents, and yet, at the same time, it has been broadened to include new knowledge regarding the pathologic physiology of diabetes which has come to light in recent days. As usual, this edition is a fine piece of bookmanship.

Dr Joslin's textbook is a difficult one to characterize. Certainly, to copy Dr Bigelow's postrevolutionary restraint, one can at least say of it without fear of contradiction that among its faults the most numerous are not its errors and that the book has not been the result of superficial inquiry or negligent observation. One can even go farther and agree with the more expansive *Boston Medical and Surgical Journal of the Great War* (176:577 [April 19] 1917), "There is nothing the internist or general practitioner might want to know concerning the treatment of diabetes that is not presented in this admirable book. It is indeed rare that one is privileged to recommend so wholeheartedly such a book to the medical profession." Or perhaps, as a final word, one should act one's age. What the postwar *New England Journal of Medicine* (200:1012 [May 9] 1929) said a few years ago had best be repeated: "Boston must not fail to acclaim the appearance of a new edition of Dr Joslin's famous textbook. Any survey of this most important work is inadequate. A study of the book itself will more than repay any reader."

The New England Journal of Medicine

VOLUME 214

JUNE 4 1936

NUMBER 23

"SPRAY X RAY THERAPY" IN POLYCYTHEMIA VERA AND IN ERYTHROBLASTIC ANEMIA*

BY FRANCIS T. HUNTER, M.D.†

IRRADIATION of the body as a whole with high voltage röntgen rays—diversely termed "total irradiation," "teloröntgenotherapy," "röntgen baths," or "spray therapy"—was first proposed and used by Teschendorf.¹ Since the publication of his paper in 1927 experience has shown that in cases of generalized carcinomatosis and in instances of widespread radio-resistant tumors, therapy of this type is no more efficacious than discontinuous irradiation through limited fields. Nevertheless in the handling of certain radiosensitive hyperplasias and neoplasms widely distributed throughout the body this form of röntgenotherapy possesses in theory at least, an advantage over the older method of treatment, in that the whole mass of morbid tissue is evenly and simultaneously subjected to the action of the rays. According to a number of observers in recent years have employed it in cases of leukemia and lymphoblastoma but it must be confessed opinion as to its usefulness in these conditions is so far not uniform.

POLYCYTHEMIA VERA

On the other hand the results in the few recorded instances of its use in polycythemia vera seem to have been satisfactory enough to evoke mild enthusiasm. First utilized in this malady by Sgalitzer,^{2,3} "spray therapy", according to him, produced in thirty four cases, remissions of from one and a half to five and a half years duration. None of his three reports, however contain protocols of the cases or detailed accounts of the blood examinations. Paltrimer⁴ in 1933 reported satisfactory therapeutic results in two cases, but of these, one patient was followed for only ten months, the other for a scant five days—observation periods obviously too brief to allow proper evaluation of the method. Likewise Marchal et al.⁵ have recorded a patient observed over a period of five and a half months, in whom the red blood corpuscles fell from an initial figure of 6 200 000 per cu mm to 6 200 000 per cu mm after a to

tal dosage of 205 r units. But since no other investigators have made contributions to the subject, and no original observations on the effect of "spray therapy" in polycythemia vera have yet appeared in the English language, it was thought that a more or less complete report on two patients suffering from this disease, who were given "spray therapy" and closely followed for three years, might be of interest.

CASE 1. Polycythemia Vera—Multiple Thromboses.
The patient, H. A., was a white native housewife aged forty nine who entered the hospital October 27 1932 complaining of painful swollen legs.

Present Illness. In 1910 during her second pregnancy and again in 1915 while carrying her third child the patient observed transient, nontender varicosities on the medial side of each thigh. With this exception her medical history was uneventful until about ten months prior to entry when a red tender subcutaneous lesion 3 cm. in size made its appearance on the inner aspect of the left leg just above the knee. This was accompanied by swelling of the leg and by a dull aching femoral pain. Some two or three weeks later—in February 1932—she suddenly experienced a severe pain in the right chest, sharp in character and exaggerated by inspiration, which gradually decreased in severity and which at the end of a week's time had disappeared. She was informed, presumably by her medical attendant, that it was a manifestation of pleurisy. In the early part of March, a new subcutaneous nodule similar to the first appeared on the right leg and it too was followed by femoral edema and "pleurisy." From that time until entry to the hospital, several lesions of like nature had been noted on the thighs and abdomen and for the past month both legs had been persistently enlarged.

The family history except for a story of asthma in the mother and of hay fever in one sister was noninformative.

The marital history and the **past history** added no essential facts.

Physical examination showed a well-developed obese woman with plethoric facies. There was definite choking (2 diopters) of each optic disc and obliteration of the physiological cupping. The retinal vessels were distended and tortuous and there were many hemorrhages into the retina—an appearance consistent with thrombosis of both central retinal veins. On each side of the neck, the jugular vein could be palpated like a cord. No variation from the normal could be detected upon examination of the heart and lungs. The blood pressure was 150/90. A red slightly tender indurated, subcutaneous lesion 12 cm. in diameter was present on the right lower abdomen—apparently thrombosis of the subcutaneous veins. The liver and spleen were thought to be enlarged. Each ankle showed slight pitting edema. There was no elevation of temperature.

From the Medical Clinic and X-Ray Treatment Department of the Massachusetts General Hospital, Boston.
Read before the N. W. England Roentgen Ray Society, Boston, February 21 1936.

†Hunt, Francis T.—Assistant Physician, M. A. General Hospital. For record and address of the author, see this Week's page 1125.

Laboratory findings Examination of the urine revealed no abnormalities. A blood Hinton test proved negative. The basal metabolic rate was plus 2 per cent. The sedimentation rate was 3 mm at the end of one hour (normal 20 mm). Blood examination showed red blood corpuscles 8,500,000 per cu mm, hemoglobin (Sahli) 125 per cent, white blood corpuscles 12,000 per cu mm. Except for a polymorphonuclear percentage of 85, the stained specimen exhibited no variation from the normal. The hematocrit reading gave 60 per cent cells, the oxygen capacity was 24.11 volumes per cent.

"Spray therapy" was begun November 11 and was continued through December 7, 1932. The apparatus was operated so as to deliver to the patient about 20 r per hour (measured in air), at a target skin distance of 215 cm, through 0.5 mm of copper and 4.0 mm of celluloid, MA 4, KVP 200. A total of 304 r was given in eleven sittings. A

Present illness For the period between 1920 and 1930 he could recall episodes of headaches accompanied by vomiting of material which at times resembled "coffee-grounds." There was a dim recollection of indigestion, and a more vivid impression that he had passed tarry stools on occasion. About two years prior to entry these symptoms subsided to some extent and were replaced by dyspnea and palpitation on exertion. About the same time his attention was called to a mass in the left upper quadrant of the abdomen. Three or four months before entry, he began to feel weak and experienced in the region of the mass an intermittent aching pain, which occasionally radiated to the epigastrium, and which was usually made worse by lying down. He again observed tarry stools and became convinced that the swelling in the left upper quadrant had grown larger. During the past two months there had been a loss of ten pounds in weight.

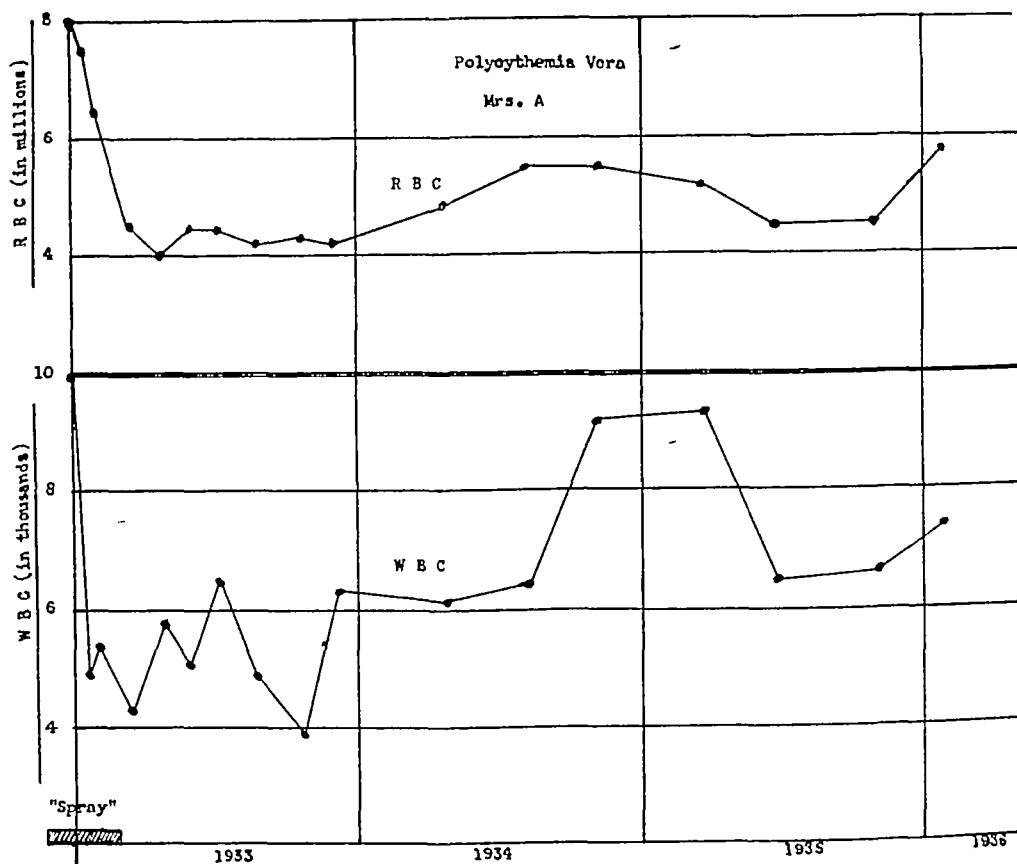


FIG 1

second course of treatment (with the same arrangement of the apparatus) was begun on January 24, 1933 and completed on February 28, 1933. In this course of therapy 598 r were administered in twenty-six sittings. Thus a total of 904 r was received by the patient in about ten weeks' time.

Course This is best seen by reference to figure 1, on which is depicted the erythrocyte and leucocyte counts during the treatment and for the follow-up period of three years. The general improvement of the patient closely paralleled the lowering of the erythrocyte count, and at the last visit she appeared to be normal in every way.

CASE 2 Polycythemia Vera—Duodenal Ulcer—Pulmonary Tuberculosis (inactive)

A. G., a fifty-two year old, white, married grocer,—born in this country of Italian parents,—entered the hospital August 3, 1932 complaining of not feeling well and of an aching in the upper left abdomen.

The family history and the marital history were nonessential.

Past History Aside from diseases of childhood, he had never undergone a serious illness. For thirty-three years he had experienced, from time to time, migratory arthritic symptoms, consisting of red, nontender swelling about various joints. On three occasions during the past decade, ecchymoses had appeared without adequate cause,—once on the terminal portion of the thumb and twice about the orbit.

Physical examination showed a poorly developed and nourished man with pallor of the mucous membranes. Arteriosclerosis of the peripheral vessels was marked. Examination of the heart and lungs revealed no obvious abnormalities. The blood pressure was 140/80. A slightly tender irregular tumor was visible and palpable in the left side of the abdomen, and this mass, which was thought to be an enlarged spleen, extended to the level of the

umbilicus. The temperature fluctuated between 98 and 100 F.

Laboratory Findings Urinalysis and the blood Hinton test were negative. Stool examination revealed no traces of occult blood. An intradermal tuberculin test in 1/1000 dilution was negative. Blood examination showed red blood corpuscles 5,300,000 per cu. mm., hemoglobin (Sahl) 45 per cent. In the blood smear the polymorphonuclears made up 91 per cent of the leucocytes and the erythrocytes exhibited marked achromia.

X-ray studies confirmed the presence of a mass extrinsic to the stomach, in the left upper quadrant of the abdomen. There was a constant deformity of the duodenal cap consistent with ulcer. The lungs showed infiltration and cavitation at the left apex, and plates of the spine revealed marked arthritic changes.

Reentry to the hospital March 8 1933. The patient now complained of heaviness of the head, pounding in the ears, and moderately severe frontal headaches recurring about every ten days. There had been no gastrointestinal symptoms. **Physical examination** except for a dark red cyanotic color gave the signs previously described. **Laboratory findings** Blood examination showed red blood corpuscles 10,630,000 per cu. mm., hemoglobin (Sahl) 125 per cent, polymorphonuclears 85 per cent, red blood corpuscles normal in appearance. The stools showed no occult blood, the basal metabolic rate was plus 41 per cent, and the hematocrit reading gave 65 per cent cells. Re-examination of the chest and gastrointestinal tract by the x-ray revealed no change.

The patient was discharged March 24 1933 with the diagnosis of polycythemia vera.

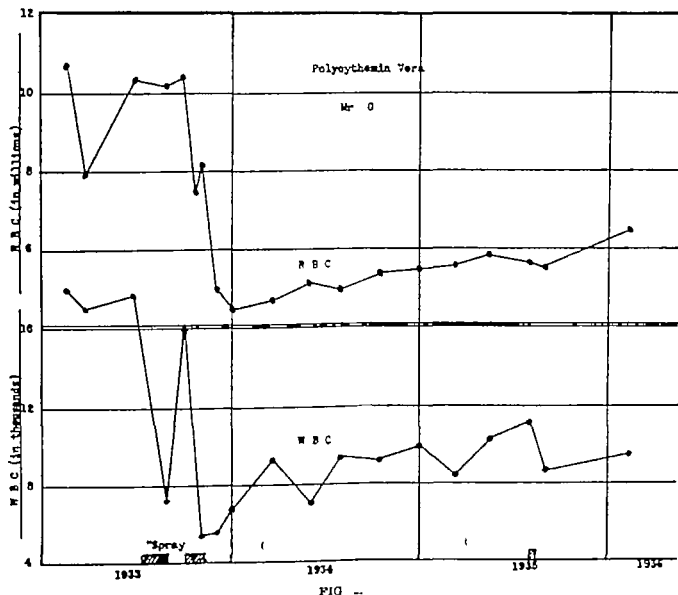


FIG. 2.

The patient was discharged August 21 1932 with a questionable diagnosis of lymphoblastoma.

Progress High voltage röntgen therapy to the abdominal mass through a 20 cm. x 20 cm. anterior field, at a target skin distance of 50 cm. was begun in the X-ray Treatment Clinic on August 23. A total of 600 r. was administered in divided doses. Between September 21 and September 26 800 r. additional were given to the posterior abdomen through a field of the same size.

December 1932 The patient felt much better and had gained seventeen pounds in weight. He now however showed injected sclerae, a high color and a suggestion of cyanosis. The red blood corpuscles numbered 6,700,000 per cu. mm.

February 1933 The patient's color was a deeper red than at the last observation. The red blood corpuscles were 11,375,000 per cu. mm., the hemoglobin (Sahl) 150 per cent. It was thought that the unusual blood picture seen the previous August must have been caused by bleeding from the duodenal ulcer.

"Spray therapy" was given between June 6 and July 20 1933 but it was subsequently discovered that because of difficulties encountered in computing dosage, the patient had received during this period only a fraction of the prescribed amount of therapy. [Note that the erythrocyte count did not fall during this time.] A new course of therapy was begun on September 25 and completed on October 20 1933, the patient receiving a total of 1193 r. in twenty-two sittings. The apparatus was arranged as in Case 1 except that an increase of the milliamperage to 6 raised its output to approximately 54 r. per hour. An additional small amount of therapy totalling 180 r. was administered between July 22 and July 29 1935 in six sittings.

Course Reference to figure 2 makes clear the effect of the therapy on the blood picture during the treatment period and during the three succeeding years. All symptoms disappeared, there was a considerable gain in weight, and the spleen decreased in size. At the present time the patient feels perfectly well.

COMMENT

From the previously reported cases of polycythemia vera treated by "spray therapy" and from the two recorded here, it can be stated that this type of irradiation is definitely superior to the therapeutic agents in common use. Rontgenotherapy through small fields has not demonstrated its practicability as a routine measure. Dangerous drugs, such as phenylhydrazine and arsenic, require constant supervision and cautious administration, even then they often give rise to gastrointestinal disturbances, jaundice, or skin eruptions. Phlebotomy, an unpleasant procedure at best, not only must be performed at frequent intervals, but on occasion is ineffective. And as for daily stomach washes which have been recently suggested, one can only agree with Publius Syrus "There are some remedies worse than the disease." "Spray therapy", on the other hand, when administered in small doses over long periods of time has an astonishingly prolonged depressant effect on the blood-forming organs, produces no disturbing clinical symptoms, and may be given without interruption of the patient's daily work. For these reasons, therefore, I believe it to be the treatment of choice in polycythemia vera.

ERYTHROBLASTIC ANEMIA (COOLEY)

Hereditary erythroblastic anemia (Cooley), a pathologic entity manifesting itself in certain infants of Mediterranean parentage, has some histologic points in common with polycythemia vera. Although treated unsuccessfully in the past with rontgen rays through limited fields, prior to the autumn of 1935 it had not been, to my knowledge, subjected to a trial with "spray irradiation". When, therefore, a characteristic case of this curious malady entered the hospital and was sent to the X-Ray Department for an opinion as to the advisability of rontgenotherapy, the hope was entertained that if sufficient depression of the hematopoietic organs could be brought about, the continued escape of immature nucleated red blood corpuscles into the peripheral blood stream might be prevented. It was with this object in view that "spray therapy" was begun.

Through ignorance of the optimal dosage in this condition, the treatment went far beyond the desired result and produced an overwhelming, acute bone marrow depression. The leucocytes fell to 500 per cu mm and the platelets almost disappeared from the blood stream. There was an accompanying purpura and an alarming series of epistaxes,—the latter necessitating repeated blood transfusions. When this critical period had passed and the leucocytes and platelets had reappeared in the peripheral blood in more normal numbers, the circulating red blood corpuscles rose gradually but steadily

and after some weeks reached a higher level than had been observed at any time prior to irradiation. The amelioration, too, of the child's general condition seemed even more marked than the improvement of the blood picture. Thus the final clinical and hematologic effect of "spray therapy", while perhaps not so striking in this disease as in polycythemia vera, seemed encouraging enough to warrant recording the case.

CASE 3 Erythroblastic Anemia (Cooley)

M P, seven year old American born boy, of Italian parentage, entered the hospital September 5, 1935 complaining of pallor and weakness.

Present Illness The patient had never been well or strong since birth, and had always appeared abnormally pale. At the age of five and a half years, eighteen months prior to entry, the mother became aware that his pallor was increasing and that his strength was failing. Although in the year just past the boy had attended school, he had not felt well enough to participate in games with his play mates and complained that climbing one flight of stairs tired him out. The mother further testified that his interest in food had almost vanished, that his abdomen was gradually enlarging, and that his general condition was becoming progressively worse.

Family History Two sisters of the patient have erythroblastic anemia and are being observed at the present time in the outpatient department of the Massachusetts General Hospital. Three other sisters appear to be well.

The *past history* revealed no facts of importance.

Physical examination showed a well-developed and nourished boy with sallow complexion, pale mucous membranes, prominent eyes, and Mongoloid facies. He seemed chronically ill. There was slight icterus of the sclera. The chest, although barrel in type, gave no abnormal signs when percussed and auscultated. A loud systolic murmur (? hemic) could be heard over the entire precordium. There was a marked enlargement of the abdomen. The liver edge was palpable 7 cm below the costal margin, and a visible and palpable spleen with a smooth, firm surface extended to the level of the iliac crest. The body weight was forty pounds.

Laboratory Findings Nothing abnormal was found in the urine. Blood examination showed red blood corpuscles 2,540,000 per cu mm, hemoglobin (Sahli) 28 per cent, polymorphonuclears 56 per cent, lymphocytes 25 per cent, normoblasts 15 per cent, hematoblasts 2 per cent, unclassified cells 2 per cent. The erythrocytes exhibited extreme variation in size and shape, with many tailed forms, microcytes, macrocytes, stippled and polychromatophilic cells, platelets somewhat decreased. The icterus index was 5, the bleeding time five minutes. The blood Hinton test was negative.

X-ray studies showed bony changes in the skull, pelvis and lower extremities characteristic of erythroblastic anemia.

"Spray therapy" was begun on September 10 and completed on September 25, 1935, a total of 360 r being given in fourteen sittings. The apparatus was that used in the treatment of the first two patients, but so arranged that approximately 40 r per hour (measured in air) was received by the patient.

Course When the crisis (referred to earlier) had passed by, the patient's general condition improved in a manner paralleling the betterment of the blood picture. Figure 3 shows the return of the leuco-

cytes to normal the augmentation of the red blood count and the reduction in the absolute number of circulating nucleated red cells. The spleen decreased in size to a considerable extent and subjective symptoms disappeared. At present the child though still somewhat pale is bright and active, is gaining weight, attends school without fatigue and plays with gusto like any normal boy of his age.

COMMENT

This single case of erythroblastic anemia treated with "spray therapy" neither invites lengthy discussion nor warrants generalizations. It does demonstrate, however, that irradiation by this method has a rather marked depressant

effect on the erythroblastic anemia presented here with the hope that further observations will be made.

CONCLUSIONS

- (1) "Spray x ray therapy", consisting of 1000 r given over several weeks time produced remissions lasting three years in two cases of polycythemia vera.
- (2) "Spray x ray therapy" in small doses in one case of erythroblastic anemia brought about favorable changes in the blood picture and improved the patient clinically.
- (3) This form of treatment appears to be the

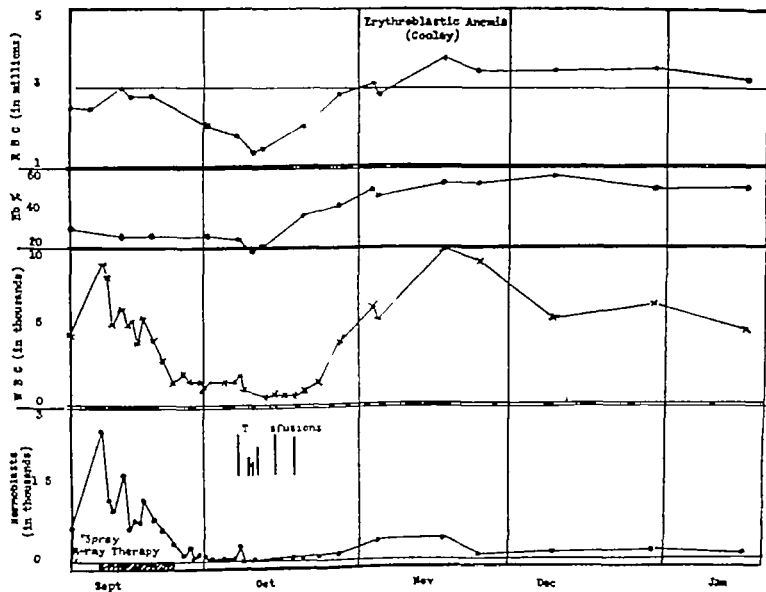


FIG. 2

action on the rapidly proliferating erythroblasts in the bone marrow, and that with the consequent lowered rate of hematopoiesis fewer immature cells appear in the peripheral blood, an increased number of erythrocytes reach the blood stream and a definite clinical improvement takes place in the patient. It is of course, too early to comment on the lasting effects of the treatment, or on the frequency with which it should be repeated. Obviously the dosage used in this case was administered at too rapid a rate. Doses of from 10 to 20 r given at five day intervals might possibly produce beneficial results without such a marked effect on the leucoblasts and megakaryocytes. However that may be the result of "spray therapy" in one

case of erythroblastic anemia and deserves further trial in erythroblastic anemia.

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CERTAIN RELATIONS BETWEEN THE PARATHYROIDS,
THE HYPOPHYSIS AND THE PANCREAS*

BY BERNARDO A HOUSSAY, M D †

THE present paper will deal only with the manner in which the hypophysis and the pancreas can influence the structure and function of the parathyroids, rather than attempt to consider all of the many relationships which may exist between these glands or their secretory products. It may be noted here that the parathyroids, due to their small size, are frequently overlooked in postmortem examinations, also the microscopical alterations may be passed by, as frequently they are not easy to interpret. These facts explain to a certain extent why the histophysiology of these glands is less well known than that of others.

In 1930 Lascano Gonzalez, in our Institute, found pronounced lesions in the parathyroids of dogs whose pituitary and pancreas had been removed^{37 38 42}. This finding led us to study the microscopical aspect of the parathyroids and also the blood calcium of (a) hypophysectomized, (b) pancreatectomized and (c) hypophysectomized-pancreatectomized dogs.

THE PARATHYROIDS IN PITUITARY INSUFFICIENCY
Morphology The development and the maintenance of the normal structure and function of the endocrine glands (thyroids, gonads, adrenal cortex, parathyroids, thymus, etc.) are conditioned by the anterior pituitary, and hypophysectomy results in abnormal changes. In the case of the parathyroids hypophysectomy is followed by regressive lesions which can be seen microscopically, but it is difficult to determine whether the total mass of parathyroid tissue is reduced. Smith⁷⁰ found a diminution of the total amount of epithelial bodies in hypophysectomized tadpoles, but apparently there was no marked alteration in their structure. Smith⁷² stated that atrophy of the parathyroids occurred in hypophysectomized rats, but in a later paper⁸⁰ he did not mention this condition, and Collip¹⁸ was unable to confirm the observation. In the subtotally hypophysectomized hen no modifications have been found,⁶¹ and in the hypophysectomized rabbit there are only slight changes, mainly a decrease in the size of the cells.⁶⁵ Livon and Peyron,⁶³ Aschner,⁴ and Collip,¹⁸ saw no changes in the parathyroids of hypophysectomized dogs, on the other hand Koster and Geesink⁴⁷ mention having found these glands atrophied, but give no further data on this subject.

We have been unable to find any reports on

*Harvey Lecture delivered at the New York Academy of Medicine January 16 1936

†Houssay Bernardo A—Professor of Physiology Faculty of Medical Sciences University of Buenos Aires 1919—For record and address of author see This Week's Issue page 946 Issue of May 7

the structure of the parathyroids in human cases of pituitary insufficiency.

Lesions of the parathyroids have been reported in several papers published from our Institute since 1930. Up to date these glands have been examined in forty-two normal dogs, forty-six hypophysectomized, three hypophysectomized-thyroidectomized and in sixteen with lesions of the *tuber cinereum*.

The parathyroids of the normal, craniotomized controls have a massive, reticular or lobulated structure. The cells are polygonal or globulous and the majority have a clear or only slightly granular protoplasm. In some glands, especially near the surface, groups of dark staining nuclei are found so closely packed together that no protoplasm can be seen around them (Synцитium-ähnliche Zellgruppen). The connective tissue is scarce and in it are seen very fine blood vessels.

The first alterations occurring in the parathyroids of hypophysectomized dogs consist of the following phenomena: the cells decrease in size, the protoplasm becomes dark and granular, and its borders are no longer clearly marked, the nuclei are also reduced in size and the cells are more closely packed, so that they separate from the connective tissue stroma. This gives the structure of the gland a trabecular or cord-like aspect. Later the protoplasm atrophies and finally disappears almost completely, leaving the nuclei in rows or heaps. It is important to note that these modifications are found only in certain parts of the gland, e.g., at one of its poles or sides. In the most advanced degree the protoplasm disappears and only rows of nuclei are left, the meshes of the connective tissue stroma become prominent, and the blood vessels are dilated and sometimes surrounded by a fibrous sheath. In parts of the gland the degeneration of the epithelial cells may be so complete that acellular structureless zones of irregular dimensions and of granular aspect are formed, these stain a rosy violet color.

These alterations are not uniformly distributed, so that in any one animal some of the glands may be almost normal while others may show severe lesions. In the same gland normal and modified regions are to be found side by side. The morphological changes first appear five to fourteen days after hypophysectomy, they then spread and finally become stabilized. The following degrees may be differentiated (figure 1)

(a) *Slight* uniform cellular atrophy, few groups of closely packed nuclei, trabecular structure (Figure 2A)

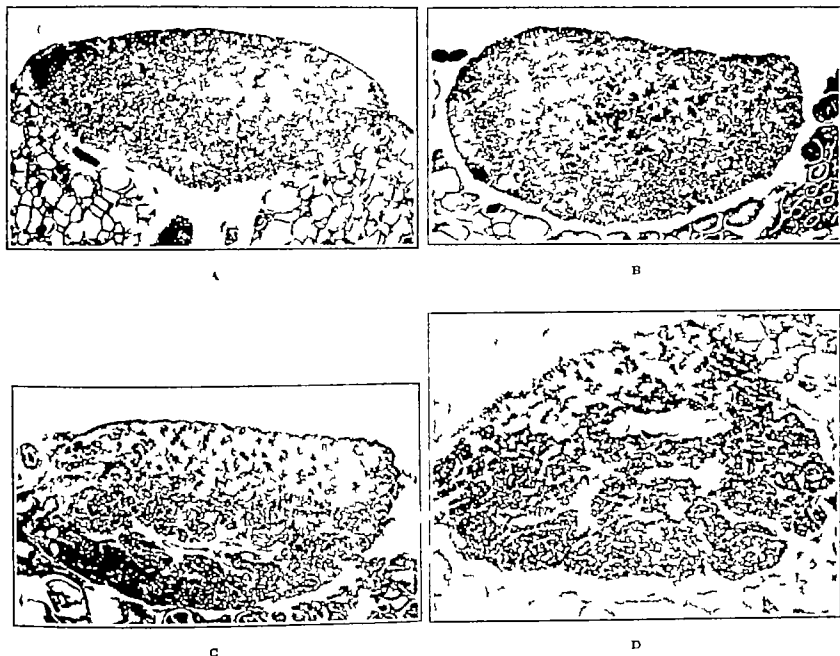


FIG. 1.

Sections through the parathyroid glands of dogs to show the normal structure, A, and the different degrees of alteration following hypophysectomy: B, slight modification; C, medium; D, intense.

- (b) *Medium* large groups of closely packed nuclei, disappearance of numerous cells trabeculae of cord like structure
- (c) *Intense* numerous groups of closely packed nuclei, disappearance of many cells, cord like structure, thick connective tissue trabeculae (Figure 2B)
- (d) *Very intense* numerous groups of closely packed nuclei, large fields without cells, cord like structure abundant connective tissue numerous and large blood vessels (Figure 2C)

The lesion consists of a simple progressive atrophy of the cells with pyknosis and slow disintegration of nuclei. The decrease and retraction of the parenchyma make the connective tissue become more apparent. There is no reduction in the blood supply, on the contrary the blood vessels are large and numerous. There is no granular fatty or colloidal degeneration. There are no signs of compensatory hyperplasia. The most characteristic features are the global atrophy with darkening of the proto-

plasm, the accumulation of nuclei (in 66 per cent) the structureless zones and the great irregularity of the lesions which leave large parts of the gland with little or no alterations. This last fact explains why these animals do not have hypocalcemia. To interpret these lesions it is necessary to examine many cases, make numerous sections of each gland and acquire experience in the study of this tissue. If a careful examination is not made characteristic lesions obvious to a skilled observer may be passed over.

In our series of dogs the following alterations were found

	No. of Animals	Slight	Medium	Intense	Very Intense	Total	Per Cent
Controls	42	4	—	—	—	4	0.5
Hypophysectomized	46	16	10	4	—	30	6
Hypophysectomized thyroidectomized	3	—	—	—	1	1	100
With tubercular lesions	16	2	2	—	—	6	3

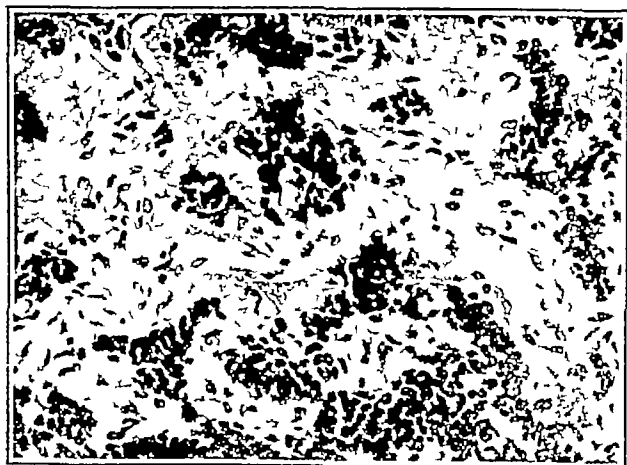
We have not been able to counteract these effects by the administration of anterior pituitary



A



B



C

FIG 2

Sections through the parathyroids of hypophysectomized dogs showing A syncytium like groupings of cells B acellular zones and C combined syncytium like grouping and acellular zones

tary lobe extract, though it has been tried in many cases. It is possible that the doses employed were not sufficient or that the activity of the extract was inadequate.

Calcemia In spite of the lesions in the parathyroids the plasma calcium was normal in the forty-seven hypophysectomized dogs so far studied in our Institute,^{26 41 56 57 60*} the average being 10.67 Mgm per 100 cc in the operated and 10.7 Mgm per 100 cc in the controls. In rats also normal values have been found.^{17 84} In two pigeons there was a slight decrease.⁷¹ In rabbits hypophysectomy is followed by a slight increase,⁵⁰ but irradiation of the pituitary sufficient to damage the gland does not alter the blood calcium.¹⁰ The toad *Xenopus levis* has a low blood calcium after extirpation of the principal lobe of the pituitary^{13 35 73} and after gonadectomy.

Parathyroid extract increases the blood calcium of hypophysectomized rats⁶⁰ and pigeons¹ to the same degree as it does in normal controls. It also produces a similar proliferation of osteoblasts and new bone formation in hypophysectomized rats as in normal controls.⁷⁰ Hypophysectomized rats however, show a tendency to a negative calcium balance, which is counteracted by growth-promoting pituitary extract.⁶⁸ On the other hand, the thyrotropic extract^{64 68} and thyroid administration increase the fecal excretion of calcium with the rise in the total metabolism.

THE PARATHYROIDS IN HYPERPITUITARISM

Parathyrotropic action of anterior pituitary extract Anselmino, Hoffmann and Herold³ have shown that anterior pituitary extract produces a considerable enlargement of the parathyroids in rats. There is hyperemia, increase in the number and size of the clear cells, decrease of the dark cells and disappearance of oxyphilic cells.[†] The same effect is obtained with the alcoholic precipitate of pregnancy urine, which has no thyrotropic activity. Hypertrophy and hyperplasia of the parathyroids have also been obtained in rabbits by the injection of pregnancy urine (Hertz and Kranes, 1934). We have seen this occur in less than half of the dogs injected with anterior pituitary extract (14 Gm per Kg per diem of fresh bovine anterior lobe for one week). An increase of the blood calcium lasting several hours has been observed in the dogs injected with this extract, but it does not occur if the thyroids and parathyroids have been removed.^{3 34 56 57 83†} The

*In two hypophysectomized dogs Koster and Geesink⁴⁷ found a lower blood calcium than in their control animals. Since the values in the latter were 13 to 14.2 Mgm per 100 cc the observations are hardly significant. Nishida⁶² found 10.41 Mgm in hypophysectomized dogs and 9.97 Mgm per 100 cc. in the controls.

†Anselmino and Hoffmann have had the kindness to send me their microscopical preparations.

‡This has also been found in the cat⁷ and in *Xenopus levis*⁷⁴ but in the rat there is no rise in the blood calcium following this treatment.

parathyrotropic factor has not been completely separated from other hormones but it is known that it is not ultrafiltrable and that it is destroyed by boiling.

The gonadotropic extract aggravates tetany and decreases the blood calcium of thyro-parathyroidectomized bitches, due to the increased secretion of estrin.⁴⁹

Hyperparathyroidism In seventeen out of 101 published cases of hyperparathyroidism an enlargement of more than one of the parathyroids has been reported. This fact has led to the belief that a stimulating action of the anterior pituitary may be a factor in the etiology of these cases.¹ Of special significance is the finding by Hertz and Albright that the injection of urine from patient with multiple parathyroid hyperplasia is capable of producing parathyroid hyperplasia in rabbits. Urine injection from cases of parathyroid adenoma does not produce this change.

Human hyperpituitarism In cases of acromegaly some observers have seen enlargement^{15 16 17} or adenomas^{1 21 22} of the parathyroids. Cushing and Davidson²³ noted a marked proliferative activity in one case and parathyroid adenomas in two others. In various postmortem examinations of acromegalics, abnormalities of the parathyroids have been reported. In one curious case of chromophobe adenoma of the pituitary Lloyd²⁴ found a simultaneous enlargement of the parathyroids and of the islets of Langerhans. In Cushing's disease cervico-dorsal kyphosis forms part of the syndrome. Osteoporosis and decalcification have been reported in fourteen out of twenty-four cases with postmortem examination in the literature. In nine of the fourteen cases collected by Cushing²⁵ there were spontaneous fractures, and osteomalacia was present in six.

The condition of the parathyroids is mentioned in fourteen of the twenty-four cases which we have found reported with a postmortem examination. In three cases there was an adenoma,^{21 22 26} in three the glands were enlarged,^{20 40 49} in six they were normal,^{2 15 19 41 73} and in one they were atrophied.²² Lipomatosis associated with other lesions was present in three of these cases and unassociated with other lesions in twenty others.^{20 40 41 69 71 72 73}

Cushing²⁵ believes that the basophilic adenoma of the pituitary produces a state of hyperparathyroidism which in its turn causes the bone lesions. Hoff,²¹ on the other hand thinks that in his case the pituitary adenoma was secondary to the hyperparathyroidism. Cushing's opinion meets with various objections. In most of the cases studied up to now lesions due to parathyroid hyperfunction have not been demonstrated. The bony lesions differ from those of

hyperparathyroidism, similar bony lesions have been found in cases of primary hyperinterrenalism. The blood calcium and inorganic phosphorus have been found to be normal, or the calcium slightly diminished and the phosphorus slightly increased.^{6 7 9 2 43 46 51 74 81} The negative calcium balance observed by Aub in one of Cushing's cases, is common to various bone diseases.⁶

In one of Cushing's cases Aub observed a marked amelioration of all symptoms including those related to the skeletal system following irradiation of the hypophyseal region. The negative calcium balance was also diminished.

THE PITUITARY AND PARATHYROID TETANY

Caselli, in 1900 reported that extirpation of the pituitary in dogs suffering from tetany due to parathyroid insufficiency caused a more rapid death without alteration of the symptoms. We removed the thyroids and parathyroids in eight hypophysectomized dogs and found that they developed tetany and died similarly to normal dogs which were thyro-parathyroidectomized.

Extract of the whole pituitary gland or of the posterior pituitary can temporarily calm the tetany^{11 38 40 64 66} after an initial exacerbation of the symptoms. The mechanism of this action is not clear since these extracts do not prevent the reappearance of attacks of tetany or the lethal termination of the condition. We could neither prevent nor cure tetany in thyro-parathyroidectomized dogs nor prevent the fall in blood calcium, by injecting large doses of an alkaline pituitary extract intraperitoneally for two to three days before or after the onset of tetany.

THE PARATHYROIDS IN PANCREATIC INSUFFICIENCY

Morphology With R Sammartino we have studied the parathyroids of twenty-nine totally pancreatectomized and eight partially pancreatectomized dogs. After one to three days with no insulin the cells of the parathyroids become vacuolated and appear large and clear (Figure 3). The vacuoles appear first near the connective tissue trabeculae, following which they increase in size and coalesce. Later the protoplasm liquefies and disintegrates the nuclei come closer together and form rows contiguous to the trabeculae, and the gland assumes a tubular aspect. In some cells there are also nuclear changes.

When the condition is more intense, the gland decreases in size and presents either an insular or a cord-like structure due to the decrease in the volume of the cells and the approximation of the nuclei to each other. Some of the latter become pyknotic.

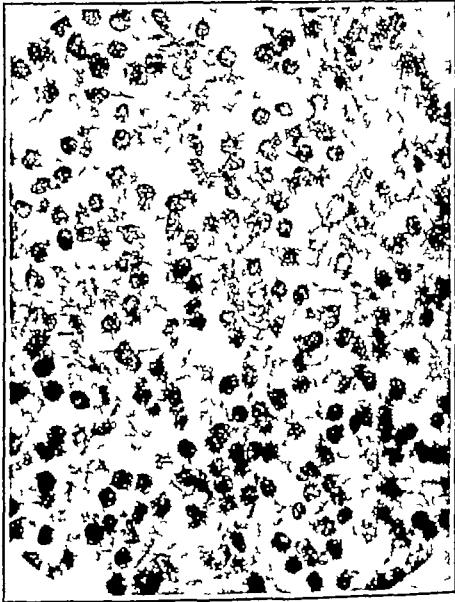
These lesions occur early, are intense and affect the whole gland (Figure 4). The syn-



A



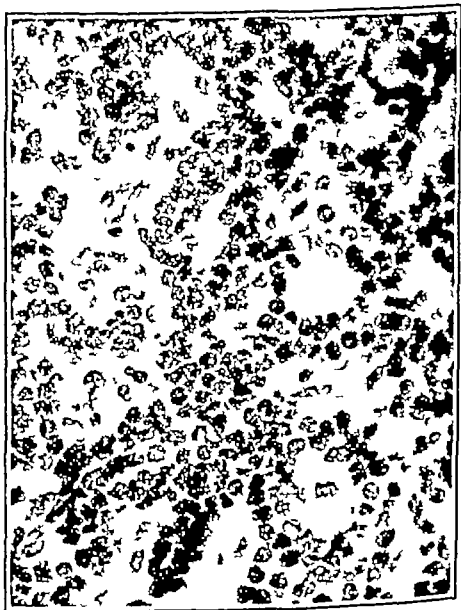
B



C

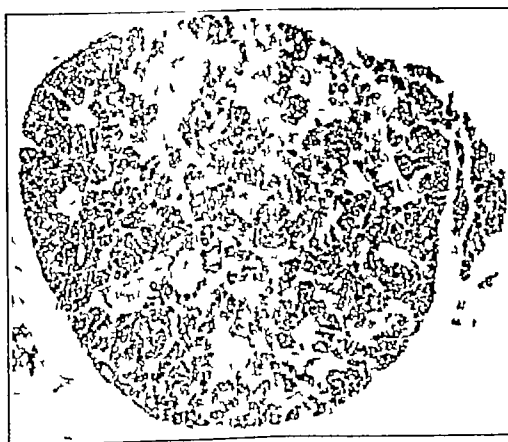
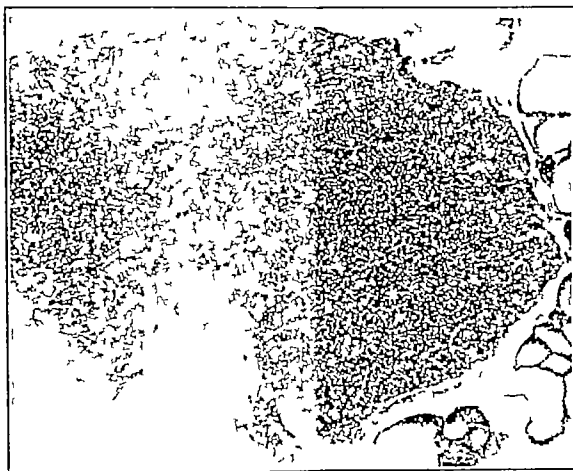


D



E

FIG 3



11

FIG. 4

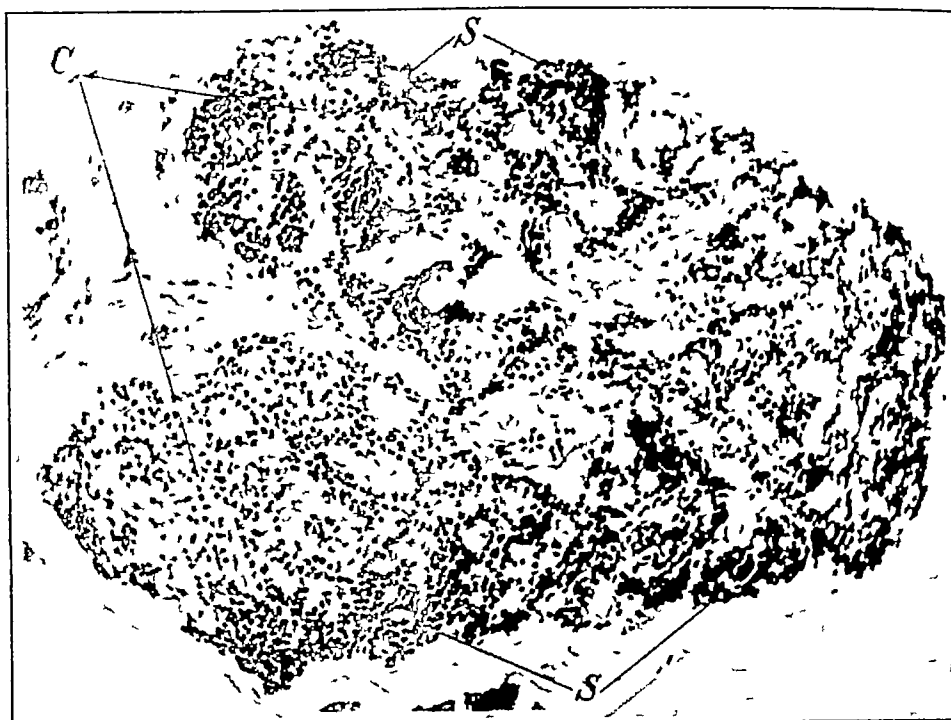
Section through the parathyroid glands of dogs

A. Normal

B. Following pancreatectomy showing the insular and cord-like structure

cytium like accumulations which occur frequently in hypophysectomized animals (66 per cent) are as infrequent in the pancreatectomized (two out of twenty nine) as in the normals (10 per cent). In contrast with the hypophysectomized animals where there is a global atrophy of the cells in the pancreatectomized there is vacuolization and disintegration of the protoplasm

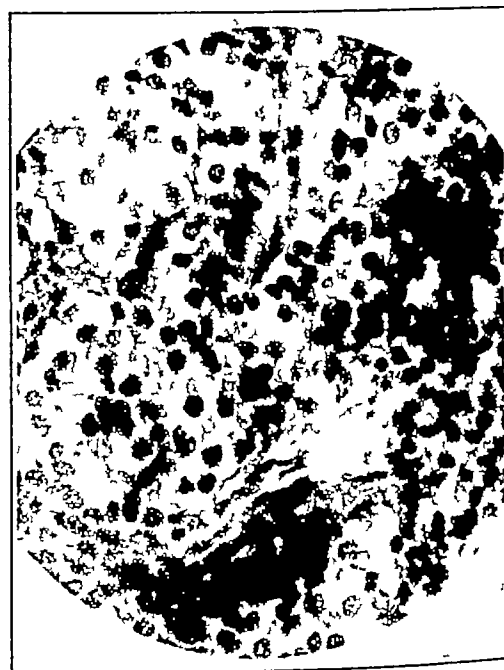
Calcemia The determinations made in our Institute on forty pancreatectomized dogs by Marenzi and Gerschlman²² show that blood calcium decreases from the normal level of 10.115 Mgm per 100 cc of plasma to 8.2105 Mgm in four days and to 7.396 Mgm in seven days. Determinations on twelve dogs showed that in two it fell to 9.291 in six to 8.188 and



A



B



C

FIG 5

Sections through the parathyroids of hypophysectomized pancreatectomized dogs

A Low magnification showing the general structure at S there are atrophic zones and syncytium-like groupings of cells at C occur areas of vacuolated and clear cells

B Higher magnification showing the acellular zones and syncytium like groupings

C Magnification as in B showing clear and vacuolated cells

in four to 7376, the average being 82 Mgm per 100 cc plasma. The decrease in blood calcium depends on the intensity of the diabetes and is less marked and occurs more slowly or may even be absent if the pancreatectomy is subtotal.

There is also an increase in the inorganic phosphorus which may reach 14 Mgm. per 100 cc of plasma (the average is 8.8 Mgm.), and a decrease in the sodium and chlorides the alkaline reserve and the total CO₂ (average 31.9 cc.).

Treatment with insulin prevents the decrease in blood calcium or causes it to rise if already diminished. We did not, however, obtain a return to the original level in our experiments nor did the histological appearance of the parathyroid glands become normal. This was probably due to the fact that the blood sugar remained elevated and the glycosuria did not completely disappear.

The injection of parathormone caused a rise in the blood calcium (up to 15 Mgm. in one case), just as in normal dogs.

Extract of anterior pituitary lobe was injected into the pancreatectomized animals but it resulted in an intensification of the diabetes leading to coma and death in one to two days with a marked hypocalcemia (averaging about 7 Mgm. and in one case falling to 3.9 Mgm. per 100 cc plasma).

The hypocalcemia and the changes in the parathyroids do not occur in dogs with intact pancreas under conditions of simple fasting or after the administration of phlorizin for a week either during fasting or with feeding, even though there is intense glycosuria and loss of weight.

Human diabetes. Krans¹⁹ has observed parathyroid lesions in some young diabetes the principal cells being poor in protoplasm with dark nuclei giving the appearance of lymphoid tissue. These are the etiological signs of atrophy and functional insufficiency. In adults there is less cellular alteration. According to Jansen²¹ the blood calcium is normal in diabetes except in certain isolated cases which have ketonuria. In these it may fall to 8.2—8.5 Mgm. per 100 cc (as compared with 11.5 Mgm. in normals). He attributes this fall to a loss of calcium in the feces due to the acidosis.

It is premature to attempt to connect the arthritis, catenets, bony alterations etc., of diabetes with an alteration in the calcium metabolism and parathyroid dysfunction.

THE PARATHYROID IN HYPOPHYSECTOMIZED-PANCREATECTOMIZED ANIMALS

Morphology. We found with Sammartino that the parathyroids in nine hypophysectomized pancreatectomized animals presented both

the lesions found in hypophysectomized and those seen in pancreatectomized animals separately (figure 5). In six such preparations there were abundant syncytium like groups of cells and structureless, degenerated basophilic zones. At the same time in extensive areas sometimes occupying the whole gland, there was vacuolization of the cells the latter becoming big and vesicular with transparent protoplasm. This is the appearance of the parathyroid in the early stages after pancreatectomy, and probably the lesions do not develop further as the diabetes is not so intense in the hypophysectomized pancreatectomized animals.

Calcemia. The calcemia of these animals is lowered as in the pancreatectomized, but the fall occurs more rapidly. Thus, in eight cases after four days, Marenzi and Gerschman²² found blood calciums of 8.10, 7.6, 8.6, 9.2 and 7.5 Mgm. (average 8 Mgm.) per 100 cc. The inorganic phosphorus rises less (average 5.7 Mgm.) than in the pancreatectomized animals, the alkaline reserve does not change greatly (average 54) the sodium and chlorides decrease, and, because of the hypophysectomy blood potassium also falls.

GENERAL SUMMARY

In the presence of pituitary insufficiency in the dog there is cellular atrophy in the parathyroids with foci or zones of accumulated nuclei, which simulate cords and occasionally acellular basophilic areas. These changes may be the result of general nutritive alterations or of the lack of parathyrotropic hormone.

The blood calcium is not altered probably because the parathyroid lesion is partial or incomplete.

Anterior pituitary extract increases the size of the parathyroids and their content of clear cells. It also raises the blood calcium but this rise does not occur when the parathyroids have been removed.

The theory has been put forward that an excess of parathyrotropic hormone may be the cause of human hyperparathyroidism but more observations are necessary for confirmation.

The state of the parathyroids in hyperparathyroidism has not been studied carefully in large series of cases. Adenomas have been found in cases of acromegaly and adenomas or enlargement in some cases with Cushing's syndrome but in general the parathyroids are normal or lipomatous in these diseases. Whether the origin of the osteoporosis in Cushing's syndrome is due to hyperparathyroidism or to the adrenals or to some other cause is not certain.

Pituitary extracts do not prevent or cure the hypocalcemia and tetany due to parathyroidectomy and the results following thyro-parathyroidectomy are similar in hypophysectomized and in normal dogs.

In pancreatic insufficiency in the dog there is vacuolization, liquefaction and later protoplasmic disintegration of the cells of the parathyroids. The nuclei remain isolated, forming tubes, rows or islets. In three to seven days the blood calcium is lowered to levels between 7 and 9 Mgm per 100 cc of plasma and the blood phosphorus increases. Insulin prevents the decrease of the blood calcium, but, in experiments at our Institute, late treatment with insulin, after the fall in calcium had occurred, was not completely effective in raising it to normal nor was the normal histological appearance of the glands restored. It should be noted, however, that in these experiments overnight hyperglycemia was not controlled and further observations are therefore necessary.

In hypophysectomized-pancreatectomized dogs the lesions due both to hypophysectomy, and to pancreatectomy occur side by side. The lesions due to pancreatectomy are not so severe as in dogs in which the pancreas alone has been removed though the hypocalcemia is similar in the two groups.

The proper functioning of both the pituitary and pancreas is necessary in order to maintain the integrity of the parathyroids. Insufficiency of one or the other of these glands results in different changes. Although proof for the theory is incomplete it may be suggested that in hypophysectomized animals there is a lack of a parathyrotropic hormone, which may or may not be a specific one, whereas, in the pancreatectomized animals, the changes may be due to nutritive disturbances associated with the diabetic condition.

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THE HYPOPHYSIS AND RESISTANCE TO INTOXICATIONS,
INFECTIONS AND TUMORS*

BY BERNARDO A. MOUSSAY, M.D.†

INTRODUCTION

In the early days of the study of endocrine glands it was thought that they possessed antitoxic functions. The disorders due to glandular insufficiency were attributed to toxins arising from metabolic processes or absorbed from the intestine. The toxins were thought to accumulate in the body because of the fact that they were neither destroyed in the gland itself nor neutralized in the blood or tissues by the glandular secretions. This antitoxic theory has deservedly collapsed since the supposed toxins have not been isolated nor has their existence been demonstrated in a way that would explain the functional disorders of the different glandular insufficiencies. On the other hand, several hormones are now known and some have been isolated in a pure state. These hormones prevent or cure the metabolic and their functional symptoms of the respective glandular deficiencies and if given in excess can produce signs of glandular hyperactivity.

The abandonment of the idea of an antitoxic function of the endocrine glands in favor of a hormonal function, has resulted in a belief of interest which reigned about a quarter of a century ago, in the study of the relation between the endocrine glands and immunity. Nevertheless this problem is of importance both in general pathology and immunology.

Very little work has been done on the pituitary from this point of view, probably because there are not many who have access to hypophysectomized animals and also because it has been only recently that active extracts have been obtained, even though these latter are still very impure and complex.

The pituitary may play a part in immunity and resistance to intoxications in various ways: (1) By direct antitoxic action (intra or extra glandular). (2) By its action on other endocrine glands. Since the anterior pituitary regulates the thyroids, adrenal cortex, gonads, parathyroids, etc. the activity of these organs is decreased in pituitary insufficiency and increased when this gland is overactive. (3) By action on the hematopoietic or phagocytic organs e.g. the spleen, thymus, etc. (4) By affecting metabolism and vasomotor reactions, the pituitary influences the resistance of the

body to agents which lower the blood sugar and to those which lower the blood pressure. The action of such agents is intense in hypophysectomized animals. For the first of these mechanisms there is no proof but the second third and fourth occur in cases to be mentioned later.

Extirpation and destructive diseases of the pituitary produce an experimental or pathological deficiency in those functions which are directly performed by the gland. This deficiency is compensated for or may even be overcompensated for by restitution (implantation of the gland or injection of extracts). Hyperfunction (experimental or pathologic) produces opposite and different symptoms from those of glandular insufficiency. When the action is indirect, through the effect on another gland (e.g. thyroid, adrenal cortex, etc.) disturbances occur which are common to pituitary insufficiency and to insufficiency of the said gland. These disturbances are corrected both by preparations of the affected gland (thyroid, adrenal cortex, etc.) and by extracts of the pituitary which are capable of stimulating the gland (thyrotropic, adrenotropic, etc., pituitary extracts). The last mentioned extracts are effective only when the respective gland is present and capable of responding to stimulation.

Specific neutralization of toxins or destruction of germs by the pituitary or its secretions has not yet been proved. There are, however, several ways in which it could take a part in immunity. Thus it might increase the general resistance of all the body cells or perhaps of only certain tissues to harmful agents; it might also enhance the capacity for antibody formation, or for the fixation and destruction of germs and toxins. Up to the present it is only possible to say that endocrine glands appear to play a certain rôle in immunity in an indirect way by means of their metabolic functions or other nonspecific activities, such as stimulation of phagocytosis, or maintenance of the integrity and resistance of the skin, the mucous membranes, etc.

THE PITUITARY IN INFECTIONS AND INTOXICATIONS

Infective Lesions of the Pituitary

The pituitary may be the site of infectious lesions.^{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100} In such as septic infarcts and abscesses, which in their ultimate evolution give rise to atrophy or fibrosis, the appearance of the syndromes of pituitary insufficiency and to Simmonds' hypophyseal cachexia.^{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100} Circumscribed tuberculous lesions affecting the

Received December 9, 1935 at Stanto University School of Medicine.

Bernardo A. Moussay, M.D., Professor of Physiology, Faculty of Medical Sciences, University of Buenos Aires, 1935. For record and address of author see "This Week's Issue" page 914, 1st issue, May 7.

Includes the early publications of 1916, 1917 and 1918. Numerous studies on these subjects have been performed in our Institute from 1920 to the present date.

pituitary as well as metastatic lesions from distant foci and invasion from neighboring tissues have been described^{1 5 10 20 26 36 42 44 48 50 51 52 54 63 64 68 69 74 77 84 88 etc} Syphilis^{1 8 9 10, 15 21 22 24 30 32 37 45 46 48 49 51 60 62 65 67 68 69 73 75 80 81 82 83 85 87 etc} may produce gummatous or fibrous lesions in the adult and congenital lesions in children. The *Treponema pallidum* has been found in the latter¹ (Dupré, Sabiazés). *Echinococcus*^{31 40 72} and *cysticercus*^{1 49} infections of the pituitary have also been known to occur. For further details the articles of Kraus² and Berblinger¹ should be consulted.

The Pituitary in Human Infections

The pituitary has been studied macroscopically and, what is more important, microscopically in various general infections in human beings, such as tuberculosis,^{19 26 48 50 65 77 79 etc} typhoid,^{25 28 41 77 79 etc} diphtheria,^{10 23 28 35 48 50 79 etc} smallpox,^{77 etc} erysipelas,^{77 etc} scarlet fever,^{56 etc} tetanus,^{77 79 etc} the septicemias,^{11 19 77 79 etc} intestinal obstruction,^{77 etc} pneumonia,^{25 28 77 79 etc} rabies,⁵⁷ typhus,^{77 79 etc} encephalitis lethargica,⁴¹ bronchopneumonia,^{25 28 77} and also in distemper in dogs²⁴. The older observations were made with imperfect staining techniques and it was believed that in acute infections an initial hyperactivity,^{25 79} followed later by exhaustion and hypoactivity (Dehille) occurred while in chronic infections there was only hyperactivity. The cytological changes have been described more accurately by more recent workers.

Modifications of the Pituitary in Experimental Infections and Intoxications

A number of descriptions have been given of the histological changes occurring in the pituitary of animals which had been subjected to various experimental procedures. The procedures used included the following: inoculation with diphtheria bacilli or toxins,^{4 10 89 77 80 etc} typhoid bacilli,⁷⁷ staphylococci,¹¹ streptococci,¹¹ and tubercle bacilli,¹¹ also with the toxins of worms^{12 71 etc} and with eel-serum,³⁹ ligation of the common bile duct,³⁹ the intestine³⁹ and the ureter,³⁹ injection of pilocarpine,^{39 77 etc} alcoholic poisoning⁶⁰ and production of uremia^{1 25 39 54 56 76 77 etc}. Solely on the basis of interpretations of the histological changes, it has been supposed that there is an initial hyperactivity leading to exhaustion and functional insufficiency.

Functional Changes of the Pituitary During Infections

The functional changes in the pituitary during infections and intoxications are not accurately known, since no method is available by which the pituitary secretion can be measured

in the blood, neither has the relation between the histological aspect of pituitary glands and their activity, as demonstrated by implantation or by injection of extracts made from them, been investigated. Del Castillo, in unpublished work, found that there was no change in the gonadotropic effect of the pituitary of rats inoculated with *Trypanosoma equiperdum* on the immature ovary. The animals were killed eight to twelve days after inoculation with a strain that killed the majority of inoculated rats in ten to twelve days.

Azam⁷ and Dehille,²⁵ pupils of Renon, attribute the tachycardia, hypotension, insomnia, anorexia, sweating, etc., of acute infections to pituitary insufficiency, although it is by no means certain that these are the symptoms of such insufficiency. The fact that pituitary extracts produce some rise in blood pressure, strengthen the beat and slow the rate of the heart, increase diuresis, etc., is not enough proof to support their theory.

It has been thought possible that the exaggerated increase in height of young typhoid convalescents might be due to pituitary hypersecretion,^{11 24} though, of course, it might also be due to the direct action of the typhoid bacilli or of their products on the cartilage. Sometimes tuberculous children grow very rapidly when they reach adolescence and show signs of progeria, but it has not been shown whether these symptoms can be attributed to hyperpituitarism or to a toxic action of the disease on tissue growth.^{34 53} Neither can it be affirmed that the sexual retardation and amenorrhea of tuberculous adolescents are due to overactivity of the pituitary.⁵³

RESISTANCE OF HYPOPHYSECTOMIZED ANIMALS TO INJECTIONS AND INTOXICATIONS

Sensitivity to Anesthetics and Hypnotics

Chloralose anesthesia is not well tolerated by hypophysectomized dogs.¹⁵³ In 1932 we started to use ether instead of chloralose and the mortality in the first week after operation dropped from 75 per cent to 15 per cent. On the other hand it is necessary to use a larger dose of chloralose than the usual one to anesthetize hypophysectomized or thyroidectomized dogs which have been previously treated with thyroid (1 to 4 Gm. daily of bovine extract for four to six days). This is also true in the case of hypophysectomized dogs after treatment with anterior pituitary thyrotropic extract. Ether anesthesia, however, gives unsatisfactory results in hypophysectomized toads.

The hyperglycemia due to morphia is less marked in hypophysectomized toads than in the controls, and implantation of the glandular lobe increases it.¹⁵⁰ In the hypophysectomized dog this hyperglycemia is on the average higher

than in the controls, but the difference is not statistically significant.¹¹⁰ Ten hypophysectomized dogs presented similar symptoms to those seen in twenty controls when given a subcutaneous injection of 30 Mgm per Kgm of morphine chloride, one hypophysectomized animal, however, died two hours later in deep coma while another had convulsions and respiratory failure, but was saved by artificial respiration. These two animals were the only ones which had practically no rise in blood sugar. Diabetogenic anterior pituitary extract increases the hyperglycemia due to morphia in dogs.¹¹⁰

Sensitivity to Operations

Tadpoles deprived of the buccal pituitary anlage have a diminished resistance to unfavorable conditions.⁹⁹ Hypophysectomized toads and those whose glandular lobe alone has been removed, remain active and appear to be in good condition for about three weeks after the operation. Soon after this they become aemic and this disturbance increases progressively until death occurs.¹⁰ In spite of their apparently good health, from the very beginning, they are killed by many operations (e.g. on the testes, the thyroid adrenals and even cloacal ligature) which are well tolerated by the controls.^{123 112 107} etc. If however these operations are performed five to ten days before the hypophysectomy many animals survive.

Smith¹⁰⁰ stated, and it has been confirmed that hypophysectomized rats present a general physical impairment characterized by a lowered resistance to operative procedures although the wounds heal well.¹⁰² Hypophysectomized rabbits also have a diminished resistance to surgical trauma.^{104 105}

Hypophysectomized dogs are very sensitive to injuries, exposure and bad feeding. They readily become anorexic, which leads rapidly either to cachexia or death in hypoglycemia.^{100 105} Nevertheless with care a large number can be kept alive, even after the removal of one or more other glands besides the pituitary (e.g. ovaries, thyroid and pancreas).

The hypophysectomized pancreatectomized animals, which have less hyperglycemia, glycosuria, azoturia and acidosis, live longer than the pancreatectomized animals with the pituitary intact, in which the diabetes is more intense. In the former group with an attenuated diabetes, the wounds suffer less from infection and heal even though no insulin treatment is given but they never do so well as the hypophysectomized animals with the pancreas intact.

Sensitivity to Infections

According to Aschner⁹⁰ hypophysectomized dogs have a diminished resistance to infections, being particularly sensitive to mange and Cushing¹⁰⁰ also states that hypophysectomized

dogs are more susceptible to infections and that their resistance is diminished. We have not confirmed this increased susceptibility having found that mange is readily cured by sulphur¹⁴¹ but we have noted that when infected or ill these dogs readily become anorexic, hypoglycemic or cachectic and die. The wounds of hypophysectomized toads (or those without the glandular lobe) are more readily infected and heal slowly and with difficulty (Magdalena Aubrun Pasqualini, etc.). Also their cutaneous glands are frequently invaded by cocci (Aubrun and Porto, unpublished). Hypophysectomized rats show the same sensitivity to caries of the molars as do the normal animals.¹⁰¹

Cushing¹⁰⁰ described acute or infectious processes as occurring in seven of his patients notably in those with a primary hyperpituitarism. There also seemed to be a definite susceptibility to infection in his cases of pituitary basophilism.¹¹⁰ Atkinson⁶ found that out of 1319 published cases of acromegaly only twenty had tuberculosis as well and that six of these died of the infection.

Sensitivity to Intoxications

There are four groups of toxic agents which are poorly tolerated by hypophysectomized animals, namely anesthetics, blood sugar reducing agents, blood pressure reducing agents and those agents which have intense adverse effects on thyroidectomized or adrenalectomized animals.

Blood Pressure Lowering Agents

The hypersensitivity to histamine and to other shock inducing agents pertains to this group.

Amphibians Removal of the pituitary does not alter the sensitivity of the frog (*Leptodactylus ocellatus*) to veratrine¹²¹ or of the toad (*Bufo arenarum* Hensell), twenty days after the operation to morphine atropine curare and veratrine.¹²¹

Rats Three or more weeks after hypophysectomy in the rat the toxic dose of cobra venom is only two thirds of that necessary to kill the controls.⁹² The minimum lethal dose of histamine is halved if the hypophysectomy is total and there is an initial hypotension but is unchanged if only the posterior lobe has been removed and there is no hypotension.¹⁰⁴ According to Perla¹²¹ the toxic dose of histamine for hypophysectomized rats (one to ten weeks after operation), which show atrophy of the internal part of the adrenal cortex may be one third or even only one fifth of that for normal rats. When a sufficiently large part of the anterior lobe is left there is no alteration in the adrenal cortex or in the sensitivity to histamine. Perla believes that the increased sensitivity is due to hypofunction of the adrenal particularly as

treatment with cortin increases the resistance to histamine, although it does not modify the adrienal atrophy

Putnam¹⁵² found that a dose of glycine which did not affect the controls caused a decreased metabolism and death in six to twelve hours in hypophysectomized rats

Dogs Ferrer Zanchi¹¹⁸ injected several dogs with a suspension of dead typhoid bacilli. The eight controls survived but two out of six hypophysectomized animals died, one an hour after receiving 2500 million bacilli per Kgm, the other twenty-four hours after receiving 500 million per Kgm. This is not surprising since hypophysectomy in the dog produces a slight lowering of blood pressure and a slower recuperation of the normal blood pressure level after bleeding¹⁰¹. This slight hypotension has been observed in the rat¹⁰⁰ and is much greater in the toad¹⁷⁷. Braier¹⁰⁰ noted that injections of B. Coli vaccine caused a less marked rise of the basal nitrogen and creatinin excretion in hypophysectomized dogs, than in the controls but the rise of temperature was similar in both groups

Agents Acting Through the Thyroid

Anterior pituitary extracts, through their thyrotropic action, cause great sensitivity to anoxemia in rats, guinea pigs,¹⁴⁰ and mice¹⁰¹. This sensitivity is not observed when the thyroids have been previously extirpated¹⁴⁰. It may be remarked that hypophysectomized rats tolerate anoxemia more or less as the normal animals do (Chioldi and Raetti, unpublished)

The fall in body temperature provoked by novocaine is reduced or prevented in guinea-pigs¹⁰⁰ and anesthesia by chloralose is somewhat impeded in the dog, by treatment with thyrotropic pituitary extract

It is known that the resistance of the white rat to the toxic action of acetonitrile is increased by the ingestion of thyroid (Reid Hunt's effect). Injections of thyrotropic preparations of the anterior pituitary lobe produce a similar effect,^{173 176 178 179 180*} because they stimulate the thyroid to greater activity. This effect of anterior pituitary extracts has not been observed in thyroidectomized animals^{178 179}. The serum of men¹⁷⁵ and dogs¹²⁵ after treatment with anterior pituitary lobe increases the resistance of rats to acetonitrile, but the serum is without effect in the absence of the thyroid. Oehme, Paal and Kleime¹⁷⁶ believe that the active substance is other than the thyrotropic principle of the anterior pituitary, for it appears to be active *per os*, and does not cause histological changes in the thyroids. Posterior pituitary extract also increases the resistance

to acetonitrile, without stimulating the thyroids¹⁵⁴

Hypoglycemic Agents

In 1924 Magenta and I found that hypophysectomized dogs are very sensitive to the hypoglycemic action of insulin. Later, with Biasotti and Braier, we found that in these animals a number of different agents readily produce hypoglycemia, with severe symptoms such as convulsions and coma leading to death. This can be prevented by early treatment with glucose, posterior pituitary extract or adrienalin, it being necessary sometimes to repeat the treatment. The hypoglycemia can also be prevented by treatment with anterior pituitary extract for two to three days. It should further be noted that hypoglycemic crises occasionally occur spontaneously in hypophysectomized animals, whether the pancreas is present or not. They are frequent during the secondary fall in blood sugar which follows the hyperglycemia of adrienalin during fasting, and are constant after several days of fasting and also after the injection of phlorhizin or insulin.

Injection of phlorhizin produces fatal hypoglycemia in fasting hypophysectomized dogs¹³⁵ and in hypophysectomized toads¹¹³. This is prevented by feeding the dogs on a protein or carbohydrate diet, but not by fat diets^{137 181}. Treatment with alkaline anterior pituitary extract, before and during a fast of five to six days, prevents the hypoglycemia and death following phlorhizin¹³⁷. Fasting hypophysectomized dogs, after adrienalin hyperglycemia, have an accentuated secondary hypoglycemia, giving rise to hypoglycemic crises^{100 162}.

Aschner⁹⁰ believed that although hypophysectomized dogs have a diminished resistance to intoxications, they tolerate subcutaneous injection of adrienalin better than the controls since they do not develop local necroses and they show a lower glycosuria. Braier¹⁰⁰ injected adrienalin intravenously (0.5 Mgm per Kilogram in twenty minutes) in fasting hypophysectomized dogs, and found during the first six to seven hours a slightly larger decrease in the excretion of nitrogen and urea than in the controls. There was also a lower hyperglycemia, with a marked secondary hypoglycemia, which gave rise to convulsions in three out of five cases, two of these were saved by treatment, but the other died during the night. When the animals were fed, the hyperglycemia was the same or greater than in the controls. In dogs and men suffering from pituitary insufficiency Lucke¹⁶² observed a much greater rise in blood sugar following adrienalin, followed later however by a larger fall and a higher renal threshold. In hypophysectomized rabbits the hyperglycemia occurs more slowly and is not so great as in the controls^{120 150}.

*Rietti could not confirm this but his mice reacted very irregularly to acetonitrile

The extreme sensitivity of hypophysectomized animals to insulin was discovered by us.¹¹³ Doses, which in the controls cause very slight lowering of the blood sugar with no symptoms cause an intense hypoglycemia in the hypophysectomized animals with convulsions and coma invariably ending in death unless intense and repeated treatment is carried out. This extreme sensitivity to the hypoglycemic and toxic action of insulin has been observed in dogs,⁹⁴ 95 109 117 121, 1 2 143 144 165 16 161 etc. cats,¹⁶⁶ monkeys,¹⁻⁷ rabbits,¹⁰⁴ 105 1 0 157 156 187 188 and man,⁹¹ 108 1 5 16 166 etc. but apparently does not occur in birds,^{1 9} it is also observed in hypophysectomized pancreatectomized dogs (Regan and Barnes,¹⁸⁴ Houssay, unpublished data) It does not occur in dogs with severe lesions of the basal or retro hypophyseal part of the tuber cinereum¹⁴² or in rabbits with the midbrain excised.¹⁸⁰

According to Geiling and his collaborators the sensitivity to insulin is due to deficiency of the posterior pituitary lobe but on the basis of our experiments we attribute it to anterior pituitary deficiency. Extracts of the posterior lobe can, to a certain extent, counteract the hypoglycemia and its severe symptoms in the dog,^{122, 113} and toad,¹⁴⁶ though vasopressin may not be efficacious in the rabbit.¹⁰ Animals with intact adrenal medulla which are hypersensitive to insulin, can also be successfully treated with posterior lobe extract.¹²²

The protective action of the anterior pituitary lobe extract is very potent, far more so than that of the posterior lobe extract. It is able fully to counteract the sensitivity to insulin and also to raise the resistance both in hypophysectomized and normal toads,¹⁴⁶ dogs,¹¹⁴ 101* and rabbits.¹⁰⁴ The anterior pituitary extract requires one to two days to increase the resistance,¹¹⁴ and therefore is not efficacious in animals already in convulsions and coma.¹¹³

This protective action also occurs in thyroidectomized hypophysectomized animals (di Benedetto Houssay etc.) The sensitivity of the thyroidectomized rabbits and dogs to insulin¹⁰¹ (Houssay etc.) is greatly increased if hypophysectomy is also performed. For this reason we can exclude the explanation that diminished resistance to insulin following hypophysectomy is due to hypothyroidism.

It has been thought that this diminished resistance might be due to adrenal insufficiency because adrenalectomized animals are hypersensitive to insulin¹⁶⁰ 101 and in pituitary insufficiency there is some atrophy of the adrenal cortex. The following objections may be raised against this theory. Anterior pituitary extract has a diabetogenic action in pancreatectomized

toads, in adrenalectomized toads and in dogs lacking the adrenal medulla. It also protects these latter from insulin. According to Barnes, Dix and Rogoff, hypophysectomized animals require more adrenalin to prevent convulsions than do those with denervated adrenals. They interpret this observation as showing that hypophysectomized animals do not liberate adrenin during insulin hypoglycemia. On the other hand Cope and Marks¹⁰⁴ demonstrated that there is adrenin secretion for which reason they believe that the anterior lobe of the pituitary maintains the glycogenolytic action of adrenin normal.

There are insufficient observations to draw definite conclusions regarding modifications of the sensitivity to insulin in the diabetes of acromegalics. Some authors have observed an increase in the resistance to insulin,¹¹⁰ 102 108 103 etc. others have found it the same as in other diabetics,⁹¹ 103 128 150 163 169 185 197 etc. and even hypersensitivity has been described.¹⁰⁰

Our opinion is that in pituitary insufficiency a hormone is lacking which plays an important role in carbohydrate metabolism, hypersensitivity to insulin is due to the absence of this hormone which acts as a stimulating agent for the production of glucose.

Antitoxic Action of the Extracts

Much work has been done to find out if pituitary extracts can neutralize poisons or increase the resistance of animals to these agents but the results are not conclusive. Delille¹¹² tried injecting pituitary extract and various poisons (potassium arsenate atropine mercury cyanide strychnine human urine) together and separately, but obtained no definite results. Marañón and Aznar¹⁷⁰ state that posterior pituitary lobe extract prevents the toxic action of strychnine in the guinea pig so that convulsions and death do not occur. These results have not been confirmed by our experiments.¹⁴⁰ Mariante¹⁷² stated that posterior lobe extract masked the toxicity of morphia, but this also was not confirmed by our experiments in guinea pigs and pigeons.^{121, 140}

Phagocytosis and Opsonins

There are a number of scattered observations on the relation of the pituitary to phagocytosis and opsonins of which the following may be mentioned. Carbon dioxide does not produce leucocytosis in hypophysectomized guinea pigs, but if these animals are treated with pituitary extract, they respond normally.¹⁰³ The injection of extract of horse pituitary causes a transient increase in the phagocytic power of the leucocytes and later a diminution.¹⁷¹ Injection of hypophysin increases the complement in the serum.¹⁶¹ Pituitrin lowers the opsonic index

*The commercial extract used by Lucke of unknown preparation, has posterior pituitary lobe properties. It has a immediate slight glycaemic action which does not occur in the absence of the adrenal.

against staphylococci and tubercle bacilli in rabbits¹⁰⁴

Parodi (unpublished work) in our Institute has found a marked decrease in the phagocytic powers of the polymorphonuclear leucocytes in the blood of hypophysectomized dogs, using Radsma's modified method he found that 50 ± 1.9 per cent of the leucocytes ingested starch in the controls, but only 20 ± 5.2 per cent in the hypophysectomized animals. Peritoneal injection of alkaline extract of anterior lobe greatly increases phagocytosis but this cannot be considered a specific action as extracts of muscle and kidney will also do this. It is possible that the diminished phagocytosis found in hypophysectomized animals is due to hypothyroidism.

Antibody Formation

Borchardt⁹⁸ states that injection of pituitum raises the agglutinating power of the serum in animals or men injected with typhoid bacilli. Cutler,¹⁰⁷ however, found an equal formation of these agglutinins in normal and in incompletely hypophysectomized guinea pigs, and also an equal formation of hemagglutinins and hemolysis on injection of chicken erythrocytes. He further showed that neither ingestion nor intra-peritoneal injection of pituitary extract altered the course of immunization.

Ferrer Zanchi¹¹⁶ in our Institute immunized four hypophysectomized dogs and five controls with doses of 2,000 to 5,000 millions of dead typhoid bacilli per Kgm of body weight. The agglutination curves and maximum titres were similar in both groups.

Savino,¹⁵⁰ also in our Institute, immunized five normal and seven hypophysectomized dogs with diphtheria anatoxin during twelve weeks. The individual titres of the sera tested every two weeks showed a more rapid immunization in the hypophysectomized animals, the serum of which always reached a higher final antitoxic value. The average was 38 ± 6.1 A U for the hypophysectomized compared with 26 ± 5.5 A U for the controls, a difference of 12.3 ± 2.6 A U. This may be explained as due to hypothyroidism¹¹⁰ to hypersensitivity, to slower absorption of the anatoxin or to general nutritive changes.

In contradistinction to Jungeblut and Engle,¹⁵¹ Hudson Lennette and King¹⁴⁷ found that gonadotropic pituitary extract did not cause the appearance of any activity antagonistic to poliomyelitis virus in the serum of monkeys, nor did it increase the resistance of these animals to intracerebral inoculation.

THE PITUITARY AND CANCER

Tumors of the Pituitary—The pituitary frequently is the site of adenomatous proliferation or of true adenomas of acidophilic, basophilic, chromophobic or mixed types which give

rise to more or less specific symptoms. Malignant adenomas or adenocarcinomas may also occur. Besides these, angiomas, fibromas, teratomas, adamantinomas, etc., have been found. There is a special group of tumors known as tumors of the pituitary canal, which consist of craniopharyngiomas and teratomas.^{1209 210 211 220 228 275 etc.} In addition, metastases from various origins occur in the pituitary^{230 236 238 266 274 280 etc.} giving rise to certain symptoms (polyuria, etc.). When sarcoma is implanted into the gland in the rabbit it does not proliferate as much as in other tissues.²²⁷

The Pituitary in Cancerous Patients

Various histological^{1201 215 233 236 261 265 274 279 280 etc.} changes have been described in the pituitary gland found at autopsy on cancerous patients, e.g., increase in the principal cells,²²³ increase²¹⁵ or decrease of the basophiles,²³⁸ increase in the weight of the gland and in the number of the eosinophiles,²⁸⁰ signs of hyperactivity of the anterior lobe, and of hypoactivity of the posterior.²⁷³

In rats with subcutaneous implantation of tumors there is an increase and vacuolization of the basophile cells of the pituitary, with enlargement of their Golgi apparatus. The changes are similar to those produced by castration, although the sexual cycle is not affected. If these pituitary glands are then implanted into immature rats it can be demonstrated that they have an increased gonadotropic activity.²²⁶ If the cancerous implantation is made into the uterus there is a larger increase of the eosinophile cells of the pituitary and less of the basophiles, and the pituitary appears like that of pregnancy or after the injection of estrin.²⁷⁵

Hypophysectomy and Cancer

Hypophysectomy before or after implantation of tumors causes a retardation of their growth in rats^{109 202} but does not completely stop it,^{243 255 260} although it has been observed occasionally that shrinkage occurs and fewer of the implants take.^{244 202 263} There are also fewer metastases, but the resistance of the animals is diminished.²⁴⁴ In hypophysectomized rabbits also a diminished growth of implanted sarcoma has been observed,²²⁷ although with partial hypophysectomy teratocarcinoma may develop more rapidly than in the controls.²³⁴ Irradiation of the pituitary with x-rays diminishes the growth of cancer in rats^{203 247} but it has not been proved that this treatment produces any real change in the gland.

Gonadotropic Substances in the Urine of Cancer Patients

The urine of certain cancer patients will cause ripening of the follicles in the ovary of immature rats and mice.^{108 281 etc.} Zondek attributes

this effect to a substance he calls prolan A. This occurs in 60 to 80 per cent of cancers of the female genital apparatus¹⁹³ 01 21 10 221 22, etc. and almost constantly in cases of moles or chorioepitheliomas¹⁹⁸ 04 05 16 21 28 9 35 218 25 253 260 267 281, etc. In the latter there may be as many as 200 000 to 700 000 rat units per litre which is of great diagnostic value²⁰³ 229 241 etc. In cases of testicular tumors, particularly in those of embryonic nature, enormous quantities of gonadotropic substances occur²⁰⁰ 214 215 218 26 8 217 31 etc. which are described as prolan A but differ from this. The high content found in moles and tumors compared with the small amount in the pituitary, leads one to the conclusion that it originates in the tumors and not in the pituitary; this is also borne out by the differences in the action of prolan A and anterior pituitary extracts.

Carcinogenic Action of Pituitary Extracts

Hofbauer²²¹ insists repeatedly on the danger of anterior pituitary extracts since prolonged administration in guinea pigs produces hyperplasia of the endometrium and precancerous lesions of the uterine neck. Overholser and Allen²²¹ also found atypical epithelial proliferation and possible metaplasia, which seemed to be precancerous lesions; other investigators²⁰⁶ etc. do not admit that these are precancerous.

Action of Pituitary Extracts on Cancer

Posterior pituitary extracts (pituitrin etc.) have no influence on the growth of implanted tumors or human cancers²⁰² 219 27 67 71 272. With several anterior lobe extracts various results have been obtained depending on the injected substances, the type of tumor and the rapidity of its growth, in some cases an accelerating effect was observed,²⁰² 219 272 227 55 272, etc. in others there was no alteration. The inhibitory action on tumor growth by prolan A described by both Zondek and Hartcock²⁴² has received some confirmation⁰⁷ 211, 24 280 61 etc. but other investigators have not observed this effect, or else obtained merely a nonspecific weakening in growth²²³ 224 22 39 46 278 etc. The disturbing effect on tumor growth *in vitro* described by Reiss and Hochwald²⁰ Kriesch and Victorisz²¹⁰ has not been confirmed²⁴⁹.

GENERAL DISCUSSION

The existence of a direct antitoxic or anti-infectious action of the pituitary gland or its secretions has not been proved but the gland can modify the resistance of the animal by its metabolic action its regulating action on the thyroid or adrenal and on the vascular or nervous systems.

The gland can show certain histological changes during infections or intoxications, but

their functional significances are not understood. It has been thought that the increased growth in typhoid convalescents or sexual retardation and amenorrhea in adolescent tuberculous patients may be due to functional changes in the gland but as yet there is no proof of this.

Anesthetics and hypnotics are not tolerated well by hypophysectomized animals and after operation some species are more susceptible to infections, poisons of the nervous system (cobra venom, morphia, chloralose), blood pressure lowering agents (histamine, etc.) and blood sugar lowering agents (insulin, phlorhizin, etc.). Hypophysectomy because it produces hypothyroidism provokes a decrease in phagocytosis and accelerated formation of antitoxins (in dogs), the agglutinin production not being changed. The thyrotropic hormone of the anterior pituitary, by stimulating thyroid activity causes hypersensitiveness to anoxemia in rodents, in the mouse an increased resistance to acetone and in the dog a slightly increased resistance to chloralose occurs.

The pituitary can be the site of benign or malignant new growths, also of metastases. The structure of the pituitary is modified in patients suffering from cancer. Hypophysectomy retards but does not prevent the growth of tumors and diminishes the number of implantations which take probably this is due to a metabolic action which should be studied. The urine of cancerous patients (especially cases of uterine tumors, moles testicular tumors) has a powerful gonadotropic activity. Pituitary extracts can accelerate the growth of certain tumors. In some cases prolan A has an inhibitory action but its specificity and its practical importance are doubtful.

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FOODS CONTAINING ARSENIC AND LEAD

The Department of Agriculture has consistently maintained that foods containing added arsenic and lead in amounts held by qualified scientific opinion to be poisonous or deleterious constitute a definite menace to public health and, under the pure food law, are subject to action. As the result of intensive activities over a period of many years the Food and Drug Administration encounters today relatively few interstate consignments of fruits or fruit by products containing dangerous quantities of lead and arsenic.

The Washington Dehydrated Food Company was found guilty in 1933 in the Federal court in Yakima, Washington, of a violation of the Federal Food and Drugs Act in shipping in interstate commerce stocks of apple chops carrying residues of poisonous lead and arsenical sprays which might render them injurious to health. The firm later marketed apple chops containing lead and arsenic in amounts deemed by eminent toxicologists to be capable of injury to health. One of these shipments involved a consignment destined for export to France. The Government instituted seizure proceedings when lead and arsenic in such amounts were found, taking the position that the pure food law does not sanction the practice of making foreign countries a dumping ground for foods not measuring up to the criteria of fitness set for our own country. The lower Federal court in that instance, however, ruled against the Government, holding that the shipment fell within a proviso in the food law exempting, under certain conditions, violative shipments consigned to foreign shores. The court also expressed doubt as to the deleteriousness of the material.

An outgrowth of this adverse decision was the institution of a suit for damages by the president of the Washington Dehydrated Food Company against administrative officials of the Department of Agriculture who, in carrying out their duty, had reported the facts as to the arsenic and lead content of the export shipment. The civil suit for damages resulted in a hung jury and is of vital interest to every consumer since in its larger aspects it involved the

question as to whether a Federal officer, in the discharge of his official duties under the Food and Drugs Act, can be held personally liable for damages for reporting facts to his superiors in the event of an adverse court decision under the Food and Drugs Act. The action in St. Louis is the most recent chapter in the various legal actions which have grown out of shipments by the Washington Dehydrated Food Company—*Bulletin*, U. S. Department of Agriculture.

COOK PORK WELL TO PREVENT TRICHINOSIS

Reports received by the Department of Agriculture of several recent cases of illness and some deaths from trichinosis justify a repetition of the warning to cook pork thoroughly before serving. The parasites occur in a small percentage of hogs, which themselves suffer no apparent inconvenience. But the meat of such hogs, unless well cooked, constitutes a considerable danger to human health.

The assumption that pork which has passed inspection by a federal organization is safe even when eaten raw or undercooked is erroneous. There is no test that will show definitely whether trichinae are present in a sample of pork, except in some cases of severe infestation. Certain products that are customarily eaten without cooking in the home are given a special processing at federally inspected establishments, and are free from live trichinae. Pork products of the kind that ordinarily are cooked in the home are not processed in meat packing establishments, since thorough cooking is a complete safeguard.

When infested pork is eaten by human beings in a raw or insufficiently cooked state, the trichinae are set free in the digestive tract where they give rise to numerous young worms. The latter invade the muscles, thus causing the painful disease, trichinosis, which somewhat resembles typhoid fever, meningitis, and several other diseases that are characterized by fever. Severe cases of this disease are likely to result in death.—*Bulletin*, U. S. Department of Agriculture.

MENORRHAGIA OCCURRING AT THE ONSET OF CATAMENIA
IN A PATIENT WITH THROMBOPENIC PURPURA

Report of a Case

BY ARTHUR STERN, M.D.*

SINCE Werlhof in 1781 first described essential Thrombopenic Purpura, many syndromes, characterized by a diminution in the number of platelets, have been described and several classifications proposed. That most commonly accepted¹ consists of two main divisions

1. Symptomatic Thrombopenic Purpura and
2. "Essential" Thrombopenic Purpura the latter so termed because no specific etiological factor can be found to explain the lack of platelets in the blood stream. Very briefly the characteristic findings in this second group (Werlhof's disease) are those of spontaneous hemorrhage into the skin and mucous membranes, a fall in the total count of platelets, prolonged bleeding time, normal clotting time, nonretractile clot and increased permeability of capillary walls.²

Many theories have been advanced to explain the thrombopenia and hemorrhagic tendency. As usual, their multiplicity bespeaks their inadequacy. Denny³ in 1887 first noted the thrombopenia and suggested it as the main factor in the causation of the hemorrhages, but other investigators⁴ have reported several cases in which the other cardinal symptoms were present including hemorrhage but in which the platelet counts were normal or only slightly reduced. They were of the opinion that increased permeability of capillary vessels is the essential feature. Others have proposed theories of "splenic toxicity" with inhibition of megakaryocytes in the bone marrow, qualitative changes in the platelets and increased phagocytosis of platelets by the cells of the reticulo-endothelial system.^{5, 6, 7}

One of the phenomena noted in essential thrombopenia is excessive menstruation usually in the form of menorrhagia often associated with severe and sometimes fatal consequences. A cursory review of the literature discloses many cases of this type reported in the foreign literature but relatively few in this country. Menstrual abnormalities are usually investigated from an endocrinological or gynecological viewpoint. It is probably true that few clinicians think of blood dyscrasias as an etiological factor in their production. The rapid almost fulminating course and the effective although non-specific treatment available for these patients, make it important that they be recognized fairly early.

REPORT OF CASE

First admission December 1 1930

N. M., a white Italian child was eight years old when first admitted to the Worcester City Hospital. She was a full term normally delivered baby with an uneventful infancy except for whooping cough at one month of age. Her tonsils and adenoids were removed at four years of age without bleeding. There was no history of purpura, hemophilia or any other familial disease. About one year before entry many small black and blue marks had appeared on both legs. Since then she had never been free from at least one ecchymotic area on her body. About one month before entry she ran into a playmate. Ecchymosis of her face and severe nosebleed followed this episode. After that she suffered from recurrent epistaxis. There was also bleeding from her gums when brushing her teeth. Physical examination showed a well-developed and nourished child. There were ecchymotic areas over her right shoulder and both lower extremities. The liver and spleen were not palpable. Laboratory data: R.B.C. 4,070,000 W.B.C. 11,800 Hgb. (Dare) 60 per cent. A smear showed great paucity of platelets and a count gave 16,000. Bleeding time was twelve minutes and clotting time eleven minutes. The clot retracted in three hours (venipuncture). Serum calcium was 9.1 mg and phosphorus 4.4 mg. Calcium lactate and iron ammonium citrate were given as symptomatic treatment and the patient was discharged on the twelfth day. Platelet count on discharge was 46,000.

Second Admission May 18 1932

She had been well until the day of entry when she developed severe epistaxis staining fifteen diapers. Because of the uncontrollable hemorrhage she was brought to the hospital. Examination at this time showed moderate pallor. There were ecchymotic areas ranging from pinpoint size to that of a silver dollar on the arms, legs and chest. R.B.C. 3,940,000 W.B.C. 16,400 Hgb. 60 per cent. (Tallqvist). Platelets 68,200. She was transfused twice followed by cessation of the epistaxis. Attempts to find a bleeding point on the nasal mucous membranes were unsuccessful. Discharged on the nineteenth day.

Third Admission December 5 1932

She had had a tooth extracted the previous day and there was subsequent hemorrhage of alarming proportions for which hospitalization was sought. Physical examination was unproductive of positive findings except for slight pallor and an oozing tooth socket which stopped bleeding promptly upon application of a pack. Bleeding time six minutes clotting time four and a half minutes. No other laboratory work done. Discharged in three days.

Fourth Admission August 6 1935

The patient had been symptom free until three weeks before admission when she came down with a "cold." Two weeks before entry she had begun to bleed from the gums and this had continued up to the time of admission. Examination at this time showed only the signs of an upper respiratory infection and also several hemorrhagic spots on the buccal mucous membrane. There was also oozing at the gingival margins. R.B.C. 4,560,000 W.B.C. 6,600 Hgb. 75 per cent. (Tallqvist). Platelets 70,000.

*Hern. Arthur—Intern, Worcester City Hospital. For record and address of author see "This Week's Issue" page 1159.

Bleeding time ten minutes, clotting time three and a half minutes. The patient was treated symptomatically for her upper respiratory condition and was discharged on the third day.

Fifth Admission November 26, 1935. She is now thirteen years of age.

Since discharge five months previously, she had not been well, complaining of continual weakness. Her catamenia began eight days before entry, for the first time, and continued until her admission into the hospital, with the passage of large clots daily. For the past month she had had daily attacks of epistaxis each morning upon arising. Examination disclosed a blanched, sallow appearance of her face and mucous membranes. There were several ecchymotic areas below the knees bilaterally. The blood pressure was 110/60. She was observed closely for nine days, during which time she had several attacks of profuse hemorrhage from the vagina with the passage of large blood clots, followed by intervals of only slight bleeding. On the ninth day she received 300 cc of citrated blood and subsequently was transfused three times. In the meantime she was put on supportive treatment of calcium

of favorable reports. Some mention of irradiation over the spleen has been made recently but no conclusions as to its effectiveness have been made. In the present case, bleeding ceased after the second exposure to x-rays, but there had been two transfusions previously so that results are inconclusive. Payne⁸ maintains that splenectomy should be done as early as possible to forestall the appearance of aplastic changes in the bone marrow and offers an index of operability in the white blood count and number of reticulocytes, if these are normal or elevated, he states, the chances of cure from splenectomy are good, if depressed, splenectomy is contra-indicated. Transfusions, of course, are indicated preoperatively, as often as necessary until the patient's optimum condition is reached and are sometimes effective in lessening or even stopping the menorrhagia.

(CHART 1)

LABORATORY DATA ON FIFTH ADMISSION

Date	R B C	W B C	Hgb	Plate-lets	Bleeding Time	Clotting Time	Reticulo-cytes
11 26	4,250,000	8,400	70 (T)	114,000	2 min	5 min	15%
12 7	2,900,000	6,600	50 (S)	67,250	4½ min	4 min	
" 11	1,970,000			31,520			
" 15	3,310,000	5,950	55 (S)	66,200			
" 18	3,370,000		45 (S)	67,400			20%
" 23	2,750,000	8,050	50 (S)	108,000			
" 27	3,350,000		65 (S)	134,000			
" 30	3,610,000		65 (S)	240,000			
1-1	3,930,000	19,850	65 (S)	255,000			
1-3	3,520,000	8,200	65 (S)	250,000			17%
1-7	3,840,000		65 (S)	350,000			
2 27	3,800,000		65 (S)	76,000	½ min	½ min	

* T = Tallqvist

+ S = Sahli

gluconate, one dram tid, ferrous sulphate, grains 3 tid, cod liver oil, drams one tid, also a high vitamin and high caloric diet. On the twelfth day she was given radiation over the spleen (200r) and received the same dose every second day for two more treatments. Her blood picture was followed closely (chart 1). On the eighteenth day her vaginal bleeding ceased and on the twenty-fourth day a splenectomy was performed under ether anesthesia. Convalescence was uneventful and there was no further bleeding. She was discharged on the forty-fourth day, under the care of her family physician.

COMMENT

Essential thrombopenic purpura is rarely a surgical emergency. Only in the presence of intractable hemorrhage as from the nose or uterus does the problem of treatment become acute. While there is wide disagreement at present on the proper treatment of this disease, most authorities agree that in the early mild forms, supportive measures, including calcium in some form, concentrated vitamins, rest and large doses of iron, deserve an adequate trial. In the acute fulminating cases where the patient is in danger of exsanguination, the problem is different; something must be done quickly. During the past years the operation of splenectomy has attained prominence with a preponderance

SUMMARY AND CONCLUSIONS

1. A case of menorrhagia with the first menstrual period is reported in a girl thirteen years of age, who had been known to have essential thrombopenic purpura for the past five years.
2. Treatment consisted of a preoperative course of calcium, iron and vitamins with frequent transfusions and a mild course of irradiation over the spleen, followed by splenectomy.
3. Splenectomy is the treatment of choice in chronic cases, providing the Payne index of operability is satisfactory.
4. Irradiation of the spleen deserves further investigation as a palliative or curative measure.

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CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

AYTLE MORTIMER AND POST MORTIMER RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., Editor

CASE 22231

PRESENTATION OF CASE

A sixty-seven year old unmarried white woman was admitted complaining of blurring of vision and drowsiness.

The patient was perfectly well until about six months before entry at which time she began to have blurring of vision and occasional spells. The latter would manifest themselves by causing her to drop off into brief nap at odd intervals occasionally while conversing with another person. At about the same time she began to stagger occasionally while walking. She had one severe headache lasting for about half a day at the onset of her illness but there were none thereafter. After about two months she began to take "potash" as medication but this caused her mouth to dry up and she discontinued it after a month. She was unable to taste anything for several months afterward however. At the onset of her illness the patient had gradual swelling of her entire face and neck and the left side of her face seemed to burn at times. This apparently gradually subsided for it was not discernible at the time of her admission. About three weeks before coming to the hospital she withdrew considerable money from the bank took a taxi from an outlying town into Boston and made several unusual purchases spending in all about \$800. Her actions were surprising and unaccountable to her family but no further details were noted. Her mental state was placid and she evidently noted no abnormality.

Physical examination showed a well-developed and nourished female in no discomfort. The pupils were equal but irregular. They reacted sluggishly to light. The right fundus was obscured by medial opacity, but the left was normal. Peripheral vessels were thickened and tortuous. The lungs were normal except for a slight diminution in intensity of breath sounds in the right axilla. The heart was negative. The blood pressure was 130/70. The abdomen was distended and tympanitic. There was slight tenderness in the right upper quadrant but the findings were otherwise normal. Reflexes were symmetrically equal.

The temperature was 99°, the pulse 95. The respirations were 30.

Examination of the urine was negative. The blood showed a red cell count of 3,850,000, with a hemoglobin of 75 per cent. The white cell count was 12,200. 84 per cent polymorphonuclears. Reticuloocytes numbered 35 per cent and the red blood cells had a volume slightly greater than normal. The nonprotein nitrogen of the blood was 28 milligrams. A Hinton test was negative. A lumbar puncture done with some difficulty showed blood tinged fluid. The initial pressure was 150 and the dynamics were normal. A count showed 1,452 cells of which 1,442 were red blood cells, 2 monocytes and 8 lymphocytes. The ammonium sulphate ring test was positive and the total protein was 47 milligrams. The spinal fluid sugar was 76 milligrams and the Wassermann test was negative. A basal metabolic rate was +17 per cent. An electrocardiogram showed a low T₁ and slight inversion of T₂ and T₄. The serum protein was 4.5 grams. Examinations of the stools were negative.

Following her entry the patient became perfectly rational and offered no complaint at all. Her temperature fluctuated between 99° and 100° and the pulse rose to 100. Examination on the third day showed dullness over the right lower lung area and a friction rub and rales were audible.

An x-ray examination of the chest showed hazv rather homogeneous dullness at both bases which obliterated the costophrenic angles and faded out rapidly above. There was a triangular area of dullness at the posterior aspect of the right side of the chest which had the general size and shape of a collapsed lower lobe. The heart and mediastinum were displaced toward the right with inspiration and slightly toward the left with expiration. The heart shadow was partially obscured but appeared slightly enlarged in all diameters. The aorta was tortuous and there were no mediastinal masses. A skull plate was negative.

A needle was inserted into the right lower chest and a small amount of bloody fluid was removed. Culture of this material showed gram positive filamentous branching organisms. Histologic examination showed only acute inflammatory exudate. About this time she developed edema of both the upper and lower extremities which increased progressively. There was no respiratory difficulty; the patient was perfectly calm, and her appetite was unimpaired. At the end of the second week she developed a mouth condition which was termed thrush. During the succeeding week she developed a gradually progressive dyspnea; the white cell count rose to 27,000 and the temperature to 102. She died on the twenty third hospital day.

NOTES ON THE HISTORY

DR. FREDERICK T. LORD: This patient evidently had no mental symptoms following her entry to the hospital. She had some elevation of temperature, 99° to 100°, and a pulse to 100.

Putting these physical signs together, she has diminished breathing, dullness and friction rub, but nothing is said about bronchial breathing, egophony or whisper.

X-ray of the chest was done. We might see the films at this point.

X-RAY INTERPRETATION

DR. GEORGE W. HOLMES: The skull was examined and I think was essentially negative for a person of her age. She has some thickening here but that is not important. We would interpret these films as normal. The pineal gland is in the usual position.

We have a series of films of the chest. As described in the note, the right lung field was distinctly smaller than the left. The diaphragm was high and partially obscured by fluid. The costophrenic angle is not visible but it looks as if there might be a small amount of fluid there. In this area there is a shadow of increased density which might represent a partially collapsed lobe. The heart shadow is enlarged. The aorta is normal. The lateral view does not give much added information. These were small films with an attempt to show the detail of the structure around the lung. I cannot get any information from them.

I think we would have to say that the x-ray of the skull was negative, that the chest showed a small amount of fluid in both bases, elevation of the right diaphragm with incomplete expansion of the right lung, and a mass near the root of the lung which might be partially collapsed lung. I think we have pretty good evidence of bronchial obstruction. The air is not getting into that lung.

FURTHER NOTES ON THE HISTORY

DR. LORD: The history is meager in the omission of a statement regarding such respiratory symptoms as cough, dyspnea, pain and wheezing. In view of the anemia, it is desirable to know if there was numbness of the extremities and a smooth tongue.

As the patient was rational without complaints after admission and the neurologic examination without significant findings, I am inclined to regard the cerebral symptoms as of functional rather than of organic origin, but it would be desirable to know the field of vision, sensation and ataxia, including Romberg.

Regarding the laboratory findings, primary anemia is suggested by the large red cells and approximately normal color index, and makes it desirable to know if the red cells were oval the

platelets diminished and the results of a gas tric analysis. The high reticulocyte count may be due to regeneration of blood spontaneously or after the administration of liver. The ratio of white to red cells in the systemic blood is about one to three hundred and, in consequence, in the spinal fluid about five white cells are to be expected from admixture with blood. As there were only about ten in all in the spinal fluid the cell count is probably without significance. The positive globulin test, the slightly elevated total protein and the sugar may be disregarded under the circumstances and, on the whole, the spinal fluid may be regarded as negative.

The electrocardiogram is abnormal with low T_1 and inverted T_2 and T_4 . Inversion of T_3 is not significant, but the low T_1 and inverted T_2 and T_4 may be said to be of somewhat ill omen. The elevated basal metabolic rate probably has no special import under the circumstances.

We come to the most significant of the laboratory findings, i.e., the presence in the bloody fluid obtained from the chest of nothing histologically but an acute inflammatory exudate and by culture and smear a gram-positive, branching, filamentous organism. For the identification of this organism, such further data are necessary as a description of the culture, information regarding growth with or without access of air and at room or incubator temperature and whether the gram-positive organisms are acid- or alcohol-fast.

DIFFERENTIAL DIAGNOSIS

With the data at hand, I am inclined to say that the patient has arteriosclerosis, a lenticular cataract and an anemia with some features suggesting pernicious anemia. The physical and x-ray findings suggest a plugged right lower lobe bronchus. This naturally raises the question of malignant disease among other causes of bronchostenosis, and a complicating inflammatory process in the lung supplied by the occluded bronchus. The neurologic disturbance early in the course of the disease raises the question of possible metastatic cerebral malignancy or metastatic cerebral inflammation.

With respect to the nature of the inflammatory process in the chest, we must consider the possibility of an infection with the group of organisms which show branching filaments in culture. In this connection I am handicapped by the limitation of available data to the morphology and staining reaction of the organism in culture.

There is a group of organisms which are found in tissue and exudate as round or oval cells. One of these, the cryptococcus, can at once be excluded because of multiplication in culture by budding without the formation of

mycelium Sporotrichosis is usually confined to the skin and subcutaneous tissues. The sporothrix is rarely demonstrable in the tissues or exudate as oval bodies but is usually first found in cultures which show a gram staining branching mycelium and spores. The absence of any mention of spores here and the pulmonary site of the disturbance are against sporotrichosis. The growth in cultures of the blastomyces and coccidioides immitis is yeast like with the formation of branching, mycelial elements. As no conidia or segmentation is mentioned these organisms can with probability also be excluded.

The type of organism here falls, with probability, into one of two groups, the actinomycetes or the streptothrix. I may say with respect to these organisms that there is an unfortunate confusion in terminology. The term actinomycetes bovis (Harr) should in my opinion be restricted to anaerobic organisms of the Wolff Israel type. These organisms the cause of both human and bovine infection in tissues form compact colonies composed of branching gram staining, filamentous organisms with radially disposed club bearing filaments and grow in cultures under essentially anaerobic conditions at incubator and not at room temperature.

There is another and quite different group of organisms found in fresh material as isolated, branching, gram staining filaments or a loose aggregation of interlacing filaments, without true club formation but at times club-shaped swelling of the terminal portion of the filaments and growth in culture under aerobic conditions at room or incubator temperature. The terminology for this group is confusing. In accordance with the principles of nomenclature "nocardia" is tenable, but common usage appears to make the term "streptothrix" acceptable.

There is a tendency to include all branching, filamentous organisms forming colonies with radiating filaments and clubbed terminal portions under the term actinomycetes and to use such designations as "actinomycetes", "streptothrix" and certain others as synonyms. This is unfortunate as the two organisms are widely separated in biologic peculiarities and give rise to diseases which are quite different in their mode of origin and in their clinical picture.

It is obvious, with the data at hand that a distinction between these two organisms can not be made and I may say that the infection falls into the group of either actinomycosis or streptothricosis.

There is one other matter which merits some attention and that is the development under observation of a disturbance in the mouth termed thrush. Thrush is not an uncommon complication of severe illnesses and I am not inclined to relate the mouth and lung disturbance in any way.

CLINICAL DISCUSSION

DR. HENRY R. VIETS. I know the answer to the problem so I will not say more than just a word about the onset of this rather remarkable illness. This patient was one of four maiden sisters living very quietly in a town fifty miles away and none of them had ever had any signs of mental disease. Their family physician was a well known practitioner who had known the family for a long time and, although there is a little indication that something happened to this patient before this episode three weeks preceding entry to the hospital, except for the swelling of the face, it seems probable that the other symptoms were not well substantiated. This patient suddenly one morning went to the local bank, drew out some money, went fifty miles to Boston in a taxi, made unusual purchases, such as a barrel of sugar, bought two fur coats for her sisters, and came back at eleven o'clock at night, having spent well over eight hundred dollars. For a quiet, retiring maiden lady who had never done anything but attend church affairs and things around the town, this was an extraordinary procedure and made us think we were dealing with an acute psychosis. I saw her on that account a few days later. When she was seen neurologic examination was entirely negative and general examination was also negative as far as I could make out. She had had no respiratory symptoms previously and nothing to call attention to a lung disease. She was mildly confused, did not know her doctors and was not quite sure what hospital she was in. She had various plans about taking her sisters on extensive trips and so forth and she said she had the money and wanted to do something for the family. There was a vague state of euphoria that went along with the confusion. Then she was transferred here to the Baker Memorial and the rest of the story you have heard. While she was here she was still more or less confused and was not quite sure where she was. She still had ideas about buying expensive presents, taking trips and so forth. She was co-operative and remained in bed. A few days later signs in the chest were discovered and a tap done.

DR. FRANK T. HUNTER. I think I can answer a few of Dr. Lord's questions. As to the one about the physical examination of the lungs I saw her on the second day and my findings were definitely those of fluid at the right base possibly some at the left, with diminished voice and breath sounds and dullness to flatness.

In regard to the blood picture the cell volume was only slightly elevated by the hematocrit method and it brought up the question whether she had pernicious anemia on top of something else. The reticulocytes were 35 be-

foie liver was given. She was given liver with the idea that if she did have pernicious anemia we had better lose no time in starting treatment. No gastric analyses were made.

As to the chest tap, I did it myself and could obtain nothing until I put a lumbar puncture needle in for a depth of three inches. I then got a small amount of gelatinous bloody material, possibly not over two or three cubic centimeters, and then withdrew. I was rather surprised that in view of the x-ray picture and physical findings I did not get a considerable amount of clear fluid.

About her appetite, not only was it unimpaired but she sent out for and ate a large dish of "hot dogs" and potato salad. There is no question about her appetite being good.

The mouth condition, termed thrush, on direct smear showed a very curious large gram-positive bacillus. It cleared up in thirty-eight hours. Clinically the picture could not be distinguished from the type of thrush one sees in infants. As for the filamentous branching organisms, they were present in large numbers in direct smear from the puncture.

DR HOWARD B. SPRAGUE: I saw this patient once in consultation, before much of the laboratory data had been returned, in reference to whether there was a cardiac factor. The thing that impressed me was that the congestion of both upper and lower parts of the body suggested more an obstructive affair than a primary cardiac failure. I thought the most likely thing was either malignancy or an inflammatory process of the right base with probably a metastatic process in the brain.

The electrocardiogram does suggest some decreased myocardial function. I would like to correct one statement about the electrocardiograms, that is, in relation to the T wave in lead four, which is normally inverted in the technique that we use in this laboratory and is commonly used now in this country.

CLINICAL DIAGNOSIS

Carcinoma of the bronchus

DR FREDERICK T. LORD'S DIAGNOSES

Arteriosclerosis

Pneumonitis, actinomycosis or streptothricosis

Pernicious anemia?

Malignant bronchiogenic carcinoma?

ANATOMIC DIAGNOSES

Adenoma of the bronchus

Multiple abscesses of the lung, right lower lobe

Pulmonary streptothricosis

Pulmonary atelectasis, right upper and middle lobes

Empyema

Arteriosclerosis, coronary and aortic
Hypertrophy of the heart
Secondary anemia

PATHOLOGIC DISCUSSION

DR TRACY B. MALLORY: The autopsy, unfortunately, was not a complete one. We can not tell you whether she had anything in the brain. The findings in the chest were as interesting, however, and quite as unexpected as everything else in the clinical course. There was a small empyema. We found that the right lower lobe of the lung was tremendously enlarged, almost completely filling the pleural cavity, and was filled with large multilocular abscesses. On cutting down the bronchus we found just at the bifurcation of the lower lobe bronchus a polypoid tumor which microscopically was perfectly characteristic of a so-called benign adenoma of the bronchus. We have had eight of these benign adenomas preceding this case, all of them heretofore in young patients. The age group in our cases and for the most part in the literature has been a very standard one, running from the late teens to the late twenties, whereas this woman was in the sixties. The question always comes up as to whether they should be considered benign or malignant. The major part of this tumor looks like the typical benign adenomas in young people. It is not encapsulated, however, and the base infiltrates the bronchial wall pretty deeply. Cases of this sort have been described for a good many years as slowly growing carcinomas of the lung, and I would not be surprised at anyone's making that diagnosis on section of this case. On the other hand a very careful search by four members of the department failed to show a single mitotic figure. One wonders if there is any possibility that the tumor may have been present since youth. It seems almost incredible that it could be present all that time without producing symptoms.

The other findings were not of any particular significance. The heart was hypertrophied. There was a moderate degree of coronary sclerosis. The bone marrow was hyperplastic but showed no increase in megaloblasts. Considering the short time she was on liver therapy that allows us to rule out pernicious anemia. The bronchus beyond the tumor was moderately dilated, not markedly so. On microscopic examination of the lungs we have not been able to find any other branching organisms. Very few organisms are visible in the sections. The only ones I have been able to find are evidently cocci, so we must assume that the pulmonary infection was a mixed one.

A PHYSICIAN: Do you know anything more about the cultures?

DR LOUIS DIENES: The gram-positive fila-

mentous and branching organism which was visible in the pus grew readily on all media. It is an aerobic organism belonging to the group usually called streptothrix. This strain differs in many respects from the actinomyces responsible for most cases of human actinomycosis strains which, as Dr. Lord pointed out, form a well-characterized group. Organisms more or less similar to actinomyces are widely distributed in nature as saprophytes and for all these organisms at present the name actinomyces is used as a generic term. The various strains belonging to the group are regarded as different species of the same genus.

DR. SPRAGUE: Did you find a satisfactory mechanical explanation for venous obstruction in the chest?

DR. MALLORY: No. The increased venous pressure presumably must have been due to some degree of heart failure.

A PHYSICIAN: Was the lower lobe as large as a normal inflated lobe?

DR. MALLORY: Larger. I should say the lower lobe was collapsed and displaced.

A PHYSICIAN: Were the so-called actinomyces artefacts?

DR. MALLORY: I do not believe so. In myself, saw the smear of the lung puncture and there were unquestionably filamentous organisms in the material. They grew out readily moreover, in culture.

CASE 22332

PRESENTATION OF CASE

First Admission. A nineteen year old American office boy was admitted complaining of cough and hemoptysis.

Two years before entry after a vague illness of a week's duration during which he felt slightly feverish and lost his appetite he suddenly had a paroxysm of coughing associated with a small amount of whitish sputum. A few minutes later he coughed up some bright red blood and returned to his home at once to go to bed. He remained in bed for three days suffering from occasional coughing spells after which he expectorated dark clots and bright red blood. During the three days he brought up about a pint of blood in all. He was told by a physician that he had pneumonia and was sent to a hospital where he remained for three weeks. Sputum and blood examinations and a chest tap were noted as noncontributory. There was occasional blood streaked sputum during his hospital stay but he had improved markedly at the time of his discharge. There were occasional night sweats and chilly sensations but no further hemoptysis. Eight months after this illness he was confined to bed with "influenza" associated with a cough productive of mucoid, occasionally blood streaked material. There-

after he returned to work and except for two occasions, during which he took cold and had some blood streaked sputum, he remained comparatively well until two months before entry. At this time he developed a sore throat and a cough which was productive of a moderate amount of occasionally blood-streaked yellowish sputum. After ten days he began to expectorate as much as a teaspoonful of bright red blood three or four times daily. He went to bed and remained there until his admission. He had occasional fever sometimes up to 102°. His appetite flagged but he felt only slightly run down. More recently he controlled his cough voluntarily and the hemoptysis occurred only about once a week, although now it amounted to about a tablespoonful.

Physical examination showed a well-developed but slightly undernourished young man who did not appear acutely ill. The throat was slightly injected and there were several patches of readily removed yellowish exudate. The heart was neither enlarged nor obviously displaced. A soft early systolic murmur was heard at the base. The blood pressure was 140/80. The lungs showed slight impairment of resonance on the left infraclavicular region and diminution of resonance, breath sounds, and tactile fremitus in the postero-inferior portion of the right chest.

The temperature, pulse, and respirations were normal.

Examination of the urine was negative. The blood showed a red cell count of 5,150,000 with a hemoglobin of 75 per cent. The white cell count was 10,400. 91 per cent polymorphonuclears. A sputum specimen was negative for tubercle bacilli and spirochetes. A stool examination was negative. A Hinton test was negative.

X ray examination showed mottled dullness along the course of the lung markings extending to the right base. In the lateral view the mottling lay in the posterior portion of the lower lobe. After lipiodol injection the left lower bronchial tree was negative. On the right there was obstruction to the passage of the opaque medium down the right lower main bronchus at a point just below the bifurcation of the middle bronchus. At the point of arrest the lower border of the lipiodol had the appearance of a cap formation.

The patient remained quite comfortable during his hospital stay. On the eighth day a bronchoscopy was done. This showed a rounded red smooth, shiny mass obstructing the right main bronchus about one quarter of an inch below the lower lip of the upper lobe bronchus. The mass was firm but bled readily at contact with the bronchoscope. No reaction in the surrounding bronchial mucosa was noted. A biopsy showed no definite tumor. Two bron-

choscopies were done at succeeding weekly intervals. Further note was to the effect that the tumor mass was not movable and was quite close to the bifurcation of the right main bronchus. Thereafter the patient received several x-ray treatments to the right chest. He remained quite comfortable and only occasionally had blood-streaked sputum. He was discharged on the forty-sixth day.

Final Admission, two months later

Following his discharge the patient remained comfortable. A month before re-entry another bronchoscopy showed the tumor to be slightly more hemorrhagic than previously. It now filled almost the entire bronchial lumen. He returned to the hospital for further treatment having had only a single blood-streaked sputum in the interval.

Physical examination was similar to that of the previous admission. A few inspiratory squeaks were heard in the right lower chest posteriorly and the breath sounds were slightly diminished in this region.

The temperature, pulse, and respirations were normal.

Examinations of the blood and urine were negative. Several sputum examinations were negative for blood and tubercle bacilli.

The patient remained comfortable while in the hospital. On the eleventh hospital day an exploratory thoracotomy was done.

DIFFERENTIAL DIAGNOSIS

DR JAMES H. TOWNSEND. In this case we have hemoptysis coming not out of a clear sky but after a short vague illness of one week's duration, presumably a slight respiratory infection which started him coughing. Then he had hemoptysis. At the age of nineteen certainly in more than ninety per cent of such cases the cause will be found to be tuberculosis. The other small percentage, and presumably in this case we are dealing with that percentage, will be found to belong in another group of rarer conditions which Dr. Lord has just discussed. Among them are tumor (although this is very young for a tumor to cause hemoptysis), rare lung infections such as actinomyces, a queer sort of pneumonia or possibly the beginning of bronchiectasis or lung abscess. One must also consider the possibility of an unrecognized foreign body. He had a severe coughing fit at the onset of this, but nothing is said about having swallowed anything the wrong way.

I suppose the sputum was negative for tuberculosis, which is to be expected at this stage if it were tuberculosis, and I take it he did have some signs in his chest, presumably the lower part, and they did a chest tap which was negative. What these signs may have been we are not told. At this time we get a suggestion of

pus in the sputum which had not been present before.

We are dealing with a situation characterized by a number of brief acute infections, during each one of which cough was a prominent feature and on each occasion there was some blood spitting. On some occasions it was just tiny amounts, but at the first illness there was as much as a pint. At the present illness he is raising considerable quantities of blood, and seems to have more septic involvement. He is now running a temperature and has pus in the sputum as well as blood.

"The throat was slightly injected and there were several patches of readily removed yellowish exudate." I take that to mean that he did have an acute upper respiratory infection. We are not told just where that exudate was, whether on the tonsils or the pharyngeal wall or on the palate. The presence of these patches suggests some unusual sort of throat infection, such as thrush which possibly might get down into the lungs, but on the whole I am not inclined to take these yellowish patches very seriously.

"The lungs showed slight impairment of resonance in the left infraclavicular region and diminution of resonance, breath sounds, and tactile fremitus in the postero-inferior portion of the right chest." In other words some signs reported on both sides of the chest. On the left side the only thing mentioned is slight impairment of resonance in front in the infraclavicular region. I take it that the examiner was looking for evidence of apical pathology. Nothing else was present on that side. I doubt if it has any significance. In the right posterior lower chest there are signs of diminished resonance, diminished breathing, and diminished tactile fremitus. Those are signs suggesting either bronchial obstruction or possibly a small amount of fluid.

We have no mention in this history of pain in his chest and no mention that his cough is related to position.

He had not lost enough blood to make any real difference in his blood picture. The total white count suggests that there was not much infection but there is a very high percentage of polymorphonuclears. He does not seem sick enough though to have the total white count rather low because of an overwhelming infection.

This is all two years after the onset of hemoptysis, and I should think that at this time several negative sputa for tuberculosis are certainly significant and go a long way in ruling out tuberculosis as a cause of his present condition.

The pathology all seems to be in the right lower lobe and the dullness in the left upper lobe apparently was of no significance. Would

you like to comment on the x rays Dr Hampton?

X RAY INTERPRETATION

DR. AUBREY O. HAMPTON This triangular area of dullness occupying the posterior inferior aspect of the right side of the chest is quite typical of a collapse of the lower lobe and the films taken after lipiodol demonstrate quite clearly the point of obstruction in the right lower lobe bronchus. The inferior margin of the lipiodol shadow shows a concave defect which is often called "cap formation" and is characteristic of a rounded intrinsic mass within the bronchus. There are no other significant findings.

DIFFERENTIAL DIAGNOSIS CONTINUED

DR. TOWNSEND We have definite evidence that there is obstruction in the right lower main bronchus within an inch or so of the point where the middle bronchus branches from it and the question is what is the nature of the obstruction? The mottling extended into the left base below. This evidently is what one would expect in the way of infection below such an obstruction, doubtless atelectasis and beginning bronchiectasis or abscess formation.

The key to this situation seems to be the bronchoscopic examination. I think this illustrates the importance of making bronchoscopic examinations in all unusual cases of hemoptysis. If this had been done two years previously, possibly the outcome might have been different. There is definite pathology in the right lower bronchus which is described as a tumor mass with very little reaction about it, a mass which bleeds readily, but when they took a specimen from it it showed no definite tumor. I think we can be pretty sure that is not a foreign body. If a foreign body had been there there would have been much more reaction about it and much more pathology in the lung below it. Moreover the bronchoscopist visualized the mass and it bled. It presumably is living tissue and the question is the nature of it.

This boy is only nineteen years old. He was seventeen years old at the onset of his illness. He is two years younger than any of the cases of carcinoma of the lung reported by Arkan and Wagner in the *Journal of the American Medical Association* February 22, 1936. They reported 125 cases, the youngest twenty-one, only three under thirty. This boy was seventeen. Moreover, if it had been malignant to begin with one can hardly conceive that it would not have extended farther or metastasized in the intervening two years. Possibly it may have begun as a benign adenoma and more recently become malignant. There are a number of different tumors that may arise in this region, some may arise directly in the

large bronchus and some outside it and extend into it. In this case by x ray we have no visible evidence of tumor mass outside of the bronchus. This presumably does arise inside and from the bronchial tube itself. Benign adenomata as well as sarcomas occur in this neighborhood, and there is the very rare hemangiosarcoma. The fact that this bleeds so readily suggests that it might belong to that blood vessel tumor type.

Is there any evidence that this might be a metastatic process which has extended into the bronchus? There is none by x ray. We are not told much about the rest of the physical examination but presumably there was no evidence of any tumor anywhere else in this man's body.

We have three bronchoscopies. I take it that at least one of these they probably tried to remove this mass but were unable to do so and I would read between the lines that they gave x ray treatment hoping it might shrink the thing and then after an interval hoped that they might do more. In any case he was out for two months and then came in for his final admission.

"A month before entry another bronchoscopy showed the tumor to be slightly more hemorrhagic than previously." Again a suggestion of very vascular sort of tumor.

It now filled almost the entire bronchial lumen." Evidently it did not respond to x ray therapy.

"A few inspiratory squeaks were heard in the right lower chest posteriorly and the breath sounds were slightly diminished in this region." Apparently he still does get considerable air into the right chest.

"Several sputum examinations were negative for blood and tubercle bacilli." Again being sure to rule out tuberculosis. There is no evidence of it.

We have evidence of a definite tumor mass in the right main lower bronchus which has been present for two years at least. We have no evidence of metastases and no definite evidence of a tumor mass in the lung tissue itself from which this arose. On the whole I think it is most likely that this tumor at least started as a benign adenoma or a hemangioma in the bronchial tube, although by this time there may have been malignant changes that developed in the base of it.

He had a thoracotomy presumably because they were unable to remove the lesion by bronchoscopy and they hoped that by a direct approach or approach through the chest wall they might be able to remove it. Dr. Churchill can tell us about that.

DR. DONALD KING I saw this boy before he was admitted to the hospital. My diagnosis was bronchiectasis because we are getting used to seeing the hemorrhagic form of this disease.

Besides hemorrhage this patient also had a story of repeated bronchial infection. After his admission to the hospital the first diagnostic procedure was lipiodol injection. This showed complete obstruction of the right lower lobe bronchus, so that the next step was bronchoscopy and the specimen obtained through the bronchoscope for biopsy showed a benign adenoma which was obstructing the bronchus and had therefore caused bronchiectasis in the obstructed lobe.

We have had altogether eight cases of this so-called benign adenoma of the bronchus. Five of these are living and three have died. Of the three who have died one was given x-ray treatment and had radium seeds implanted in the growth. At autopsy the tumor was still present and the entire lung was destroyed by a suppurative process. The second fatal case died in another hospital after an attempt at bronchoscopic removal of the tumor. The death was said to have been due to novocaine poisoning. The third fatal case is the one presented here today. Of the five living cases one was treated with radium seeds and has done very well, and four have been operated upon. Three of these operative cases have done very well and one is much improved.

The only other point that I wish to make is that repeated bronchoscopic biopsies are often necessary. In one case six bronchoscopic specimens were reported by the pathologists to show only chronic inflammation, and it was not until the seventh specimen was taken that a report of tumor was made.

CLINICAL DIAGNOSES

Carcinoma of the lung
Pericarditis

DR JAMES H. TOWNSEND'S DIAGNOSES

Adenoma of the right primary bronchus, possibly with malignant changes

ANATOMIC DIAGNOSES

(Adenoma of the bronchus)
Operative wound. Thoracotomy and lobectomy of the right middle and lower lobes.
Pneumothorax, right.
Pleuritis, acute fibrinous, right.
Pericarditis, acute fibrinopurulent.
Acute myocardial degeneration, subpericardial zone.
Myocarditis, fibrous, focal.
Bronchopneumonia, left lower lobe.

PATHOLOGIC DISCUSSION

DR EDWARD D. CHURCHILL. The treatment of these cases is an interesting problem. It seems very drastic to attempt a pneumonectomy

or lobectomy for a so-called "benign" tumor. By "benign" I mean a tumor which is not given to metastasis or killing by direct extension. These tumors are not benign in the real sense of the word because they eventually do kill the patient. They kill by obstructing the bronchus. Some advanced cases show complete bronchial obstruction, fibrosis and bronchiectasis of the lung leading to a fatal termination. So it is histologically benign, clinically fatal.

The cause of death here, as in the other case, is infection. The inferior pulmonary vein is less than a centimeter in length and in ligating and freeing it a small opening was made into the pericardium. This was sutured but apparently contamination from the bronchial stump was sufficient to produce suppurative pericarditis. He was treated by aspiration and drainage.

This picture is the resected lower and middle lobes. Here is the bronchus and here the polypoid mass in the bronchus. A part of the tumor lies in the lumen of the bronchus and a very considerable proportion lies outside of it. In the majority of these cases the tumor has been confined to the bronchial wall or to the lumen of the bronchus but in this case the tumor had grown beyond the cartilage of the bronchial wall and spread outward a distinct distance into the mediastinum. That is a point of considerable importance from the point of view of therapy. If these tumors could be counted upon to remain entirely within the bronchial lumina they might be treated by bronchoscopic methods with success. Even if one did not succeed in entirely removing the tumor it would be possible from time to time to take off new excrescences as they arose.

DR TRACY B. MALLORY. This is the first case of so-called adenoma of the bronchus which we have presented at one of these conferences. Although we have now seen nine of them in our own clinic and have also had a chance to review several similar cases from other clinics, the recognition of these tumors as a distinct pathologic entity is a relatively recent event and credit for it is due primarily to the bronchoscopists who recognized the benign character of the lesion before the pathologists did. The first two cases which we had here I called slowly growing adenocarcinoma, as I feel sure the great majority of pathologists have up to the last three years. One of these cases came to autopsy after a five-year course characterized by bronchial obstruction and secondary pulmonary suppuration. The tumor was not encapsulated and showed slight evidences of infiltration at its edges, yet it showed no mitotic figures and after five years of growth was less than an inch in diameter. The second case

was operated upon by Dr Churchill after a histologic diagnosis of adenocarcinoma from a bronchoscopic biopsy. It was entirely similar histologically. That patient is entirely well today. Shortly after that operation Dr Churchill called our attention to the reports of similar tumors with a benign clinical course and since that time we have found them relatively easy to recognize if a suitable biopsy specimen can be obtained. Their exact nature is still a matter of controversy and we also do not know whether malignancy can eventually develop.

This patient that we have just discussed today was the third in our entire series. Two bronchoscopic biopsies were reported chronic in

flammation. Another two were called hemangiomata—a mistake which could easily be made by one unfamiliar with these tumors because of their vascularity and the last two specimens were finally recognized as adenoma.

The autopsy added comparatively little to our knowledge about this patient. The right pleural cavity showed an acute fibrinous exudate but was free from pus except for a minute pocket immediately beneath the stump of the amputated bronchus and directly overlying the pericardium. The pericardium itself showed an acute fibrinopurulent exudate. Bronchopneumonia had developed in the left lower lobe. Death was undoubtedly due to infection.

The New England Journal of Medicine

SUCCESSOR TO

THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.04 per year \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass

INSTRUCTION IN HOSPITAL ADMINISTRATION

IN spite of the fact that there are about 7,000 hospitals in the United States which, annually, care for 7,000,000 bed-patients and 10,000,000 out-patients, it is only within the past two years that organized instruction in hospital administration has been available. This educational experiment¹ was conceived at the University of Chicago and is being carried out in the School of Business.

For registration, a bachelor's degree or a degree of doctor of medicine or of public health is required. A certain amount of instruction in such fundamental subjects as biology, physiology, economics, sociology, and psychology is required, but, of course, may have been included in the candidate's previous education. The courses cover the medical, community and business aspects of hospital administration, employing classroom and "clinical" methods—the latter consisting of observation and supervised field work in hospitals and clinics. The specific courses vary according to the individual—a med-

ical graduate requiring more training in business methods and students with a business background more training in biology and physiology. This preliminary training, which requires from four to six quarters in the University, is followed by an internship of six months to one year in a selected hospital. For a master's degree, a thesis must be submitted.

The need for administrative training has been recognized by the American Hospital Association and by the Rockefeller Foundation for many years, and the University of Chicago is to be congratulated for such a courageous and auspicious beginning.

REFERENCE

- 1 Davis, M. M. Studies of hospital administration at the University of Chicago Hospitals 10:24 (March) 1936

THE HEALTH ADVANTAGES OF THE UNITED STATES

UNDER the above caption the Metropolitan Life Insurance Company in its statistical bulletin for March, 1936, publishes many interesting comparative figures showing the health advantages which we enjoy over less favored or less enlightened nations.

Cholera and plague are of historical interest to us—there has not been a death from cholera in New York City for forty-three years—but in British India more than 220,000 persons died from cholera, and nearly 46,000 from bubonic plague in the year 1931 alone. In the sixteen states bordering the Atlantic Ocean, where the lesson of vaccination has been well taught, there was only one death from smallpox in 1933, in British India, during the same year, with a population only five times as great, 103,641 smallpox deaths occurred.

The annual typhoid fever mortality in New York and Chicago rarely exceeds one death per 100,000 of population, in Nagasaki, Japan, the death rate from this disease reached 225 per 100,000, in 1931. In La Paz, Bolivia, the 1933 rate was 192 per 100,000, and in Asuncion, Paraguay, it was 187. Delhi, India, registers rates in excess of 100, year after year.

Few of our cities have death rates from measles, scarlet fever, whooping cough or diphtheria in excess of four per 100,000. Bogota, Colombia, Quito, Ecuador, and Karachi, India, register rates of 315, 200 and 175 respectively for measles alone, while La Paz, Bolivia, and San Salvador, Salvador, record rates of 497 and 159 for whooping cough, the Roumanian cities of Jassy and Bucharest have scarlet fever rates of 59 and 39, and in Kingston-upon-Hull, England, and Ghent, Belgium, diphtheria death rates of 42 and 45 prevail.

In 1918 the death rate from influenza in New York City reached the appalling height of 229 per 100,000 inhabitants, approximately the

same influenza mortality is experienced year after year in Fortaleza Brazil. The pneumonia death rate in New York has averaged about 100 per 100,000 in recent years. In Madras the annual rate is approximately 700 and in Val paraiso and Manila approximately 500.

Our country wide tuberculosis mortality has been reduced in thirty five years to 55 per 100,000, about one quarter of the rate which prevailed in 1900. In Manila the rate is about ten times this figure. In Guayaquil Ecuador it is 647, in Callao, Peru 573, in Lisbon Portugal 487 and in Athens, Greece 414.

Likewise with malaria although our death rate has increased in recent years to nearly 4 and in some Southern states is as high as 50 and 100 it cannot be compared to Manaus and Belem in Brazil, with their rates of 517 and 407 with Saigon Cholera in French Indo-China, with its rate of 305 or with San Salvador, where the rates commonly exceed 25.

Such improvement in public health cannot be attributed to changes in natural conditions or to increased resistance on the part of individuals. The credit is due to the intelligent and tireless efforts of our medical and public health services during the last thirty or forty years.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

HUNTER, FRANCOIS T. A.B. A.M., M.D. Harvard University Medical School 1924. Assistant Physician Massachusetts General Hospital. Associate Physician, Collis P. Huntington Memorial Hospital. His subject is 'Spray X Ray Therapy in Polycythemia Vera and in Erythroblastic Anemia'. Page 1123. Address 6 Commonwealth Avenue, Boston, Mass.

HOUSSEY BERNARDO A. M.D. For information see This Week's Issue, page 946, issue of May 7. His subjects are 'The Hypophysis and Resistance to Intoxications. Infections and Tumors' and 'Certain Relations Between the Parathyroids, the Hypophysis and the Pancreas'. Pages 1128 and 1136. Address University of Buenos Aires, Buenos Aires Argentina, S. A.

STEIN ARTHUR. A.B., M.D. Tufts College Medical School 1934. Formerly Intern, Worcester State Hospital. Now Intern, Worcester City Hospital. His subject is 'Menorrhagia Occurring at the Onset of Catamenia in a Patient with Thrombopenic Purpura. Report of a Case'. Page 1147. Address City Hospital Worcester Mass.

The Massachusetts Medical Society

SECTION OF DERMATOLOGY AND SYPHILOLOGY

CHANGE IN ANNUAL MEETING PROGRAM

Because of illness it is impossible for Dr. Louis Schwartz of New York to take part in the Annual Meeting Program of this Section. He was to have spoken on Industrial Dermatoses.

In his stead Dr. Marion B. Sulzberger of New York will deliver an address on Definitions and Classifications in Dermatologic Allergy. Dr. Sulzberger is well known for his work on this subject.

MISCELLANY

MAINE NEWS

The Spring Clinic given by the visiting staff of the Eastern Maine General Hospital in conjunction with the Penobscot County Medical Society was held at the hospital on Monday and Tuesday May 18 and 19 1936. The discussion was conducted by Dr. C. H. Beecher and Dr. W. T. Rees of Burlington Vermont.

There were ward rounds in the mornings at 9:30 A.M. and the presentation of cases for discussion in the afternoons at 3:30. The clinic was devoted to general medical and surgical cases. The hospital accepted cases referred to it at no cost for the ward cases other than the regular hospital charges.

On Monday evening May 18 dinner was served at the Bangor House following which Dr. Rees spoke on "Thyroid Disease".

On Tuesday evening May 19 the Penobscot County Medical Society held its regular meeting at the Nurses' Residence of the Hospital. Following this meeting dinner was served after which Dr. Beecher discussed "Arteriosclerotic Disease".

Both Dr. Beecher and Dr. Rees are identified with the University of Vermont Medical School. Dr. Beecher being Professor of Medicine and Dr. Rees Assistant Professor of Surgery.

The Maine Medical Association will hold its Eighty-Fourth Annual Session June 21-23 1936 at Rangeley Maine.

PROGRAM Conferences

Monday June 22 9:30 A.M.

- 1 Postoperative Abdominal Distention. E. H. Riley M.D. Waterville.
- 2 Circulatory Failure in Infectious Disease. R. S. Hawkes M.D., Portland.
- 3 Deep Cervical Involvement from Oral and Nasopharyngeal Infections. C. H. Gordon M.D., Portland.
- 4 Some Phases of Chronic Uveitis. H. F. Hill M.D. Waterville.
- 5 Medical Examiners. G. L. Pratt M.D., Chairman Farmington. A round table discussion.

- 6 Intrapleural Pneumolysis G L Stivers M D,
Fall River, Mass, F J Welch, M D Port-
land

Monday, June 22, 11 00 A M

- 7 Tumors of the Ovary H W Garcelon M D,
Auburn
8 Ulcerative Colitis W H Bunker, M D Calais
9 The Necessity for More Thorough Preoperative
Study Wm Ellingwood, M D, Rockland
10 Orthoptic Training M C Moulton M D,
Bangor
11 Allergy J C Oram, M D, South Portland
12 Fractures Henry Lamb, M D, Portland

Tuesday, June 23, 9 30 A M

- 13 Gallbladder and Gallbladder Duct Surgery H L
Robinson, M D, Bangor
14 Circulatory Disturbances of the Extremities
J R Hamel, M D, Portland
15 Chronic Purulent Otitis Media W H Charters,
M D, Lewiston
16 The Malnourished and Nervous Child A S
Whittier, M D, Portland
17 Medical Treatment in Obstetrics H F Pessey,
M D, Bangor
18 Early Recognition and Treatment of Mental Dis-
orders by the General Practitioner C J
Hedin, M D, Bangor

Tuesday, June 23, 11 00 A M

- 19 Acute Abdominal Surgery J B Diamond,
M D, Portland
20 A Differential Consideration of Precordial Pain
T E Hardy, M D, Waterville
21 Acute Otitis and Its Complications C V King
horn, M D, Kittery
22 Digestive Disorders of Infancy and Childhood
A W Fellows, M D, Bangor
23 The Significance of Bleeding During Pregnancy
L C Gross, M D, Lewiston
24 Pneumonia. F A Winchenbach, M D Bath

Scientific Session

Monday, June 22, 2 00 P M

- 1 Recent Advances in Gastrointestinal Surgery
Wm Cox, M D, Lewiston
2 Office Treatment in Endocervicitis R L Bar-
rett, M D, New York City
3 The More Recent Developments in Diabetic
Treatment E R Blaisdell, M D, Portland
4 Hematuria C E Blaisdell, M D, Bangor
5 Maternal Child Health and Crippled Children's
Programs Under the Social Security Act
D A Murray, M D, Washington, D C
Discussion opened by G H Coombs, M D, Au-
gusta, T A Foster, M D, Portland

Cancer Symposium

Tuesday, June 23, 2 00 P M

- Chairman, J W Scannell, M D, Lewiston
Introduction Cancer in Maine J W Scannell, M D,
Surgeon in Chief, Central Maine General

Hospital, Lewiston, Chairman, Maine Medi-
cal Association Cancer Committee Chair-
man, Tumor Clinic, Central Maine General
Hospital

Tumors, Defined and Classified Julius Gottlieb,
M D, Pathologist, Central Maine General
Hospital, Lewiston, Secretary, Maine Medi-
cal Association Cancer Committee

Carcinoma of Breast Its Early Diagnosis, Prognosis
and Treatment C M Robinson M D,
Chief of Surgical Staff, Maine General Hos-
pital, Portland

Carcinoma of Pelvis Routine Examination, Symp-
toms Diagnosis and Treatment M F Rid-
lon, M D, Surgeon, Eastern Maine General
Hospital, Bangor

Carcinoma of Gastrointestinal Tract. Its Early
Symptoms, Diagnosis and Treatment E H
Risley, M D, Surgeon, Thayer Hospital and
Sisters' Hospital, Waterville

Pathology of Carcinoma of Breast, Pelvis and Gas-
trointestinal Tract A. H Morrell, M D,
Director, Diagnostic Laboratory, Augusta

X Rays in Diagnosis of Malignant Tumors F B
Ames, M D, Roentgenologist, Eastern Maine
General Hospital, Bangor

Radium Therapy in Treatment of Carcinoma Wil-
liam Holt M D, Surgeon, Maine General
Hospital, Portland

X Ray Therapy in Treatment of Malignancy S A
Wilson, M D, Roentgenologist, Central Maine
General Hospital, Lewiston

Discussion of Cancer Symposium Elliott C Cutler
M D, Moseley Professor of Surgery, Har-
vard University Medical School, Surgeon in
Chief, Peter Bent Brigham Hospital, Bos-
ton, Mass Soma Weiss, M D, Professor
of Medicine, Harvard University Medical
School, Physician in Chief, Boston City
Hospital

EDWARD H RISLEY, M D

HEALTH OFFICERS' MONTHLY STATEMENT OF VENEREAL DISEASES REPORTED IN NEW ENGLAND FOR MARCH, 1936

State	Syphilis		Gonorrhea	
	Cases Re-ported	Monthly Case Rates per 10,000 Population	Cases Re-ported	Monthly Case Rates per 10,000 Population
Connecticut	233	1 41	87	53
Maine	40	50	41	51
Massachusetts	492	1 13	485	1 12
New Hampshire	14	30	17	36
Rhode Island	148	2 10	64	91
Vermont	18	50	15	42

—From the Bulletin of the Public Health Service

A PLEA FOR IMPROVEMENT OF THE SCIENTIFIC PROGRAMS OF COUNTY SOCIETY MEETINGS

The grammar of medicine is an ever-changing body of fundamentals. Whereas in the other learned professions growth is mainly in the nature of accretion in medicine growth is more likely to effect a transmutation of basic concepts. This was certainly the case when bacteriology was added to the grammar of medicine. So too it was when endocrinology, vitamins and modern psychiatry were discovered and developed. But these transmutations are not invariably effected by epochal discoveries. At times very radical modifications in basic concepts are necessitated by comparatively minor additions to our knowledge. As an instance in point may be taken the recent work on the relation of the physiology of the sympathetic nervous system to such conditions as peptic ulcer and essential hypertension.

The above consideration has a direct bearing upon the education of the doctor when as a neophyte he acquires it in his school and hospital training and more particularly on his continued education after graduation and when he is in active practice.

It is often said half in humor and half in wise denotation, that no one knows so much medicine as the third year medical student. His knowledge is so vast, so precise! He "knows the answers" that is provided he is a good book student. It will require some years of experience and an impressive accumulation of failures to free the young doctor of his conceit. He will only slowly learn the lesson that "grammar" is a body of tools and that art is still elusive. It is a pity then that the young man is not spared the delusion, and that what is taught him is not served with a warning on its tentative nature and with the advice that not only is it subject to change but that indeed periodic change and reinterpretation will be essential to his continued professional growth.

While there are many concerned with the curricula of medical schools, the situation is otherwise with what is termed graduate education. Training for specialization has been accorded a measure of study. But such instruction embraces only a small portion of the medical personnel. Most doctors are and will continue to be general practitioners. They too may periodically desire specialty training as their practice leans heavily in the direction say of obstetrics, gynecology, surgery and so forth. But here our concern is with general instruction for the general practitioner in general medicine. This is necessitated for every man by time, what we term rather loosely the advances in medicine, but which, as we indicated above arises out of the labile nature of the grammar of our science.

For this type of instruction we can hardly provide formal schooling. There is no fixed curriculum no defined teaching body. Here we need a means so that "he who runs may read" or more fittingly so that he who is in active practice may bring his

knowledge up to the mark without withdrawing from everyday activity. The need for this type of instruction has not gone unrecognized. Indeed, many county associations and academies have organized lecture series for the general practitioner. In the New York Academy of Medicine to cite but one illustration Friday afternoon lectures are available for the practitioners of the metropolis and during the last eight years a Graduate Fortnight, devoted to some one but embracing division of medical practice has been held. These are unique teaching activities as one can readily gather from the programs. They are not devoted primarily to what is the newest the most recent and the least tried of medical ideas and practices; they are rather résumés of what is known, what is accepted and what has been proved. They are a consolidation of thought and advance in our science.

But even these unique teaching endeavors can reach only a small percentage of our profession. To render the practice more widespread and hence more fruitful, the concept must be instilled into that forum called the county society meeting. Here we have the most numerous and most common meeting place and occasion where and when doctors foregather. The county society meeting should, therefore offer the very best opportunity for this desirable form of instruction.

Our medical journals as a group should prove no less valuable a medium for such education but here we touch on a rather complicated subject and one which we can at this time no more than touch.

Let us apply ourselves more closely to the problem. We grant that the recently graduated physician is a rather raw product. If he continues for ten years without learning more than he knew when he came out of medical school and if he does not readjust his viewpoint his philosophical concepts so to say he will find himself badly behind the procession. How then does he or how should he continue his education? Of course he may take graduate instruction in some specialty or in internal medicine. While this is increasingly the practice among the younger men the number is still very small and it is difficult for the older man who must stay on the job.

Of course he can read his medical journals but most of the journals haven't yet gotten the idea. Their columns are filled with the newest hypotheses, the rare cases and the highly intricate conditions. True occasionally one finds in an annual address or in a contribution by some outstanding scholar an excellent résumé of a given field or subject. In such instances this precious material is usually presented in the historical introduction which is likely as not will be skipped by the reader since most "histories" are merely an uncritical recitation of names and dates.

To give due credit we must, however note that the *Journal of the American Medical Association* has in recent months published excellent résumés on therapy and on endocrinology. Also the *Lancet* has been publishing serial résumé articles. These valu-

able though they be, are too infrequent and loom small in the bulk of published material

And finally, not all medical men are so to say, eye-minded. Some cannot gain much from the printed page or find the effort too taxing and unprofitable. For them, the human voice is more effective and a more productive medium. The hospital conference, contact with fellow practitioners and meetings, serve best as sources of instruction for a large number of doctors.

This argues, then, for making the county society meeting truly instructive by offering, periodically, résumé programs. This idea is a simple one. Alas, too fatally simple. For, if it is applied crudely and uncritically, it creates a pathetic effect. What can be more boring than being told what is all too well known? Hash is hash even when called a résumé. But we are not after hash in the résumé meeting. We need and desire a recrystallization of thought and knowledge in a given field, a rearrangement of old elements to make a new pattern, a trimming of dead limbs to bring new life into a branch of knowledge. All of which calls for the choice of a suitable subject and a competent essayist.

There is a time and seasonableness for subjects. Not all may be revalued effectively. In many there is nothing new to report, as the old concepts still hold good. But others cry for restatement. There is a sort of nodal point at which progress in a given field may be focused to form a new and clear picture. Such is the instance now in the diseases of the blood, and in the evaluation of the emotional factor in functional disturbance. A year from now the time may be ripe for a résumé of physical therapy in general practice. Nutrition, the diagnosis and treatment of tuberculosis and traumatic surgery are fit subjects for restatement.

But one cannot readily compose a catalogue and schedule of subjects to be so treated which are suitable for differing times and places. The task is not for one man and the problem varies from place to place. But the essential idea is important. A résumé is not a mere restatement of what is known. It is essentially a philosophical task, it is the bringing forth of a new concept, at times furthering, at times reversing, the older concept. It is a critical evaluation, a sifting of older knowledge and its amalgamation with newer knowledge. A résumé is, indeed, of the very nature of the philosophy of medicine, that phase of medicine which is as precious as its science.

LAGO GALDSTON, M.D., *Executive Secretary,*
Medical Information Bureau,
New York Academy of Medicine
2 E 103rd Street, New York City

PATENT MEDICINES SEIZED BY FEDERAL INSPECTORS

Patent medicines are conspicuously present in the U. S. Department of Agriculture report of May 25, 1936. The products seized, their compositions, and the curative claims alleged to be false and fraudulent, are as follows:

"Anti Itch," a petrolatum ointment containing zinc oxide, glycerol, wintergreen and carbolic acid (10.63 per cent). The product was also held to be misbranded under the Federal Caustic Poison Act since it had no label statement of the common name of the poison it contained, no "Poison" warning, and no antidote in case of accidental injury.

"Booth's Hyomei," a solution of eucalyptol, menthol and creosote in alcohol and water, for catarrh, hay fever, catarrhal coughs, croup, bronchitis, catarrhal laryngitis, lung affections and difficult breathing (the product was further misbranded in declaring an alcohol content of 12 per cent when it contained only 9 per cent, and in representing its vapors as antiseptic).

"Bialot Rheumatic Tablets," containing amidopyrine, sodium salicylate, and coated with chocolate, for rheumatism, gout, neuralgia, neuritis and sciatica.

"Diaplex," consisting of the dried leaves and stems of the salt bush, for diabetes.

"Four Leaf Clovers," pink tablets containing boric acid, borax and starch, falsely represented as antiseptic, and for various ailments of women.

"G. S. Alterative Tonic," a solution of plant drugs and potassium iodide in alcohol and water, for pelagra, rheumatism, liver and kidney ailments, and as a tonic.

"H. P. Antiseptic and Healing Balm," a lead oleate ointment not antiseptic as represented, and claimed safe despite its lead content, for a multitude of lesions.

"Hi Test Catarrhal Jelly," a deteriorated salvage drug containing petrolatum, menthol and eucalyptol, for catarrh and hay fever, "Kopp's," a syrup containing the narcotic morphine sulphate, represented as safe for children.

"Lacta Kaolin Alpha," consisting of lactose, kaolin (clay) again and cocoa, represented as a food, although composed chiefly of nonfood ingredients, "Lacta Kaolin Laxative," of the same composition as the preceding product, with the addition of the coal tar laxative phenolphthalein, without reference to the presence of the laxative drug.

"Mentos," a water solution of sulphur, borax, ammonia and perfume, represented as antiseptic but found on test incapable of killing pathogenic organisms.

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"Quality Sealed Sore Throat Remedy," another deteriorated salvage drug, a solution of potassium chlorate, tannic and carbolic acid in glycerin and water, short of the declared volume, for sore throat.

"Tricasco," a solution of plant extracts, licorice, a laxative and sugar, for forty ailments including consumption, pneumonia, rheumatism, palpitation of

the heart gout gallstones and stomach ulcers
"Wards Vitamized Tonic Tablets" containing
iron iodine calcium a fish liver oil and berberine
making claims of vitamin A and D potency that
were found on test to be unsupportable

THE CONTROL OF SILICOSIS BY THE U S DEPARTMENT OF LABOR

Secretary of Labor Frances Perkins has announced
the appointment of four committees specified below
in the co-operative campaign to lessen the
ravages of silicosis to which 600,000 workers in
mines, quarries foundries glass works and other
industries where silica dust may be inhaled are ex-
posed in some degree

COMMITTEE ON THE PREVENTION OF SILICOSIS THROUGH MEDICAL CONTROL

Chairman — Surgeon R. R. Sayers U S Public
Health Service Washington D C L. U. Gardner
M.D., Director Saranac Laboratories Saranac Lake,
N Y Wesley M. Graft National Bureau of Casual-
ty and Surety Underwriters New York City Thomas
Kennedy United Mine Workers of America Harris-
burg Pa. A. J. Lanza M.D. Metropolitan Life In-
surance Company, New York City W. S. McCann
M.D., Strong Memorial Hospital Rochester N Y
E. P. Pendergrass, M.D., University of Pennsylvania,
Philadelphia Pa. B. L. Vosburgh M.D. National
Electrical Manufacturers Association Schenectady
N Y C. H. Watson M.D. President National
Safety Council, New York City J. Norman White
M.D., Scranton Pa.

COMMITTEE ON THE PREVENTION OF SILICOSIS THROUGH ENGINEERING CONTROL

Chairman—Warren A. Cook State Department of
Health Hartford Conn. Cyril Ainsworth American
Standards Association, New York City James R.
Allan International Harvester Company Chicago
Ill. J. J. Bloomfield U S Public Health Service
Washington D C Thomas G. Donnelly State
Federation of Labor Columbus Ohio Professor
Philip Drinker Harvard School of Public Health
Boston, Mass. C. H. Fry Chief Bureau of Industrial
Accident Prevention Department of Industrial Re-
lations, San Francisco Calif. Leonard Greenburg
M.D., Division of Industrial Hygiene New York
City Daniel State Department of Labor New York City
Harrington U S Bureau of Mines, Washington
D C Willis G. Hazard Owens-Illinois Glass Com-
pany Toledo Ohio E. O. Jones, American Foundry
men's Association Chicago Ill. E. G. Metter Em-
ployees Mutual Liability Company Milwaukee
Wis. W. P. Yant Supervising Engineer U S Bu-
reau of Mines Experiment Station Pittsburgh Pa.

COMMITTEE ON ECONOMIC, LEGAL, AND INSURANCE PHASES OF THE SILICOSIS PROBLEM

Chairman—V. P. Ahearn National Sand and Gravel
Association Washington, D C Daniel D. Carmell
Assistant Attorney-General, Chicago Ill. J. Dewey
Dorsett, Industrial Commission Raleigh N C

Evan I. Evans Supervisor Actuarial Division Ohio
Industrial Commission Columbus Ohio John P.
Frey American Federation of Labor Washington
D C Henry D. Kessler M.D., Chairman Rehabil-
itation Commission, Newark N J Voyta Wrabetz,
Chairman, Wisconsin Industrial Commission Mad-
ison Wis. Louis B. Rayeroff Pennsylvania Self-
Insurers Philadelphia, Pa. Henry D. Sayer Asso-
ciation of Casualty and Surety Executives New
York City T. C. Waters Chairman Maryland Occu-
pational Disease Commission, Baltimore Md. Rob-
ert J. Watt, Massachusetts Federation of Labor
Boston, Mass. David S. Beyer Liberty Mutual In-
surance Company Boston Mass. W. H. Winans
Union Carbide and Carbon Corporation, New York
City William F. Roeder National Council of Com-
pensation Insurance New York City

COMMITTEE ON REGULATORY AND ADMINISTRATIVE PHASES OF THE SILICOSIS PROBLEM

Chairman—L. Metcalfe Walling Labor Commis-
sioner Providence R. I. Leon S. Senior Compen-
sation Insurance Rating Board New York City
P. G. Agnew M.D. American Standards Associa-
tion New York City Dan Boney Insurance Com-
missioner Raleigh, N C Manfred Bowditch Di-
rector Bureau of Occupational Hygiene Boston
Mass. Joseph A. Haller Safety Engineer Compen-
sation Commission Baltimore Md. Ambrose B.
Kelly American Mutual Alliance Chicago Ill.
Michael J. Murphy Director Workmen's Compen-
sation New York City Victor A. Olander Secretary
Illinois Federation of Labor Chicago Ill. Stanley
Osborn M.D. Health Commissioner Hartford
Conn. W. C. Woodward M.D. American Medical
Association Chicago Ill. J. H. Oliver Glen Alden
Coal Company Scranton Pa. Martin P. Durkin
Director Illinois Department of Labor Chicago Ill.
R. M. Hartman Assistant Secretary Workmen's
Compensation Department, Charleston, W. Va.

RECENT PUBLICATIONS OF THE METROPOLI- TAN LIFE INSURANCE COMPANY

A series of pamphlets for lay readers has been
prepared by the Metropolitan Life Insurance Com-
pany. The titles of these brochures are as follows:

Taking Your Bearings — Emphasizes the value of
periodical physical examinations at various ages.
The old seaman on the cover shooting the sun with
a sextant gives the keynote to the pamphlet. Just
as a seaman uses his nautical instruments to locate
danger spots so with the help of a physician's
knowledge and special instruments one can discover
and avoid many of the physical hazards of life.

Cure of the Eyes — Outlines practical methods of
conserving eyesight and describes in simple lan-
guage the more common eye defects and eye dis-
eases.

Sleep — Deals with the importance of sleep, rest,
and relaxation for all ages, emphasizing their close
relationship to health and disposition. Points out
that how well we sleep is as important as how long.

able though they be, are too infrequent and loom small in the bulk of published material

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"Tricasco," a solution of plant extracts, licorice, a laxative and sugar, for forty ailments including consumption, pneumonia, rheumatism, palpitation of

sion of the insurance principle in relation to hospital service in scientific studies concerning the cost and the organization of medical care and in the education of qualified personnel for studying and administering hospitals and clinics

MORTALITY RATES

Telegraphic returns from 86 cities with a total population of thirty-seven millions for the week ending May 9 indicate a mortality rate of 12.6 as against a rate of 12.0 for the corresponding week of last year. The highest rate (21.5) appears for Tacoma, Wash. and the lowest (4.1) for Waterbury Conn. The highest infant mortality rate (13.1) appears for San Antonio Texas and the lowest for Erie Pa., Fall River Mass. Fort Wayne Ind. Grand Rapids Mich., Hartford Conn., San Diego Calif., Schenectady N. Y., Somerville Mass., and South Bend Ind., which reported no infant mortality.

The annual rate for 86 cities is 13.5 for the nineteen weeks of 1936 as against a rate of 12.6 for the corresponding period of the previous year.

SUMMARY OF DEATHS AND DEATH RATES (ANNUAL BASIS) FROM AUTOMOBILE ACCIDENTS PER 100,000 ESTIMATED POPULATION FOR 86 CITIES FOR CORRESPONDING PERIODS OF 1936 AND 1935

	Week ending		First 19 weeks	
	May 9	May 11	1936	1935
	1936	1935		
Total deaths	163	161	2,666	3,110
Death rate	22.8	22.4	19.6	22.8
Deaths due to accidents in city	131	131	2,067	2,529
Death rate	18.3	18.3	15.2	18.5

—Bulletin, Bureau of the Census

THE RESIGNATION OF DR. DAVID D. SCANNELL

Dr. David D. Scannell has resigned as Surgeon in Chief of the Boston City Hospital effective June 1, 1936.

THE RECORD FOR BLOOD TRANSFUSIONS

Raymond Brix of Paris holds the record for blood transfusions having supplied 98 in one year. Since 1924 he has sold 257 quarts of his blood, without suffering any ill effects. — *Bulletin* New York State Medical Society

THE THREE CENTS A DAY HOSPITAL PLAN

A prediction made at the meeting of the Hospital Association of the State of New York at Buffalo May 23, 1936 is to the effect that the "three cents a day hospital plan" will be popular in the larger cities of New York State.

It was asserted that 33,000 persons in Rochester New York and 90,000 in New York City have subscribed to the plan.

It involves neither charity nor profit according to Mr. Frank Van Dyk, Executive Director of the Associated Hospital Service of New York City.

RECENT DEATHS

UPTON—CHARLES LOUIS UPTON M.D., whose office was at 31 Federal Street, Greenfield Massachusetts died May 25, 1936. Dr. Upton was born at Shelburne Falls in 1870 the son of Oliver and Sarah (Duncan) Upton and after a preliminary education at Arms Academy and Amherst College he matriculated at the University of Pennsylvania School of Medicine and graduated in 1896. Soon afterward he settled in Shelburne Falls where he practiced until he moved to Greenfield in 1925.

Dr. Upton was a Fellow of the Massachusetts Medical Society and the American Medical Association and a member of Lieutenant John J. Galvin Post of the American Legion.

His widow a son Duncan G. Upton, and a daughter Mrs. Ruth Chase and four grandchildren survive him.

HART—MICHAEL JOSEPH HART M.D., of 1635 Dorchester Avenue Boston died at the Boston City Hospital May 23, 1936.

Dr. Hart was born in Fitchburg Massachusetts in 1871 and was a graduate of Boston College and of the Medical School of Harvard University class of 1896. He practiced in Ashmont for about forty years.

Dr. Hart was not married. Five nieces Mrs. George J. Weldon, Mrs. David Drinkwine, Mrs. W. F. O'Brien, Mrs. Raymond T. Powers and Mrs. William G. Hay and two nephews Paul F. and John J. McElroy all of Fitchburg survive him.

NOTICES

AN AWARD OF ONE THOUSAND DOLLARS FOR A MANUSCRIPT ON A SCIENCE SUBJECT

A cash award of \$1000 is offered by The Williams & Wilkins Company for the best manuscript on a science subject, presented before July 1, 1937.

Literary prizes are relatively common but it is not so usual for a publisher to be bidding for science material in this manner.

The publishers put no limitations on the subject matter or manner of handling and none on eligibility for the award. The MS must be in English and "of a sort calculated to appeal to the taste of the public at large. The desired length is given as 100,000 words.

While any MS on a science subject will be considered it is expected that the author will prove to be a man or woman engaged in a scientific pursuit who is possessed of the requisite literary skill to interpret science for that portion of the public which reads books.

To assure authenticity the publishers have enlisted the services of some twenty-five or thirty advisers, these being men of science of wide reputation and assured competence. One or more of the advisers will pass upon each MS from the viewpoint of soundness and accuracy.

The award will lie in the joint discretion of four judges selected with a view to their especial qualification in choosing the sort of book that will appeal. These are the following: Dr Joseph Wheeler, Librarian of the Pratt Library in Baltimore and chairman of the Book List Committee of the Association for the Advancement of Science, Harry Hansen, reviewer and critic for the *New York World Telegram* and *Harpers Magazine*, Dr Lyman Bryson, Professor of Education of Teachers College, Columbia, and Director of the "Readability Laboratory," and David Dietz, science editor of the *Scripps Howard* newspapers.

Further details concerning the award may be had by addressing the publishers at Mt. Royal and Guilford Avenues, Baltimore, Maryland.

HARVARD UNIVERSITY TRICENTENARY CELEBRATION 1636 1936

SYMPOSIUM ON THE ENVIRONMENT AND ITS EFFECT UPON MAN

August 24 to 29, 1936, at the School of Public Health,
55 Shattuck Street, Boston

Monday

- 9 30 A.M. The Effects of the Social Environment. Dr Lawrence J. Henderson, Abbot and James Lawrence Professor of Chemistry, Harvard University and Dr Elton Mayo, Professor of Industrial Research, Harvard Business School.
- 11 00 A.M. Fatigue. Dr David B. Dill, Assistant Professor of Biological Chemistry, Harvard School of Public Health.
- 2 00 P.M. Airborne Disease. Dr Wilson G. Smillie, Professor of Public Health Administration, Harvard School of Public Health.
- 3 30 P.M. Bacteria and Pollen in Air. Mr William F. Wells, Instructor in Sanitary Science, Harvard School of Public Health.
- 8 00 P.M. Reception to members of the Symposium and their families.

Tuesday

- 9 30 A.M. The Physiological Effects of High Temperatures and Humidities. Dr Cecil K. Drinker, Professor of Physiology and Dean, Harvard School of Public Health.
- 11 00 A.M. Industrial Air Conditioning. Mr Constantin P. Yaglou, Assistant Professor of Industrial Hygiene, Harvard School of Public Health.
- 2 00 P.M. The Physiological Effects of High Pressures. Mr Louis A. Shaw, Assistant Professor of Physiology, Harvard School of Public Health.
- 3 30 P.M. Industrial Operations in Compressed Air. Mr Ole Singstad, Chief Consulting Engineer on Tunnels, Port of New York Authority.

Wednesday

- 9 30 A.M. Carbon Monoxide Poisoning. Dr Cecil K. Drinker.

- 11 00 A.M. Occurrence and Significance of Gaseous Impurities. Mr William P. Yant, Supervising Chemist, Health Laboratory Section and Supervising Engineer, Pittsburgh Experiment Station, U. S. Bureau of Mines.

- 2 00 P.M. The Toxicology of Organic Vapors and Gases. Dr John S. Foulger, Haskell Laboratory of Industrial Toxicology, Wilmington, Del.

- 3 30 P.M. The Toxic Dusts. Dr Lawrence T. Fairhall, Assistant Professor of Physiology, Harvard School of Public Health.

Thursday—Pneumoconioses

- 9 30 A.M. Causation. Mr Phillip Drinker, Professor of Industrial Hygiene, Harvard School of Public Health.

- 11 00 A.M. Clinical Aspects, Diagnoses, Prevention. Dr W. Irving Clark, Physician to The Norton Company and Assistant Professor of the Practice of Industrial Medicine, Harvard School of Public Health.

- 2 00 P.M. Control. Mr Theodore F. Hatch, Instructor in Industrial Sanitation, Harvard Schools of Engineering and of Public Health.

- 3 30 P.M. Protective Equipment. Dr Carlton E. Brown, Chemist, Gas Section, Pittsburgh Experiment Station, U. S. Bureau of Mines.

Friday

- 9 30 A.M. The Application of Air Conditioning in Normal Life. Mr Phillip Drinker.

- 11 00 A.M. The Application of Air Conditioning to Hospitals. Mr C. P. Yaglou.

- 2 00 P.M. A Laboratory of Industrial Toxicology. Dr W. F. von Oettingen, Director, Haskell Laboratory of Industrial Toxicology, Wilmington, Del.

- 3 30 P.M. A Laboratory of Industrial Hygiene. Mr Warren F. Cook, Chief Industrial Hygienist, State Department of Health, Hartford, Conn.

Saturday A.M.

Demonstration in the Harvard School of Public Health and visits to the Industrial Clinic, The Norton Company, Worcester, Mass., The Fletcher Granite Company, West Chelmsford, Mass., The Fatigue Laboratory, Harvard Business School.

To cover the expenses of the symposium a fee of \$25 will be charged those who attend. For further information address Marian Dale, Secretary, 55 Shattuck Street, Boston, Mass.

TRICENTENARY SESSION OF THE HARVARD MEDICAL SCHOOL

SEPTEMBER 14 AND 15, 1936

As part of the University celebration, the Medical School and the Medical Alumni Association invite the graduates of the School to return on September 14 and 15 for the Medical School Exercises.

and Medical Alumni Reunion. These will immediately precede the final Cambridge exercises on September 16, 17 and 18

The Medical School Exercises will include

Demonstrations special clinics discussions and exhibits at the various hospitals associated with the Harvard Medical School.

Four carefully planned symposia programs presented by the Harvard Medical Faculty on Nutrition and the Deficiency Diseases

Chairman Dr George R Minot

The Nervous System Central and Sympathetic

Chairman Dr Walter B Cannon
The Infectious Diseases

Chairman Dr Hans Zinsser

The Endocrine Glands

Chairman Dr J Howard Means

The annual meeting and the dinner of the Harvard Medical Alumni Association will be held on the evening of September 15 in Vanderbilt Hall. This meeting has been postponed from its usual time in June in honor of the Tercentenary and to encourage the return at this time of as many graduates as possible.

"OPEN HOUSE"

July August and September

The Tercentenary Celebration begins on July 6, 1936 when the University places its various buildings and activities on view. Most of the departments of the Medical School and the affiliated hospitals will keep open house for all or part of the summer. During this time one or more members of the staff of each department will always be available to receive returning graduates or interested visitors and show and explain the routine activities or such demonstrations and exhibits as the department may offer. Further information as to items of special interest, dates and times will be published in the Medical Alumni Bulletin and will be available during the summer at the Tercentenary Office in Cambridge.

PROGRAM OF THE TRICENTENARY SESSION OF THE MEDICAL SCHOOL

Monday September 14

9:00 A.M. 12:30 P.M. Clinics and demonstrations

The "open house" demonstrations and exhibits of the summer will be continued during this morning. The members of the staffs will be present to discuss their work informally and many of the departments and hospitals will offer special clinics and demonstrations. The full program will be announced at a later date in the Medical Alumni Bulletin.

12:30 P.M. Buffet luncheon in Vanderbilt Hall

~ 00:5-00 P.M. Harvard Medical School, Building D

Introduction to the Symposia

Dr David L. Edsall, Dean Emeritus

Nutrition and the Deficiency Diseases

Chairman Dr George R. Minot

Dr J. L. Gamble — Intracellular Fluid and Its Maintenance

Dr C. M. Jones — Protein Deficiency

Dr C. W. Heath — The Deficiencies of Circulating Hemoglobin

Dr W. B. Castle — The Relationship of Defective Nutrition to Changes in the Gastro-Intestinal Tract

Dr S. B. Wolbach — Vitamin C and the Formation of Intracellular Material

Dr K. D. Blackfan — Sub-Optimal Nutritional States and Partial Vitamin Deficiency

Dr P. Howe — Oral Pathology in Relation to Avitaminosis

Dr M. B. Strauss — Nerve Disorders Arising from Defective Nutrition

Dr E. P. Joslin — Present Aspects of Diabetes

Monday evening is held open for possible Medical class reunions and hospital reunions.

Tuesday September 15

There will be two simultaneous sessions on Tuesday morning

(A) 9:30 A.M. 12:30 P.M. Harvard Medical School Building C

The Nervous System Central and Sympathetic

Chairman Dr Walter B. Cannon

Dr J. C. White — Surgery of the Sympathetic Nervous System

Dr A. Rosenbluth — Chemical Mediation of Nervous Effects

Dr J. B. Ayer — The Use of Prostigmine in Myasthenia Gravis

Dr H. Davis — The Electrical Activity of the Human Brain

Drs F. A. Gibbs and W. G. Lennox — The Electrical Activity of the Brain in Epilepsy

Dr S. Cobb — Cerebral Circulation

Dr S. Weiss — Syncope and Collapse

Dr T. J. Putnam — The Pathogenesis of Multiple Sclerosis

(B) 9:30 A.M. 1:30 P.M. Harvard Medical School Building D

The Infectious Diseases

Chairman Dr Hans Zinsser

Dr Hans Zinsser — Recent Advances in the Study of Typhus Fever

Dr C. F. McKhann — The Immunological Application of Placental Extract

Dr W. G. Smittle — Epidemiological Studies on the Virus of Influenza

Drs C. S. Keefer and W. W. Spink — Immune Reactions in Gonococcal Infections

Dr A. W. Sellards — Yellow Fever

- Dr C Lyons — Antibacterial Immunity in Hemolytic Streptococcic Infections
 Dr E S A Robinson—The Antiserum Treatment of Pneumonia from the Standpoint of Public Health
 Dr M Finland—Some Aspects of Pneumococcus Infection in Man
 Dr R P Strong—Studies on Filarioides
 Dr D L Augustine—Trichinosis, Incidence and Diagnostic Tests
 Drs H Pinkerton and G M Hass—Cultivation of Rickettsia in Tissue Culture

12 30 P M Buffet luncheon in Vanderbilt Hall

2 00 5 00 P M Harvard Medical School, Building D

The Endocrine Glands

Chairman Dr J Howard Means

- Dr G B Wislocki — The Blood Supply to the Hypophysis
 Dr H B Friedgood—The Nervous Control of the Anterior Hypophysis
 Dr E C Cutler—Diabetes Insipidus Its Relation to Hypophysis and Thyroid
 Dr J C Aub — Hypophyseal Parathyroid Relationships
 Dr A B Hastings—Factors Governing the Calcium Equilibria of the Body
 Dr F Albright—The Action of the Parathyroid Hormone upon the Skeleton
 Dr E D Churchill—The Surgery of the Parathyroids
 Dr W T Salter—The Genesis of Thyroid Protein

6 00 P M Annual Meeting of the Medical Alumni Association

7 00 P M Dinner of the Alumni Association in Vanderbilt Hall

REPORTS AND NOTICES OF MEETINGS

THE BOSTON UNIVERSITY SCHOOL OF MEDICINE ALUMNI

Describing the relationship of mental factors and disease to illness and the fact that psychiatry is in close touch with many community activities, Dr Winfred Overholser, State Commissioner of Mental Diseases, in an address delivered recently before the annual gathering of the Boston University School of Medicine Alumni at the Hotel Kenmore, declared that his Alma Mater and the Commonwealth of Massachusetts are two pioneer agencies in the original study and continuing development of this field

"Psychiatry," he said, "like other branches of medicine has much to learn but it presents a fertile field for research"

The dinner was featured by a special reunion of the 10-year class of 1926 under the direction of Dr Ralph Wells of Newton Centre Dr Cecil Clark of Newton toastmaster, introduced the speakers who, in

addition to Dr Overholser, included Dr Daniel L Marsh, President of Boston University, Dr Alexander S Begg, Dean of the School of Medicine, Dr Reginald Fitz, Director of the Evans Memorial, Dr Howard Clute, Professor of Surgery, and Walter Mulvihill of Worcester, president of the senior class, Dr Rudolph Jacoby of Newton, and Dr Samuel N Vose of Newton Centre, arranged the dinner

Officers for 1936-37, who were elected, are the following doctors President, David L Belding '13 Hingham First Vice-President, C Wesley Sewall 14, West Roxbury Second Vice-President, Nathan H Garrick '15 Boston, Secretary, Rudolph Jacoby '11, Newton, Treasurer, Harold W Ripley '17 Braintree, Auditor, Samuel N Vose '18, Newton, Directors, Frank E Barton '24, Newton, Cecil W Clark '15, Newton Leighton F Johnson '15, Norwood, John A Rockwell '99, Cambridge, Helmuth Ulrich '11, Newton

Speaking further on the importance of psychiatry, Dr Overholser said "The field of psychiatry has long since outgrown the walls of what were formerly known by the dismal name of 'asylums' Today, psychiatry is no longer the orphan of medicine, but is recognized generally as a specialty which has its bearing on every other specialty of medicine The surgeon, the internist, everyone who today is dealing with the sick, is recognizing more and more the importance of mental factors in disease and the fact that physical disorders have their mental concomitants This fact was recognized in different terms by the men who founded the Boston University School of Medicine, and it is gratifying to us, as alumni of that school, to realize that the founders were men who were ahead of their times

"Psychiatry, in addition to its contacts with other branches of medicine comes into touch with many community activities as well I need hardly mention to you the program in which Massachusetts was a leader, dealing with the early recognition of *mentally retarded children in the public schools*, of that pioneer activity of Dr Thom in developing the habit clinics in the child guidance work, and of the important pioneer activity of Massachusetts under the Briggs law of assisting the courts in their difficult task of dealing with defendants on the basis of a knowledge of their mental condition It is pleasing to note that this latter activity has been recognized by the Federal Department of Justice and Public Health Service in selecting Boston as the first place in the country to establish in the Federal Courts a system of psychiatric advisers to the Court

"Psychiatry, like other branches of medicine, has much to learn, and presents a fertile field for research Much research is being done, both in Massachusetts and elsewhere, under the auspices of the State and of private foundations Much needs to be learned about the method of prevention of mental disorders and, in this field again, psychiatry has a heavy obligation to the community in which it must not be found wanting

"The Commonwealth of Massachusetts through its Department of Mental Diseases is giving every possible encouragement to the work of research and prevention. Massachusetts was indeed the first state to recognize by statute the fact that a state even if it gives every possible care to the mental patients within its hospitals is not fulfilling its entire duty to the community unless it takes steps to direct research activities toward the prevention and earlier cure of mental disorders with a view not only to decreasing the sum total of human misery but of lessening as well, the burden upon the taxpayers of supporting its evergrowing institutions."

THE INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE AND PHYSIOTHERAPY

The sixth International Congress of Physical Medicine and Physiotherapy which was held in London, May 12 to 16 1936 under the patronage of the British Government was attended by widespread attention throughout England. The section on Physical Education was a prominent feature of the program which contained reports on recent developments in all branches of physical medicine and physical therapy. It was presided over by Sir Robert Stanton Woods M.D. one of the physicians to the late King George.

At this Congress Dr. William D. McFee was elected to Honorary Membership in the permanent organization the International Association of Physical Medicine and Physiotherapy this being the first time this honor has been conferred by the association.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The April meeting of the New England Ophthalmological Society was held April 31 in the Massachusetts Eye and Ear Infirmary. After the reading of the minutes of the previous meeting Dr. Benjamin Sachs presented the first case. A forty year old Italian male entered complaining of pain in the eyes of four weeks duration photophobia ptosis but no loss of vision. A bilateral enlargement of the lacrimal glands was found each being about the size of an almond the eyes being red and dry and there was evidence of old posterior synechia on the left. The Hinton was negative and the patient was given potassium iodide. A chest plate showed marked hilus thickening and it was felt that the condition was probably due to tuberculosis. A diagnosis of dacryo-adenitis was made.

Dr. Sachs next presented a fifty-six year old male who has been treated for syphilis since 1904 had gonorrhea in 1904 and pulmonary tuberculosis in 1917. Examination showed a yellow jelly-like mass under the conjunctiva on the left eye without accompanying symptoms. There were other small, nodular swellings involving both lids of both eyes as well as in the neck and legs. The patient

showed an eosinophilia of 6 per cent. It was felt that this was probably a case of sarcoma of kaposi, which condition is said to respond well to arsenic and x-ray treatment.

Dr. Sachs then presented a case of stellate retinitis, that in May 1935 presented a small right paracentral scotoma. This winter the patient developed grilles and following this noticed black spots before his right eye. In January a swelling of the right disc and a vitreous opacity was noted. Under observation this patient developed pathology involving the macula and a typical star shaped figure was demonstrated. The blood pressure skull plates and urine were negative.

Dr. Sachs then presented a case of unilateral exophthalmos which has developed following subtotal thyroidectomy in July 1935. The question arose as to how to stop this process but without a definite decision.

The next patient had been struck on the head five years previously. He was unconscious for two hours and some months later noticed a hard lump on the forehead. The patient had had dizzy spells which terminated in profuse epistaxis and foul discharge from the nose and he had also had several epileptiform attacks. Gradually he developed exophthalmos and a severe pain in both eyes during the past few weeks. Examination showed a non-tender hard mass not fixed to the skin in the mid forehead exophthalmos rather swollen lids and a limitation of the movements of the eyes. The fields and fundi were normal. Neurological examination and spinal fluid were normal. Skull plate showed destruction of the frontal bone and ethmoid. A diagnosis has not yet been made.

Dr. James Regan presented a case of a girl who following spinal anesthesia, developed photophobia and limitation of motion of the right eye due to paralysis of the right abducens nerve. During the three months since that time she had gradually improved. There are several examples in the literature of ophthalmoplegia following the administration of spinal anesthesia. Of these paralysis of the sixth nerve is most common but such cases usually clear up much more quickly than in this instance.

The seventh case was monocular pigmentary degeneration of the retina. There are eight other authentic cases reported in the literature. Dr. Wells demonstrated a pair of spectacles that can be used, while the patient is lying on his back for reading at right angles.

Dr. Algernon B. Reese delivered the paper of the evening on "Changes that Occur in a Detached Retina." The frequency with which central vision is poor following operations for re-attachment of the retina is well known. Statistics show that about 32 per cent of such patients give a central vision of 20/30 or better after re-attachment. It was also shown that the lapse of time between attachment of the retina and operation was an important factor. Microscopic examination of the detached retina shows that there are cystic spaces formed especially in the region of the macula. Those cases that

chimecas left behind him "a record of the highest civilization North America had known"

The author informs us in his summary of the Medicine-Men that the theory of disease-cause which is most universal and popular in the New World, is that of the disease-object intrusion. This is the theory which holds that sickness is due to the presence in the body of some foreign object, such as a fish bone, a stick, a stone, or a bit of hair. In addition, the following causes for illness, given in descending order of their importance, may be listed: soul loss, sorcery, spirit intrusion, and finally, breach of taboo.

He further tells us that the supernatural of course plays a major part in all the Indian's healing ceremonies. But the medicine-man's job is to inspire faith on the part of his patient, and to use some common sense in his treatment. Even today, he says, the treatment of many a modern charlatan is often as harmful and horrible as that of the Indian medicine man.

There is much of great interest in the part of the book devoted to child-bearing in the Indian races.

Surely the lover of Indian history will be impatient to read the fascinating pages of Dr. Corlett's book.

Aids to Medicine James L. Livingstone Fifth Edition 422 pp. Baltimore: William Wood and Company \$1.50

This is a compendium of medical knowledge which is one of a series of "Students' Aids" printed in Great Britain and distributed here by William Wood and Company. It is a volume of four hundred odd pages, four by six and a half inches and three-quarters of an inch in thickness, making a handy pocket volume for medical students to read in the subways and other such places. It covers a comprehensive variety of diseases and for that reason makes interesting random reading. The views expressed are essentially conservative and sound.

Venereal Disease Information Prepared by the U. S. Public Health Service Washington Government Printing Office

It is the purpose of the Public Health Service in issuing this publication to provide in condensed form a monthly summary of the scientific developments in the diagnosis, treatment, and control of syphilis and gonorrhea. More than three hundred American and foreign journals are reviewed for this work. Abstracts are made of articles describing laboratory, pathologic, and clinical work in the field of venereal diseases.

The most important literature on every phase of the subject is presented in the form of brief abstracts that are easily read. An index for the year is published with the December issue.

During the past year thousands of physicians found this publication useful in enabling them to keep abreast with developments in venereal disease work.

The cost of this publication is only fifty cents per annum, payable in advance to the Superintendent of Documents, Government Printing Office, Washington, D. C. It is desired to remind the reader that this nominal charge represents only a very small portion of the total expense of preparation, the journal being a contribution of the Public Health Service in its program with State and local health departments directed against the venereal diseases. If you wish to secure the valuable service which this monthly magazine provides, send fifty cents to the Superintendent of Documents, Government Printing Office, Washington, D. C.

Demonstrations of Physical Signs in Clinical Surgery Hamilton Bailey 287 pp. Fifth Edition, Revised. Baltimore: William Wood and Company \$6.50

The popularity of this volume is evidenced by the fact that five editions have been required since it first appeared in 1927. Practically every physical sign of value in surgical diagnosis is clearly yet briefly described. The very generous use of illustrations, many of them colored, adds greatly to its clarity. It has proved itself a most useful book for both students and practicing physicians.

Les Acquisitions Nouvelles de L'Endocrinologie R. Rivoire 305 pp. Paris: Masson et Cie 36 fr.

This book on newer conceptions in endocrinology is well written and exceptionally well up-to-date. The reviewer has checked certain data contained in this monograph, and he found them remarkably accurate.

There are six chapters in all. One each is devoted to parathyroid, suprarenal, pancreas, ovary, testes, and pituitary glands.

It makes easy and interesting reading to one conversant with French and the price is reasonable. It is a valuable addition for the endocrinologist.

Diseases of the Nose and Throat for Practitioners and Students C. J. Imperatori and H. J. Burman 723 pp. Philadelphia: J. B. Lippincott Company

This volume is designed as a textbook for the general practitioner and the senior medical student. It gives a description of many of the more common diseases and a few of the less common ones, and discusses their symptoms, diagnosis, treatment, pathology and causation. It is in outline form and is carefully illustrated.

Considering the point of view of the readers for whom the book is intended, there is far too much emphasis on the details of operative technique. Many of the more serious illnesses, moreover, such as malignant neoplasm, have been treated in a very superficial manner. The book is well prepared from a publisher's standpoint, but as a textbook it is superfluous, since there are many other excellent treatises on the same subject.

The New England Journal of Medicine

VOLUME 214

JUNE 11 1936

NUMBER 24

ACUTE CHOLECYSTITIS*

A Study of Conservative Treatment

BY CHARLES D. BRANCH, M.D.† AND ROBERT ZOLLINGER, M.D.†

INTRODUCTION

MODERN surgical opinion as expressed in recent articles tends to favor early operation in the treatment of acute cholecystitis. The impression is given that acute cholecystitis, because of the consistently high mortality rate should be considered an acute surgical emergency and that delay is no more to be tolerated than in acute appendicitis. However an analysis of these articles clearly shows that the so-called early operation is not always an immediate one, but may be performed during a period varying from several days to two weeks following the onset of the acute attack. It would seem, therefore, that there are relatively few surgeons who routinely advise immediate operation.

Miller,¹ 1930 and Graham² 1931 were among the first to call attention to the better results which they and their associates obtained when early operation was employed. Miller advised immediate operation in those cases in which the symptoms were severe and persistent and also in doubtful cases. Graham called attention to the reduction in mortality in his series from eleven per cent to five per cent following the attempt to operate in cases of acute cholecystitis forty-eight hours or less after the onset of the attack. Stone and Owings³ 1933 have been the most dogmatic in sponsoring prompt operation and have concluded that immediate operation is the method of choice in all types of acute inflammation of the gallbladder. Zininger⁴ 1932, was not so positive that all cases of acute cholecystitis should be submitted to immediate operation, advising this only for those cases in which the symptoms were severe and the leucocytosis was high. In the remaining cases, if the symptoms did not subside within forty-eight hours, operation was strongly urged. The majority of the other recent articles temporized and advised, what seemed to us to be, a conservative type of treatment. Smith,⁵ 1933 and Behrend,⁶ 1934, have been staunch advocates of conserva-

tive treatment for all cases unless free peritonitis existed.

Because of the divergence of opinion we have analyzed the cases of acute cholecystitis seen in the Peter Bent Brigham Hospital during the past twenty years in an effort to draw our own conclusions regarding the merits of either method of treatment. A conservative method has been generally used in the treatment of the 235 patients with acute cholecystitis treated during that period. As the accompanying chart (table 1)

TABLE 1

Years	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Total	Deaths
1914				1					1	0
1915		1		4	4	2			11	2 (18.1%)
1916		3	3	4	1	1	1		12	1 (8.3%)
1917			1	3	2	3	3		12	0
1918	1	1		4	4	2			12	1 (8.3%)
1919			1	1	2		2		6	1 (16.6%)
1920			3	1	5				9	1 (11.1%)
1921				1	1		1		3	0
1922				1				1	2	1 (50.0%)
1923		1	3		5			1	10	1 (10.0%)
1924		2	4	3	1	1			11	1 (9.0%)
1925			6	4	1	4	1		15	0
1926			2	1	3	4	1		11	1 (9.0%)
1927		2		3	5	4			14	2 (14.2%)
1928		2	1	2	1	5			11	1 (9.0%)
1929		1		1	3	3	2		10	1 (10.0%)
1930		1		1	5	5	1		13	3 (23.0%)
1931			3	3	2	2			10	1 (10.0%)
1932		1	1	5	5	4	1		17	4 (23.5%)
1933		2	2	8	8	9			29	1 (3.4%)
1934			1	5	5	1	4		16	4 (25.0%)
Total	1	18	31	55	64	50	14	2	235	27* (11%)
Male	1	3	4	18	19	19		1	72	(30.6%)
Female		15	27	37	45	31	7	1	163	(9.3%)

*Three cases were not submitted to surgery

shows, there has been an increase in the incidence of these cases during the last three years. Whether this is due to the "depression", which Steiner⁷ believes to have caused procrastination in chronic cases is difficult to determine for it may be that there has been a tendency to operate before the acute attack has completely subsided. This would increase the number of cases in which patients showed evidence of acute inflammation at the time of operation. Undoubtedly there have been additional patients with acute

*From the Surgical Clinic, Peter Bent Brigham Hospital, Boston, Massachusetts.

†Branch, Charles D.—Resident Surgeon, Peter Bent Brigham Hospital. Zollinger, Robert—Junior Associate in Surgery, Peter Bent Brigham Hospital. For record and addresses of authors see "This Week's Issue" page 104.

cholecystitis admitted to this hospital, but all those cases which were in the least questionable have been omitted

PATHOLOGY

It is generally agreed that calculi are usually associated with acute cholecystitis and that they are often found impacted in the neck of the gallbladder or cystic duct. The recent report of Andrews⁸ indicates that in all such cases with obstruction of the cystic duct there is vascular damage, the extent of which determines the lesion of the gallbladder wall. That there is a single factor causing the circulatory stasis preceding this damage has not been demonstrated. This has been assumed to have been due to the impaction of a calculus, which, by direct pressure, closed the vein and lymphatics. Kreider,⁹ in 1933 showed by injection of the veins in cases of cholelithiasis that an impacted stone could not cause venous stasis. He demonstrated that there was a venous plexus in the mucosa, a cystic plexus which was found just outside the muscularis and accompanied the branches of the cystic artery, and unpaired cystic veins. These cystic veins varied greatly in size, number and course, some of them accompanying the branches of the cystic artery toward the neck of the gallbladder, others carrying blood around the sides of the gallbladder, or from its deep surface, directly into the liver by way of the gallbladder fossa. He maintained that the cystic veins do not run close enough to the cystic duct to be affected by the pressure of the stone in the duct and that only a small fraction of venous drainage occurred by way of the neck of the gallbladder.

A second possibility is that the edema, which is present to a varying degree in all these cases, obstructs locally by direct pressure the lymphatics and lesser venous drainage, thus causing vascular damage. This of course would require an explanation for the formation of the edema, which might be caused by the absorption of the bile salts. Andrews and Henry¹⁰ have suggested that a too strong concentration of the bile salts provokes an inflammation capable of producing absorption, an explanation with which we are in agreement.

SYMPTOMATOLOGY

The symptomatology of acute cholecystitis may be quite varied although the classical description still emphasizes the occurrence of pain in the right upper quadrant with radiation to the angle of the scapula. It would be expected that most patients would complain of pain in the right upper abdomen. This has not been the rule in this series, for epigastric distress was nearly as common, and occasionally the chief complaint was localized pain or tenderness

in the left upper or right lower quadrant. Since in many patients the gallbladder was found to be distended upon operation, the varied symptomatology could be explained by previous experimental observations made in this hospital.¹¹

It has been observed that mechanical distention of the gallbladder and common duct in a conscious patient produces epigastric distress. The conclusion was drawn that the epigastric distress represented a true visceral type of pain, and that in cases of cholelithiasis it usually indicated overdistention of the gallbladder or ducts as the result of a stone located in, or tending to pass into, the cystic or common duct. Since the cystic duct or ampulla of the gallbladder is frequently blocked by a calculus, epigastric distress should be one of the more frequent initial symptoms of acute cholecystitis. In this series, according to the notations made by the surgeon or pathologist, a stone was impacted in the ampulla or cystic duct in 112 cases, or 46.4 per cent. From a study of these cases it is seen that the initial pain occurred in the epigastrium in eighty-eight, or 78.5 per cent. The pain in twenty of the above instances later shifted to the right upper quadrant with the increasing severity of the attack. This close relationship between the number of patients in which there was found definite evidence of cystic duct obstruction, and in which initial epigastric distress was present, is in accord with the experimental findings. In acute cases in which patients have epigastric distress and in which a cholecystostomy is done, the operator should be doubly certain to search for, and to remove, the probable impacted calculus. Furthermore, in those patients who have epigastric distress but show no evidence of acute cholecystitis the possibility of a stone in the common duct is suggested. This has been emphasized previously by one of us.¹²

Since referred pain to the right upper quadrant or back could not be reproduced by mechanical distention of the gallbladder or common duct, we concluded that referred pain to the right upper quadrant or back probably indicated an inflammatory process. The inference was drawn that the pain was referred over a peritoneocutaneous radiation (Morley¹³), instead of the widely accepted visceral sensory reflex of Mackenzie.¹⁴ In other words, the referred pain in gallbladder disease depends upon stimulation of the cerebrospinal nerves supplying the involved peritoneum. The attack of acute cholecystitis may begin in the form of epigastric distress due to distention of the cystic duct by a calculus, and later pain in the right upper quadrant develops as the result of the inflammatory process in the gallbladder stimulating the overlying peritoneum. Likewise, the associated pain in the back would indicate involve

ment of the cerebrospinal nerves supplying the painful segment. Inflammation would extend around the cystic and common ducts involving the cerebrospinal nerves in the gastrohepatic ligament, and in this manner pain would be localized in the back. We believe that the cerebrospinal nerve supply of the gastrohepatic ligament is the same as the margins of the diaphragm, that is, the lower six intercostal nerves. We know that the pain in the back is usually in the areas supplied by one or more of the lower six intercostal nerves.

An analysis of the pain in these patients with acute cholecystitis shows that eighty seven or thirty seven per cent complained of pain in the epigastrium originally and throughout their illness. According to Morley's theory it would be expected that this was true visceral pain and that, unless contact of an inflammatory process with the peritoneum occurred there would be no evidence of pain in the right upper quadrant or muscle spasm. Morley explains muscle spasm as due to a peritoneomotor reflex all within the cerebrospinal nerves. In fifty three of these eighty seven cases there was no evidence of rigidity or muscle spasm. However, in thirty four instances there was evidence of rigidity. In twenty other patients there was pain in the epigastrium originally, but with the continuance of the disease process, the pain shifted to the right upper quadrant. According to our belief this is due to an inflammatory process coming into contact with the peritoneum and abdominal rigidity would be expected. We found that nineteen of these twenty patients had definite muscle spasm. In the case of 115 patients complaining of pain originally and continuously in the right upper quadrant there was muscle spasm in ninety four, we would expect to find rigidity in all of these but in twenty-one there is no mention of this in the history. The remaining cases of the series were unusual in that patients had pain originally in the right lower quadrant in nine instances in the left upper quadrant in two cases while in two patients the pain was localized in the chest.

Although referred pain may result from other stimuli it is usually the result of an inflammatory process. Patients complaining of continuous pain in the right upper quadrant are considered as having an extensive inflammatory process involving the overlying peritoneum and extending down the ducts. It would, therefore be expected that this group would show a high incidence of referred pain. Pain was referred to the back in eighty-six, to the shoulder in nineteen, and along the right costal margin in ten. In regard to epigastric pain referred pain was found to have occurred in only a few. Occasionally the pain extended to the back except in a few cases when it was localized to the angle of the right scapula.

Nausea and vomiting are usually associated with gallstone colic. In a previous communication we have shown that involuntary vomiting occurred in only twenty five to forty four per cent of the patients with chronic cholecystitis and cholelithiasis without evidence of a stone located in the extrahepatic ducts. The incidence jumps to approximately ninety per cent in the cases of common duct stone. In acute cholecystitis, nausea and vomiting are common symptoms. Nausea was found in 197 of our 235 cases, while involuntary vomiting was found in 176 cases or 74.9 per cent. By involuntary vomiting is meant spontaneous vomiting which the patient does not induce in an effort to relieve nausea. In the experimental work carried out it was found that the distention of the gallbladder did not produce vomiting while distention of the common or cystic duct caused involuntary vomiting. Therefore, it is probable that, in the 176 cases in which vomiting occurred, a calculus was impacted in the cystic duct or had passed through the cystic or common duct.

The physical findings of these patients upon admission to the hospital were not remarkable. As expected, tenderness was present in a great majority, localized in the right upper quadrant in 151 patients, in the epigastrium in twenty four over the entire right abdomen in twenty five and in the right lower quadrant in four patients. It was interesting to note that two of the patients showed well localized tenderness in the left upper quadrant. Involuntary muscle spasm was found in 143 of the patients. This has been analyzed above in relation to the onset of the pain. A mass was palpated at the time of admission in seventy six of these patients.

TREATMENT

The treatment of these patients with acute cholecystitis was on the whole by conservative methods. Thirty four or 14.4 per cent were submitted to immediate operation. This was done, in the majority of instances, because of signs of definite peritonitis, or because of suspicion of impending perforation of the gall bladder.

Perforation was suspected in those patients in which there was a rising leukocytosis and an increasing tenderness and rigidity in the right upper quadrant. The remaining 195 patients who were submitted to operation were treated conservatively. They were kept in bed preferably in Fowler's position food was denied them and in recent years fluids particularly dextrose solution, were administered subcutaneously and intravenously. The patients' temperatures routinely fell most of them reaching a normal level and only a few remaining above 99° F. This is shown graphically in the accompanying chart (figure 1). The average period necessary for

this to occur was 4.7 days. It is our belief that a period of five to seven days, or perhaps longer in a few cases, gives an opportunity for the patient's condition to improve and for the acute inflammatory process to subside, thus simplifying operation. That the danger of delay is not great is shown by the relatively few cases of generalized peritonitis. Judd and Phillips¹⁶ reported 508 cases of patients with acute cholecystitis, only three (0.59 per cent) having generalized peritonitis. Graham¹⁶ reported two cases occurring in his series, an incidence of 1.47 per

cent of calculi in nineteen, or 8.3 per cent of the 229 cases.

The gallbladder was found to have perforated in twenty-one patients, or 8.8 per cent of those operated upon. Six of these had been operated upon immediately following their admission to the hospital, the other fifteen were found at the time of delayed operation. In those patients operated upon at the time of delayed operation there had not been a spread of peritonitis. Careful analysis of these cases demonstrates that sixteen showed rigidity, while the remaining five were not suspected of having much in the way of an inflammatory process. Those patients who did not have rigidity complained of pain in the epigastrium, and they were found to have well walled-off abscesses of rather small size near the liver surface.

Calculi were found in 214 of the patients, they were mentioned as blocking the cystic duct in sixty-six instances, and as being impacted in the ampulla in forty-six additional cases. As has been mentioned before, common duct stones were found in nineteen of the patients whose biliary tract was explored. While this does not account for the total of 176 cases in which involuntary vomiting was a feature, at least it is significant, as it is an incidence of 63.6 per cent, and many of these patients may have had temporary blocking of the cystic duct by a stone which had been passed or had fallen back into the gallbladder at the time of operation. In recent years these patients have been given large amounts of fluids containing dextrose postoperatively to aid in the repair of liver damage. In patients on whom cholecystectomy was done the drain was removed routinely on the third or fourth day. In those cases in which there was no complication the patient was placed on a high carbohydrate and low fat diet about the third day following operation.

The complications of upper abdominal operations are usually associated with the respiratory tract. Surprisingly enough in this series there were only eight patients who developed bronchopneumonia, atelectasis occurred in two additional cases, and pleurisy with effusion in two others. The remaining complications are listed on the accompanying chart (table 2).

In this series of 235 cases there were twenty-seven deaths, three occurring among the six cases that were not submitted to operation. The operative mortality for the remaining 229 cases was 10.4 per cent (twenty-four deaths). Seven (20.5 per cent of the cases submitted to immediate operation) were immediately operated upon while the seventeen other deaths followed an interval, 8.7 per cent of the 199 having had a delayed operation. Cholecystectomy had been done in nineteen of these, cholecystectomy with exploration of the common duct in three, and cholecystostomy in two.

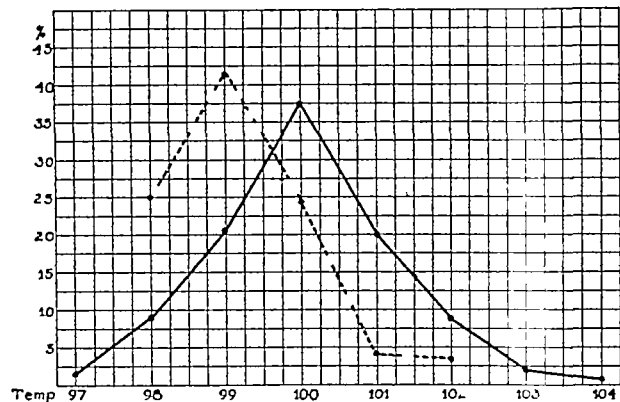


FIGURE 1 Solid line—Temperature on admission. Dotted line—Temperature following a period of conservative treatment.

cent. Our experience has been much the same in this group of acute cholecystitis. Generalized peritonitis was found to be present in six or 2.55 per cent. Because of the ability of the structures about the region of the gallbladder to wall off this area, and also because of the vascular supply of the gallbladder itself, this would be expected. Graham¹⁶ concluded that it was untenable to make an analogy between acute cholecystitis and acute appendicitis for these reasons, and the same inference can be drawn from our group of cases.

Cholecystectomy was performed in 205 of the operative cases; in the remaining twenty-four, cholecystostomy was carried out. The majority of these twenty-four cases were patients in whom the condition was critical and who would not survive a more extensive procedure. Since cholecystectomy is the operation of choice, we believe that a period of waiting permits this operation to be carried out in most instances and does not necessitate a second operation which is so often required when cholecystostomy has been done. This delay also permits the inflammatory process to subside and thus eliminates to a large extent, the danger of spreading the infection to the general peritoneal cavity. Nine of the twenty-four cases required a subsequent cholecystectomy, with one fatality (11.1 per cent). The common duct was explored in forty-five patients in our series with the discov-

The death of the patients who were operated upon immediately was due, in a large part, to their poor condition. Three were moribund upon admission and operation was undertaken only as a last resort. The cause of death in those patients in whom operation was delayed was varied, four were caused by bronchopneumonia, while three others showed evidence of emboli lodging in the pulmonary artery and one going to the brain. Five cases might have terminated differently if too extensive an operative procedure had not been carried out. If cholecystostomy had been done the chance for the spread of infection would have been lessened. It is probable that in such cases simple

TABLE 2
COMPLICATIONS

Infected wound	16
Wound disruption	—
Distention	9
Bronchopneumonia	— 8
Atelectasis	— 2
Pleurisy with effusion	— 2
Subphrenic abscess	— 1
Bile sinus	— 3
Parotid abscess	—
Phlebitis	— 1
Total	— 46 (20%)

drainage is the preferred method of treatment. Liver damage, as shown by cholangitis and localized abscesses, was the most important etiological agent in three patients, while in the remaining two the cause of death could not be determined.

Follow up studies were possible in 152 of the 208 patients who survived operation. These patients were seen after a period of at least two years following operation and a large number at least five years afterwards. In 110 of these patients there was no recurrence of symptoms either in the form of epigastric distress or colic, nor had gastrointestinal symptoms returned. Sixteen patients complained of definite pain either in the epigastrium or the right upper quadrant. In some of these the pain was described as a colic similar to that occurring before operation. Fifteen patients complained of indigestion and gaseous eructation following operation. In five patients subsequent attacks of colic suggested that reoperation be performed which resulted in the finding of a common duct stone. One died of carcinoma of the head of the pancreas one and one-half years after operation. Five individuals died of other causes before the period of two years had elapsed. In the 152 patients seen seven postoperative hernias had developed.

SUMMARY

An analysis of 235 cases of acute cholecystitis treated by conservative surgical methods is presented.

The location, significance and mechanism of pain in acute cholecystitis is discussed in relation to previous experimental studies.

Thirty four or 14.4 per cent, were submitted to immediate operation. The remaining 195 patients who were operated on were treated conservatively for an average of 47 days before operation.

Generalized peritonitis was found to be present at operation in six, or 2.5 per cent, of the cases.

Cholecystectomy was performed in 205 cases and cholecystostomy in twenty four cases.

There were twenty seven deaths among the 235 patients, three being in the group not submitted to operation. The operative mortality for the entire series was 10.7 per cent. In the case of immediate operation there were seven deaths (mortality 20.5 per cent), and after delayed operation seventeen deaths (mortality 8.7 per cent).

CONCLUSION

A survey of the literature shows that very few surgeons consider acute cholecystitis a condition requiring immediate surgical intervention as in the case of appendicitis. The conservative type of treatment, with operation after an interval of several days, has been followed in this series of cases. From our analysis of this series it would seem that a delay of several days is of advantage since it gives an opportunity to improve the patient's general condition without spread of the local process.

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amateur regulators of human affairs began to appear on the scene ignorant amateurs who had never even "anatomized a malefactor", and yet who competed in the spiritual and physical management of souls in a manner thoroughly distasteful to competent professionals like William Pynchon. It became necessary to put a stop to such goings on. The manner in which medical licensure originated also, was delightfully simple. Mistress Hawkins was said to have a knack at practical obstetrics and to be a good hand at the prescription of medicinal herbs. Unhappily for her, however, she was caught at these practices by someone who did not approve. There was no Board of Registration in Medicine and no Committee on Ethics and Discipline to contend with, all that was required to put a stop to her activities was a General Court ruling, easily obtainable, no doubt, if one knew the ropes, "Jane Hawkins, the wife of Richard Hawkins, had liberty till the beginning of the 3rd month, called May, and the Magistrates (if shee did not depart before) to dispose of her, and in the meane time shee is not to meddle in surgery or physick, drinks, plaisters or oyles, nor to question matters of religion, except with the elders for satisfaction." These restrictions not proving sufficient, 'twas ordered some months later "Jane Hawkins is enjoined to depart away to morrow morning, and not to return againe hither upon paine of severe whiping and such other punishment as the courte shall think meete, and her sonnes stand bound in 20 pounds to carry her away, according to order." And that was that!

In cow-path days Springfield was far removed from Boston, an isolated community in the middle of Massachusetts the transportation problem was unsettled, there were no good roads, and there were plenty of Indians and other dangers to catch the unwary. Such being the case, there was little traveling so that each individual town in the Commonwealth was thoroughly independent and ran its own affairs in a manner to suit itself. It took no time at all for people to recognize that epidemics were uncomfortable, with high mortality, and that good health was almost a public necessity. One might argue, as did the Reverend Michael Wigglesworth of Malden, that the country was going to the dogs, that young people were not so good as they should be and that ill-health on the whole was more due to depravity than anything else.

"Our healthful days are at an end,
And sicknesses come on
From yeer to yeer, becaus our hearts
Away from God are gone
New England, where for many yeers
You scarcely heard a cough,
And where Physicians had no work,
Now finds them work enough

Now colds and coughs, Rheums, and sore-throats,
Do more & more abound
Now Agues sore & Feavers strong
In every place are found
How many houses have we seen
Last Autumn, and this spring,
Wherein the healthful were too few
To help the languishing

One wave another followeth,
And one disease begins
Before another cease, becaus
We turn not from our sins
We stopp our ear against reproof,
And hearken not to God
God stops his ear against our prayer,
And takes not off his rod

Beware, O sinful Land, beware,
And do not think it strange
That sorer Judgements are at hand,
Unless thou quickly change
Or God, or thou, must quickly change,
Or else thou art undone
Wrath cannot cease, if sin remain,
Where judgement is begun"

People less sentimental and more practical, however, believed that while prayer no doubt was useful yet the best way to control the spread of infectious disease was by more active methods. Boston's first quarantine law passed in 1647, marks the beginning of health control by municipal, state or federal agencies.

"For as much as this Corte is credibly informed that ye plague, or like grieves infectious disease, hath lately exceedingly raged in ye Barbadoes, Christophers, and other islands in ye West Indies, to ye great depopulating of those, it is therefore ordered, that all (our own) or other vessels coming from any pts of ye West Indies to Boston Harbor shall stop (and come to an) anchor before they come at ye Castle, under ye poenalty of 100 pounds, and that no persn coming in any vessel from the West Indies shall go ashore in any towne, vilage or farme, or come within foure rods of any other person, but such as belongs to the vessels company that hee or shee came in, or any wayes land or convey any goods brought in any such vessels to any towne, village, or farme, aforesaid, or any other place within this iurisdiction, except it be upon some fland where no inhabitant resides, without licence from ye councill or some three of them, under ye aforesaid poenalty of a hundred pounds for every offence"

The early years of the eighteenth century added two more episodes significant to my narrative. In 1721, Zabdiel Boylston aided and abetted by the Reverend Cotton Mather introduced public education of the layman on medical affairs, thus laying the foundation for all the Sunday afternoon public lectures and for the popular books on health and hygiene that were to come later. In that year there was an epidemic of smallpox in Boston. Boylston having conducted a careful clinical investigation dealing with the mitigation of this disease by the method of inoculation published the results of his studies. This publication stirred up a great controversy people raved, ranted and blasphemed over it. But nevertheless as a result of

Boylston's efforts the mortality from smallpox dropped from around fourteen to a little over one per cent, and he demonstrated convincingly enough that doctors could be influential in the creation of medical propaganda and could deal effectually with masses of people through the medium of literature and public teaching.

Two years later some wise clinician pointed out that the rum drinkers of New England were

Some ACCOUNT
- Of what is said of -
Inoculating or Transplanting,
THE
Small Pox.
By the Learned
Dr. Emanuel Tenonius,
AND
Jacobus Pylarminus,
With some Remarks thereon
To which are added,
A Review in Answer to the
Scribbles of many about the Lawfulness of this Method.
Printed by
DE. ZABDIEL BOYLSTON
Boston - Sold by S. GERRISH
at his Shop in Corn Hill

FIG. 2 1721. Title page of Zabdiel Boylston's first paper on Small Pox inoculation. This demonstrated the importance of public education on medical subjects by medical men. (Massachusetts Historical Society Library)

suffering inordinately from the "Dry Gripes" and that the cause of this unpleasantness lay in the fact that their rum was being distilled through leaden pipes. Accordingly the General Court ordered

Whereas the strong liquors and spirits that are distilled through leaden pipes are judged on good grounds to be unwholesome and hurtful notwithstanding which some persons to save

charge may be led into the making or using of such heads worms or pipes for remedy and prevention whereof—

Be it enacted by the Lieutenant-Governor Council and Representatives in General Court assembled and by the authority of the same,

(Sect. 1) That no person whatsoever shall make use of any such leaden heads or worms for the future and that whosoever shall presume to distill or draw off any spirits or strong liquors thro such leaden heads or worms upon legal conviction thereof before any of his majestie's courts of record shall forfeit and pay a fine of one hundred pounds.

And be it further enacted by the authority aforesaid

(Sect. 2) That no braxier pewterer or other artificer whatsoever shall presume to make any worm or head for distilling of coarse and base pewter or such as hath any mixture of lead in it, under the penalty of one hundred pounds

This was the first time that governmental authority took steps to prevent any other disease than that of an infectious or contagious nature. Before 1775, therefore, medicine had advanced far beyond cow path days and the State already was exerting its influence.

Surely the War of the Revolution taught New England physicians two important lessons that there was an obvious dearth of men properly qualified by education to undertake the practice of medicine in spite of the old fashioned preceptor system, and that hospitals were the proper places for practical clinical teaching. After the War therefore medical schools and hospitals soon began to crop up in appropriate centers: Harvard (1782), Dartmouth (1798), Yale (1814), Brown (1814), Castleton Medical College (1820), Bowdoin Medical College (1821), University of Vermont Medical Department (1823), Berkshire Medical College (1823), Vermont Medical College of Woodstock (1830). The Massachusetts General Hospital opened in 1821,* at once becoming, as Sir William Osler was later to characterize a good hospital, "a place of refuge for the sick poor of the city, a place where students are taught the best in medicine, a place where new thought is materialized in research and a consulting centre for the whole country in cases of obscurity."

A very interesting curve can be constructed from the available figures of the Massachusetts Medical Society and the Massachusetts census. Apparently there has been a surprisingly constant relationship for nearly a hundred and fifty years between the size of our Society and the population of the Commonwealth. With the in

There well may be a numerical ratio between the concentration of population and the need for hospital facilities. It is a striking coincidence that in 1410 when the Massachusetts General Hospital was being planned the population of Boston was 31,737 and that in 1944 when the Harvard Medical School was being planned the population of Springfield was 23,149. In 1945 Massachusetts has a population of about four and a half million there are 7 hospitals recognized by the American Medical Association or one hospital for each 17,000 people.

creasing needs for doctors in the early days, and the difficulties of transportation between the various towns, it is evident that medical schools like those at Pittsfield and Woodstock, to men-

to meet the demands for well-trained practitioners

Changes were due to occur In 1840, Springfield was eighty-seven miles from Boston and

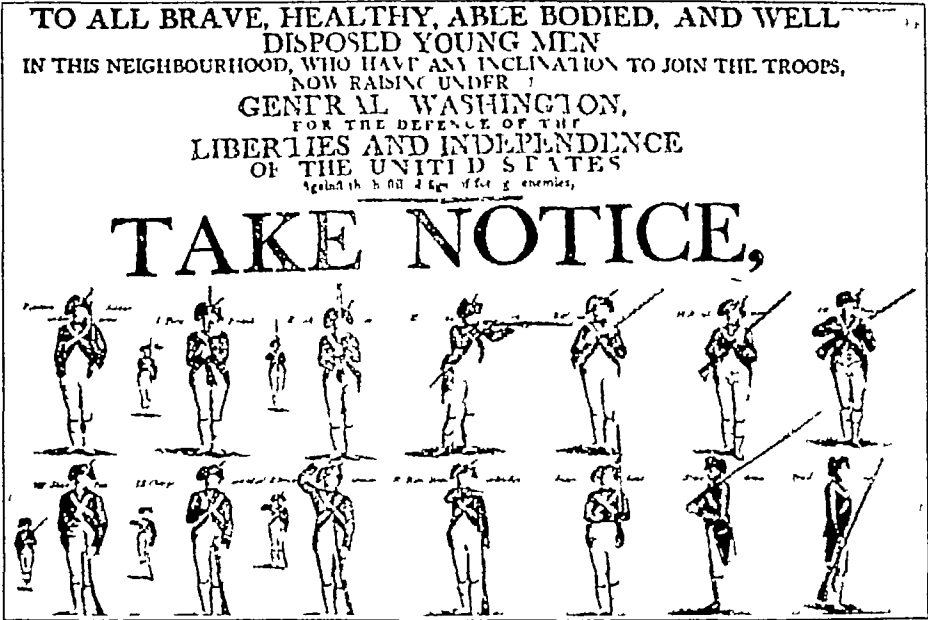


FIG 4 1775 1790 The Revolutionary Period An appeal for volunteers by General Washington There were almost no doctors to answer this call (Pennsylvania Historical Society Library)

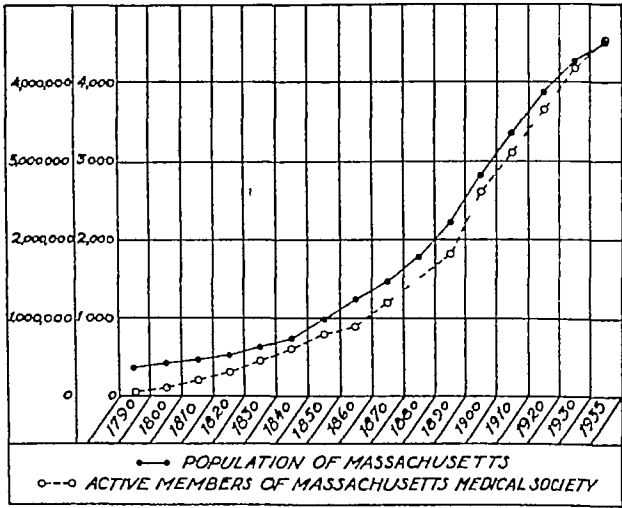


FIG 5 * 1790 1935 The Growth of the Massachusetts Medical Society and the Population of Massachusetts

tion two of the more ephemeral ones, did an excellent and essential piece of work in helping

*Unfortunately this diagram does not tell the whole story In 1933 there were 4406 active members of the Massachusetts Medical Society, and yet there were 7014 doctors listed as of Massachusetts by the American Medical Directory In that year 269 new doctors were licensed to practice in Massachusetts of whom 53 (20 per cent) were graduates of medical schools unrecognized by the Society In recent years the number of doctors with unrecognizable medical education who have migrated to Massachusetts has steadily increased The citizens of the Commonwealth cannot be guaranteed adequate medical supervision until they regain the courage of their Puritan forbears and handle medical licensure in as forceful a manner

sixteen hours away It was a homelike village of eleven thousand souls, with "two banks, several printing offices, six churches and many elegant private residences" To get there a Bostonian stepped aboard the mail stage at Earl's, 36 Hanover Street, at two o'clock in the morning, drove leisurely over the turnpike through Waltham, Sudbury, Marlborough, Worcester, Brookfield, Palmer and arrived in Springfield at six o'clock in the evening

Only a few years later railroads were to be built, opening up new country very quickly and shortening distances between old places even more remarkably Almost overnight, it seemed, Boston and Springfield were close neighbors, now only three and a half hours apart Such increased facilities for transportation had at once, I believe, a significant effect on medical education and progress The Commonwealth grew richer rapidly, and many boys heretofore unable to afford a college education could now obtain one The smaller medical schools were no longer necessary for it was nearly as easy for a Springfield student, for example, to go to the Harvard Medical School as it had been for his brother a few years earlier to go to Pittsfield People soon realized that large medical centres like Boston afforded better opportunities for medical institutions than the smaller towns

*Historical Collections John Warner Barber Worcester
Dorr Howland and Co 1841

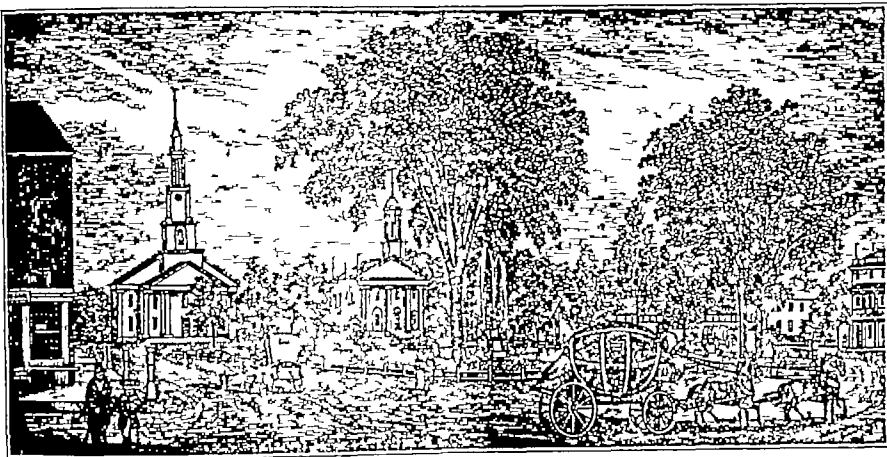


FIG. 6 13 The Pike Boston to Springfield (Harvard Medical School Library)

Hence the smaller medical schools having filled a useful purpose before the railroads came now were gradually snuffed out the larger ones continuing to exist in accordance with the law of survival of the fittest.

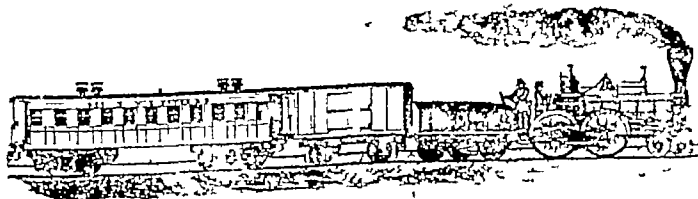
The year 1850 is important to the tale I am trying to unfold for, in this year Mr Lemuel Shattuck published his famous monograph 'Report of a General Plan for the Promotion of Public and Personal Health.' This remarkable

document, assisted by the Massachusetts Medical Society* as obstetrician eventually brought forth the State Board of Health.

It should be emphasized that Lemuel Shattuck was not a medical man but a school teacher, bookseller and publisher. He wrote his report with practically no assistance and from an extraordinarily farsighted point of view. He be

In 1861 the Massachusetts Medical Society petitioned the Legislature for the establishment of a State Board of Health a petition which finally was headed eight years later.

BOSTON & WORCESTER RAILROAD.



CHANGE OF WINTER ARRANGEMENT.
TO BEGIN ON TUESDAY, JANUARY 1, 1850.

FIG. 7 1850 The Railroad Boston to Springfield. (Harvard Business School Library)

REPORT
OF A
GENERAL PLAN

Promotion of Public and Personal Health,

DEvised PREPARED AND RECOMMENDED

BY THE
COMMISSIONERS

APPOINTED UNDER A

RESOLVE OF THE LEGISLATURE OF MASSACHUSETTS,

RELATING TO A

SANITARY SURVEY OF THE STATE.

PRESENTED APRIL 25 1850

Mass. Medical College

BOSTON

DUTTON & WENTWORTH STATE PRINTERS

NO 37 CONGRESS STREET

1850

FIG 8 1850 Title page of Lemuel Shattuck's report This report initiated the formation of the State Board of Health in 1869 (Harvard Medical School Library)

lieved, as others had believed before him, that public good health was an essential attribute to civilized living and was public property. There was a vast amount of unnecessarily impaired health that could be prevented the prevention of disease, on the whole, was much more important than its cure. He proposed that the State should enter the practice of preventive medicine in so far as this was possible by studying public health through accurately maintained vital statistics, by establishing and enforcing rational public health laws, by investigation of public health problems as they arose, and by continued improvement of public health by carefully controlled research. He advocated such modern projects as the medical inspection of school children, the development of training schools for nurses, the periodic health examination of apparently healthy people in fact he was far ahead of his time in many ways. Like so many pioneer efforts in medicine, the importance of his work at the time was largely overlooked, bearing fruit, however, many years later.

It is curious how slight an impression was made on medicine by the Civil War. Army surgeons were busy enough to be sure, and well organized modern-looking army hospitals were established. But no new medical knowledge came into existence during this period. The Civil War, however, brought forth one baffling thought that many doctors subsequently have pondered over. In concluding his Gettysburg speech President Lincoln said, "Government of the people, by the people, and for the people, shall not perish from this earth." How can this phrase best be construed in terms of medical pol

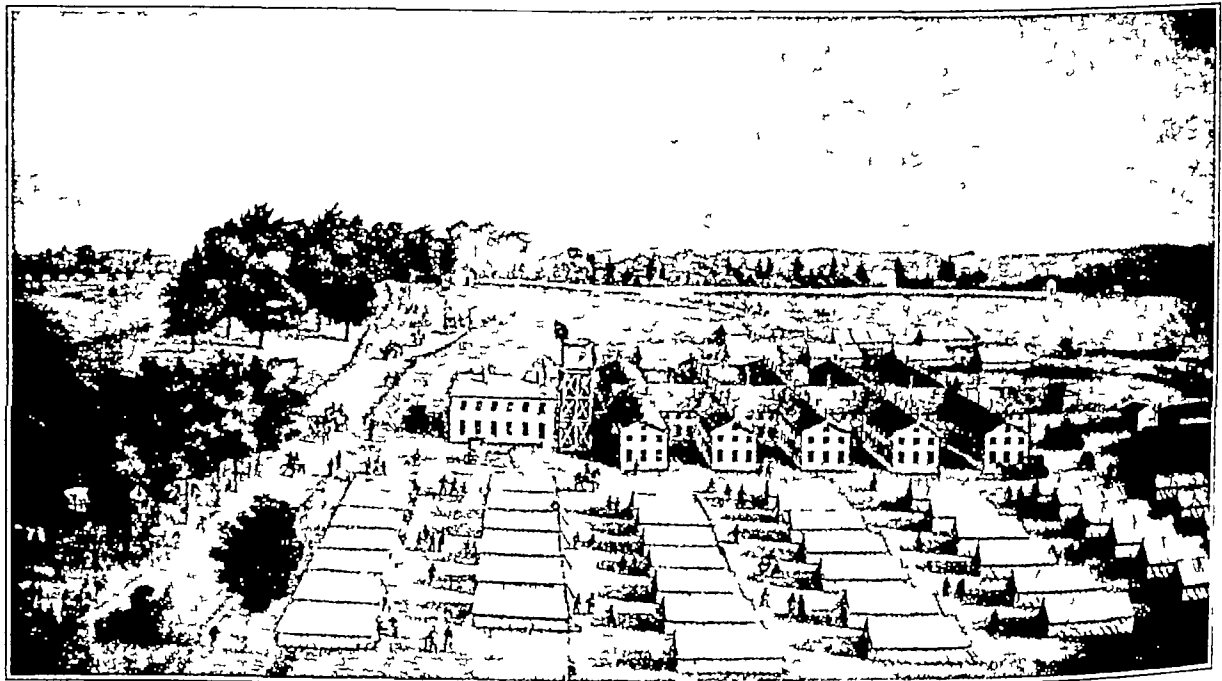


FIG 9 1864 The Civil War Mount Pleasant Hospital Washington D C a typical war Hospital (Harvard Medical School Library)

icy? Shall medicine becoming, as it has year by year, increasingly complex in its social and economic relations, best be regulated for the people, by the people through governmental control? Or will medicine in future be developed most safely, by the people, and for the people, through their insistence on a better trained more efficient profession managing its own affairs and operating for their benefit in a manner unhampered by overzealous legislative restrictions?

After the Civil War ended Massachusetts continued to grow. Between 1880 and 1900 three new complications to life were introduced

portance, and singularly well fitted to terrorize horses, was to become a universal means of transportation. In the fullness of time the motor car was to do to the railroad what the railroad had done to the stagecoach—it was to wipe out distance and timetables inaccessible places were to exist no longer and all Massachusetts doctors were to be within easy driving range of one another.

In the meantime before all this happened, the youthful State Board of Health was maturing. All over Massachusetts were developed improved conditions for maintaining good public health—better food, water and sewage control,

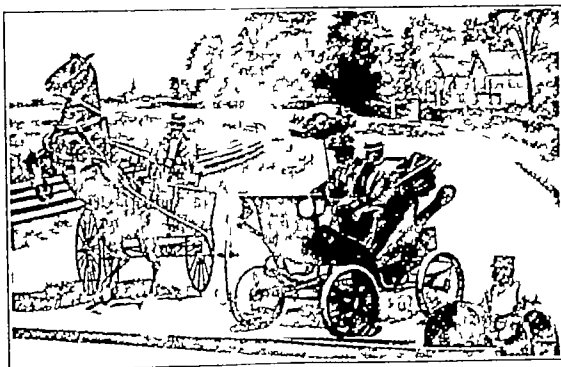


FIG. 10 1890-1895 The Gay Nineties: The horseless carriage seemed a foolish means of transportation, of little practical use and singularly well fitted to terrorize horses. (Brookline Public Library)

Thomas Edison devised the electric light, Alexander Bell the telephone, and electrically driven horseless carriages began to appear on the roads. One could write an entertaining essay upon the effect on medicine of these three inventions. To be sure, knowledge regarding electricity had been developing gradually for a long time. But the invention of the telephone with dramatic suddenness shortened distance even more notably than had the railroads. Springfield and Boston were now within easy speaking distance instead of three and a half hours apart.

The electric light, by the interest it at once aroused in scientific minds, opened up a new pathway to increased medical knowledge. New physiological equipment with modern electrical devices soon developed and made possible new researches, and new clinical apparatus like the X-ray, the electrocardiograph and the basal metabolism machine presently came into existence and general use, each dependent upon advancing knowledge of how to use electricity to good advantage.

The horseless carriage, at first regarded as a freakish toy for the rich, of little practical im-

portance, and singularly well fitted to terrorize horses, was to become a universal means of transportation. In the fullness of time the motor car was to do to the railroad what the railroad had done to the stagecoach—it was to wipe out distance and timetables inaccessible places were to exist no longer and all Massachusetts doctors were to be within easy driving range of one another.

In the meantime before all this happened, the youthful State Board of Health was maturing. All over Massachusetts were developed improved conditions for maintaining good public health—better food, water and sewage control, better housing conditions and public parks, a better realization of the essential community health problems.

The Spanish War proved an important event to Massachusetts doctors because it focused public attention on typhoid fever. In 1895, three years previously, when clinical bacteriology came to light, the State entered the practice of therapeutic medicine by manufacturing and giving away diphtheria antitoxin. No one objected to this kind of lifesaving State medicine. A little later, when it became known that nearly one out of every five soldiers who enlisted for the Spanish War developed typhoid there was no notable objection to the suppression of this disease by the State. People now were being informed that various other infectious diseases might be prevented or cured by modern methods. Hence as the State increased its work no one rebelled. Smallpox vaccine was freely distributed gonorrheal ophthalmia was attacked at a laboratory was established for the early diagnosis of tuberculosis, State made antitetanic and antimeningococcal sera were soon available. This chapter in the medical history of Massa-

chusetts is extremely interesting to think about, for it seemed to depend so definitely on three factors. A man at the head of the State Board of Health (the title of which was later changed to the State Department of Health) was essential with vision and courage enough to combat the problems at hand. This man was Henry P. Walcott, a former President of the Massachusetts Medical Society. An event was necessary



FIG. 11. 1898. The Spanish War. Visitors to Camp. One out of every five men in the Camp developed Typhoid Fever (Brookline Public Library.)

to excite the people over the unnecessary loss of human life from preventable infection and thus arouse a public opinion favorable to action. This event was the Spanish War. A scientifically trained man with sufficient expert knowledge to develop the State Laboratory Department satisfactorily and critically had to be found. This man was Theobald Smith. The combination of these three factors was largely responsible for the rapid development in State Medicine which has just been mentioned.

The years passed quickly and soon 1917 was reached. A new war was in the offing and was to teach Massachusetts doctors a new lesson. The War of the Revolution had revealed that there were not enough doctors to care for the needs of the rapidly growing population and that hospitals were the proper places for the best conduct of practical clinical teaching. The Great War demonstrated that there were not enough well-trained doctors to care for the

needs of the population and that properly organized hospitals afforded excellent opportunities for well-directed postgraduate instruction. Many doctors in practice but a little out of step with what was going on were to enter the Army Medical Corps and receive intensive postgraduate teaching by well-qualified instructors.

Many doctors were to learn in the army good medical organization, the relation of modern laboratory methods to diagnosis and treatment, the value of systematic history taking and physical examination, the difference between haphazard and skilled medical or surgical therapy. A certain number of doctors were to return from the army to civilian life, wondering whether it might not be possible to conduct civilian medicine on a military-like basis, with a properly organized profession under able leadership working as a unit to bring to the sick and wounded of the community all that is best in advancing knowledge.

The last few years, in the light of the trend that has been developed in the past, are especially noteworthy. For the period since 1920, at a time when American life was very complex, has demonstrated the effect on medicine of an era of too great prosperity. We still are so close to these years that it is impossible to evaluate them properly. Certain facts, however, are apparent which afford an interesting field for speculation.

To my mind three of the most striking features of the last few years have been the general realization of how important a profession medicine is, how intimately its development and that of American industrial life appear to be correlated, and how much simpler it is for the State to finance medicine than for charitable members of the community to do so.

The various statistical tables which have been published demonstrate that the wealth of the country increased in notable fashion between 1920 and 1930, and that the high tide of prosperity was immediately followed by an equally impressive ebb. Statistical tables dealing with medical affairs reveal a similar rise and fall. This can easily be demonstrated by comparing, for instance, the income of the country, the income of almost any large Massachusetts hospital, and the income from advertising paid to the *Journal of the American Medical Association* during this period. The resultant curves are strikingly parallel.

It is a reasonable conclusion that from 1920 to 1930, when the country's income was becoming larger and larger, medicine, like other industries, overexpanded. In those days, evidently, it paid to advertise. New and expensively built hospital plants were established, old hospitals were made over, new laboratories were built new and expensive hospital equipment was manufactured and sold, new and expensive

drugs became popular, new books were written and found a market, the cost of good medical care was exaggerated. When depression came after the stock market crash in 1929 there was no longer money available to carry on the great

A few pioneer medical economists began to express their ideas and warnings during the era of prosperity when hospitals and doctors suddenly became poor there was a sharp almost hectic rise of interest in medical economics which

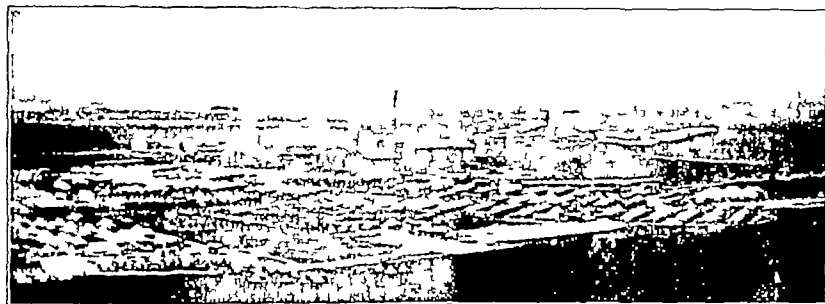


FIG. 1. 1919. The General Hospital, Base Hospital 5 in France.
a type of Hospital (Harvard Medical School Library)

overhead expense that had been set up. The question arose as to what should be done.

The immediate effect of such a situation has been to bring into existence a new field of medical literature. A few years ago the sub-

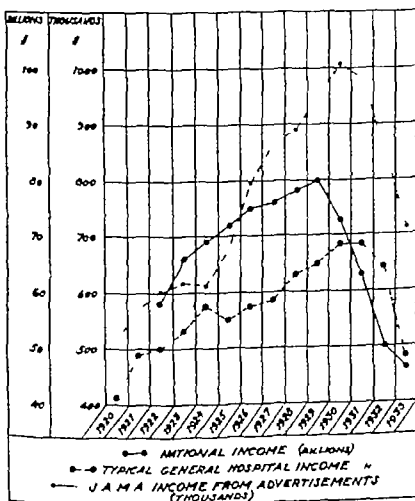


FIG. 1. 1930-1933. The relation between the income of the United States of a typical Massachusetts Hospital and of the J.A.M.A. income from advertisements.

ject of medical economics was rarely discussed, now it is a favorite topic. The growth of this type of reading matter as reported in the Quarterly Cumulative Index presents a curve almost inverse to the curves of hospital income and medical advertising.

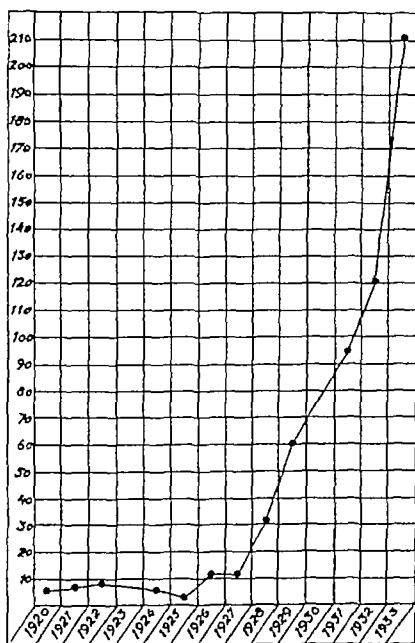


FIG. 14. 1930-1933. Articles in Medical Economics. The development of a new medical literature.

persists. It is only comparatively recently that various plans for hospital or health insurance have been widely debated and are receiving seri-

ous consideration and that community chests have become a common method for attempting to keep alive medical interests that otherwise might die

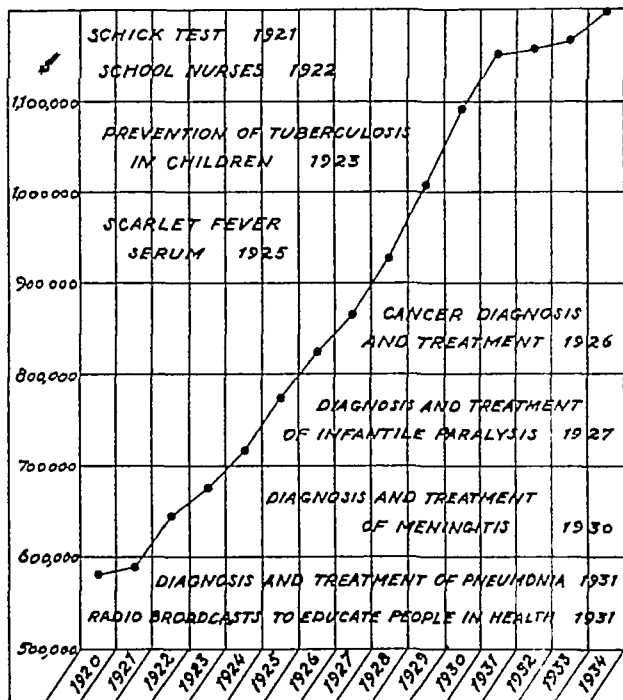


FIG 15 1920 1934 The growth in annual appropriation and certain activities of the Massachusetts State Department of Health

The State, on the other hand, has continued its medical work untrammelled. Regardless of depression or prosperity, money has been forthcoming to make sure that good public health should be maintained in Massachusetts, so far new funds have always been found to carry forward such new projects as our Department of Health has considered advisable.

Fortunately no historian is expected to do more than study the past; it is not his function to attempt to forecast the future. As one reviews, even casually, the three hundred years of medicine that have elapsed since Springfield was founded, it is difficult to avoid one definite conclusion. In 1855, the Massachusetts Medical Society met here for the first time. The members from Boston who drove to the meeting rose early for their unhurried journey over the turnpike through Waltham, Sudbury, Marlborough, Worcester, Brookfield and Palmer. Today, I will wager, the members from Boston who drive homeward from Springfield after their third meeting here, will be conscious of one very significant impression which never before has been so inescapable. As they speed past green, red and yellow lights on the new highway, they must realize, perhaps somewhat sadly, that the old independent days of cow-path and turnpike are gone. Now, with the rest of the citizens of Massachusetts, they are traveling, on occasion too fast for safety, along the State Road.



FIG 16 1936 The State Road Boston to Springfield

THE HEREDITARY ASPECT OF PROGRESSIVE
PSEUDOHYPERTROPHIC MUSCULAR DYSTROPHY

BY GARRY DEN HOUGH, JR., M.D.*

IN a recent contribution on the inheritance of muscular dystrophy Karl Pearson¹ said "There are few pathological states productive of greater human misery than the muscular dystrophies. There are hardly any states which have a more marked familial character and none wherein it is more the bounden duty of the unaffected members of a tainted stock to refrain from reproduction." He further asks "Are we to wait till these muscular dystrophies have been classified into separate categories and an adequate series of pedigrees collected for each type?"

In my opinion, such classification and collection of pedigrees is exactly what is needed and for that reason I am reporting the following family history. This family represents the only instance in my personal investigation of over a hundred cases of the pseudohypertrophic form of muscular dystrophy in which the condition was known to be present in more than one generation although frequently two or more cases in sibs have been observed. As will be seen the transmission was through the apparently normal female members of the family.

In the H. Family which I am presenting a single child (IV 19 on the chart) first came to my attention. At that time he was twelve years old and presented an advanced stage of typical pseudohypertrophic progressive muscular dystrophy of the usual Duchenne type. In obtaining the family history it was found that two first cousins (IV 15 and 16) were suffering from the same disease. Further investigation discovered two more cases in second cousins (IV 1 and 2).

Through the interest and co-operation of the family information was obtained concerning seventy nine other members of the family. The brother of the maternal great grandmother (I 3) was a cripple and was "always confined to a wheel chair. He died between thirty and forty years of age. The cause of death could not be ascertained nor could any information be obtained concerning any progression of his disability. While by no means certain it is possible that he represents a case of progressive muscular dystrophy.

The apparently healthy sister of this cripple married and had eleven apparently normal children: five boys and six girls. She died at eighty-four years of age and her husband at eighty-nine. Four members of the second generation are no longer living. One died of cancer, one died aged forty-five years of unknown cause, one died at eighteen of tuberculosis and one died of typhoid at eight years. Eight siblings: three males and five females had offspring the known families varying from two to thirteen.

The third generation consists of forty-six known individuals: twenty males, eighteen females and eight whose sex is not known. Thirty-six of this generation are now living and ten have died. Five sib-

lings in one family died of tuberculosis and three in another family died at birth. One died in childhood and one was drowned. There is no individual in this generation with any suggestion of muscular dystrophy.

The known individuals of the fourth generation which includes the five cases of dystrophy consist of nine males and ten females, the offspring of seven members of the third generation who were the children of the ninth and tenth in the series born in 1867 and 1870 respectively. Five of these were females and two males.

The five children of the two males are all normal while five of the fourteen children of the five females show the disease. Two of the children are only two years old so they may possibly still develop the disease but at present they show no evidence of it.

It is unfortunate that information could not be obtained concerning the offspring of the earlier part of the third generation but this was impossible.

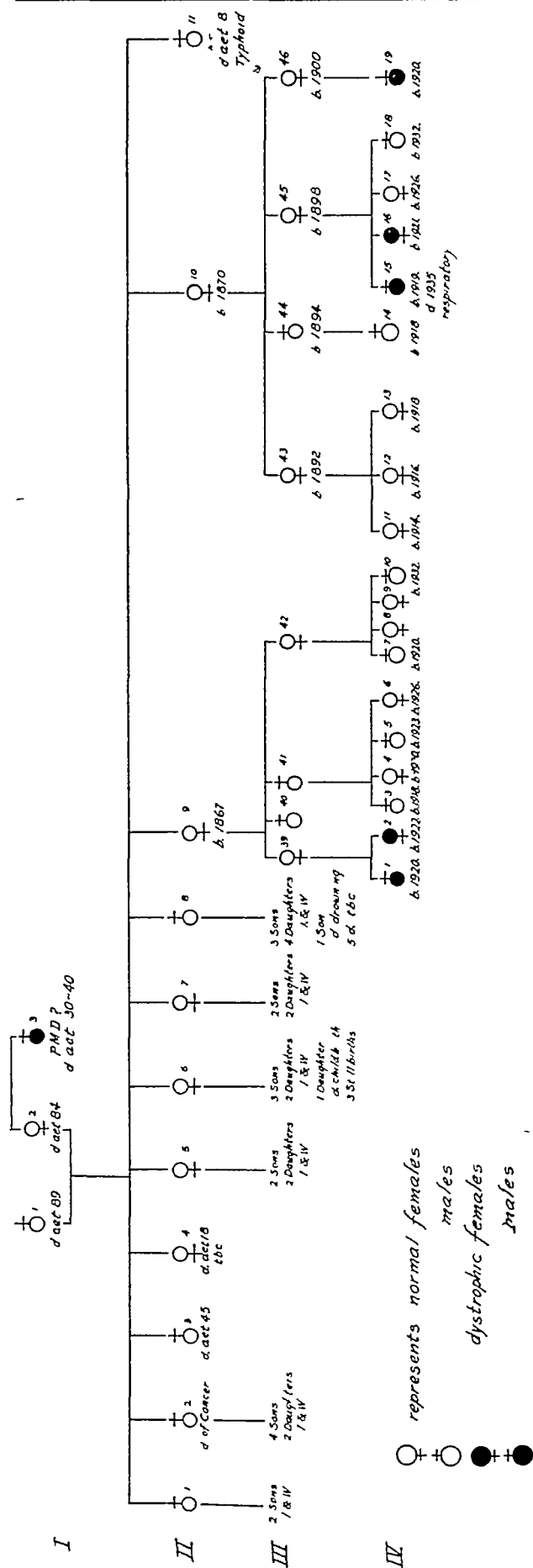
LITERATURE

As early as 1862 and again in 1869 Duchenne presented two brief pedigrees of families in which muscular dystrophy of the facioscapulohumeral type was transmitted as a mendelian dominant. These are quoted by Pearson¹ who presents two more family histories: one of the facioscapulohumeral type and one of the pseudohypertrophic form. In the first, the transmission was direct through the affected individuals for four generations.

Barker² in 1930 called attention to the fact that the hereditary transmission of the disease was a reliable method of differentiating certain types of progressive muscular dystrophy. He pointed out that the facioscapulohumeral type, to which the name of Landouzy Dejerine has been applied, is commonly transmitted as a mendelian dominant. The more frequent Duchenne type in which the involvement with pseudohypertrophy first appears in the lower extremities Barker stated, was usually a recessive characteristic.

Minkowski and Sidler³ in 1927 first called attention to the factor of parental consanguinity. They studied a series of cases of the disease occurring in an isolated village in Switzerland where genealogical data were available over a period of 300 years. They found that all afflicted individuals were descendants of two families (R and H) among whom there had been many intermarriages. Progressive pseudohypertrophic muscular dystrophy appeared only when both father and mother were descended from both the R and H family and the transmission was not sex linked. In this connection it may be noted that a high incidence of the disease has been observed among the French

*Hough, Garry Den, Jr.—Assistant Surgeon Shriners' Hospital for Crippled Children. For record and address of author see "This Week's Issue" page 104.



Arcadians in Louisiana* It is suggested that the intermarriage of similarly related families might be found among these people who have maintained their traditions and identity over a considerable period

A third type of family history has been presented in recent studies in which the transmission has followed the same course as in hemophilia. The unaffected daughter in these families transmits the disease to her son.

Dittich⁴ of Heidelberg has reported such a family history in which six cases have occurred in three generations. The transmission was twice through an apparently healthy oldest daughter and once through an apparently normal second daughter.

Voshell⁵ of Baltimore has contributed a most interesting family history of ten cases occurring in four generations. He presents data concerning seventy-five descendants and in every case transmission was by the unaffected female.

In a recent contribution Kostakow⁶ reports a family history of forty-nine individuals in four generations, fifteen of whom presented dystrophy. In this family, also, the inheritance was purely as a sex-bound recessive appearing in the male children of apparently normal females. He cites references in the literature to this type of transmission (Bing⁷), and also as both a dominant (Weitz,⁸ Riese,⁹ Davidenkoff¹⁰ and Barnes¹¹) and as a recessive (Weitz⁸).

SUMMARY

The pedigrees of families showing progressive muscular dystrophy in the literature show that the hereditary transmission may be as a dominant, a recessive, or a sex-linked characteristic.

A family history presenting six cases of the disease, one of which is uncertain, is here reported. Seventy-nine known individuals are recorded. The transmission was in all cases in this family through an apparently normal female.

CONCLUSIONS

1. There is increasing evidence to substantiate Barker's statement that the facioscapulo-humeral or Landouzy-Déjerine type of progressive muscular dystrophy is transmitted as a dominant characteristic. As these individuals frequently live to sexual maturity, they should be warned against having offspring.

2. The more common pseudohypertrophic or Duchenne type of progressive muscular dystrophy is apparently transmitted through the clinically normal female members of the family, exactly as is hemophilia. Perhaps this is due to the fact that individuals with this type of the disease are almost always incapacitated.

*Personal communication from Dr. Francis L. Fort, 1042 Park Street, Jacksonville, Florida.

before sexual maturity. There is sufficient evidence to prohibit reproduction by the apparently normal females in such a family, but to permit offspring to the apparently normal males.

3. The method of inheritance may be used as a basis of sound classification as it is directly concerned with the prevention of the condition. This is important because one source of confusion in recent studies has been the inclusion of all cases presenting the syndrome of muscular dystrophy in one clinical group. This has been due to an effort to simplify our consideration of the condition and is based on the recognition that the original classifications founded on anatomical localization and the presence or absence of pseudohypertrophy failed to serve any useful purpose. However the varying types of hereditary transmission as well as other evidence seems to prove conclusively that these cases are not all one disease entity.

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MYXEDEMA FOLLOWING THE REMOVAL OF AN
ABERRANT THYROID TUMOR*

BY J. G. PROBSTEIN, M.D.,† AND HARRY AGRESS, M.D.†

IT is extremely interesting that profound disturbances in thyroid metabolism such as myxedema, are frequently attendant upon the removal of median aberrant thyroid tissue.¹ This phenomenon is strikingly in contrast with the extirpation of lateral aberrant thyroids. The discrepancy is best explained by differences in embryonic development. There is general concurrence of opinion that the pathogenesis of median aberrant thyroids is that of an arrested descent of the tissue along the thyroglossal duct tract from its origin at the thyroid tubercle to its ultimate resting place in the normal organism. That myxedema follows the removal of such thyroid tissue is readily appreciated since it might well be the only thyroid present.

On the other hand, there is no such agreement concerning the pathogenesis of lateral cervical aberrant thyroids. It has been conjectured that one or possibly a combination of three probabilities account for these moot elements, namely (a) variations in the development and descent of the ultimobranchial bodies or "lateral anlagen" as inferred from the observations of Kingsbury² and of Norris;³ (b) migratory propensities of human thyroid tissue similar to that noted in salmonoid fishes by Gaylord and Marsh⁴ or (c) the separation of nodules from the parent thyroid observed in endemic goiter regions by Rendin Stern and Beerholdt. (Quoted by Moritz and Bayless⁵)

Cattell⁶ reports a patient in whom mild symptoms of myxedema with a normal basal metabolic rate existed preoperatively and in whom mild hypothyroidism developed following the removal of a lateral aberrant thyroid tumor. Myxedema in such instances is unique and prompts the report of this case of total hypothyroidism following the extirpation of an unusually located cervical tumor mass.

CASE REPORT

S. D., a seventeen year old white female appeared on July 18 1933 at the Out Patient Department of the Jewish Hospital complaining of a swelling which had been present for two weeks just to the right of the midline in the sublingual region. Her past history was interesting in that it was one of retarded development in infancy and early childhood. Her first teeth appeared at the age of two years and she did not start to walk or talk until four years of age. She was always somewhat mentally retarded as compared with other children in the family. Her menses started at the age of seventeen years, were irregular scanty and painful.

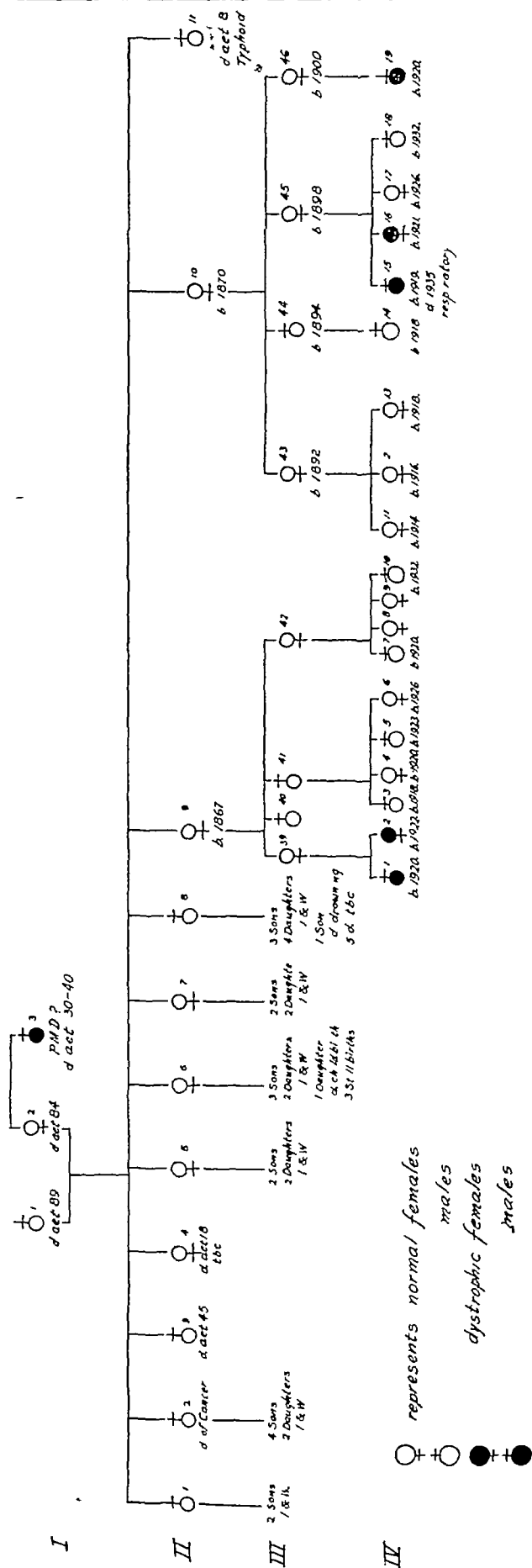
At the time she first presented herself her physical examination was essentially negative except for the presence of a small painless swelling in the right sublingual region. Further observation and consultation were deemed advisable and when she was seen again in several weeks there was no change noted in the nature of the mass. The roentgenologist reported "a suspicious bony projection probably stone in the sublingual region." Unfortunately a basal metabolism was not taken before operation.

Exploratory operation was advised with the following clinical diagnoses: (a) Submental lymph gland; (b) "suspected obstruction of the sublingual ducts;" (c) hygroma; and (d) "thyroglossal duct cyst."

Operation was performed under gas-ether anesthesia August 9 1933. A spherical soft tumor mass approximately 3 cm. in diameter was found superior

*From the David May Grant of the Jewish Hospital St. Louis Mo.

†Probstein, J. G.—Instructor in Clinical Surgery, Washington University School of Medicine. Agress, Harry—Internist, Jewish Hospital St. Louis. For record and addresses of authors see "This Week" in the J. G. 1934



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*Personal communication from Dr. Francis L. Fort 1022 Park Street Jacksonville Florida

of a lingual thyroid (and we might add, any suspected median thyroid) does not necessarily indicate active treatment" was not well taken in this instance. He urges that routine cervical exploratory operation for thyroid tissue in the normal position be performed before removal of an aberrant thyroid or any tumor in the neck which may always be thyroid tissue. On the other hand, the known "tendency (of lateral aberrant thyroids) toward a specific type of tumor formation"⁸ and the malignant tendencies of this tumor^{2, 6, 9, 15} indicate complete removal. This is particularly desirable in view of the excellent postoperative prognosis offered.^{6, 9, 10} Although malignant changes in median tumors have been reported^{11, 12} their incidence is extremely rare, most of the median tumors being simple colloid goiters or normal thyroid tissue. The fact that our case was one of benign papillary cystadenoma would favor its classification among the lateral cervical group.

Myxedema is unique following the removal of lateral tumors. This fact alone leads us to place our case in the median group. Another fact in favor of this classification is the presence of a single mass, multiplicity^{9, 14} being the more common occurrence in the lateral group and even bilateral involvement being conjectured.¹⁴

SUMMARY

A girl, aged seventeen years developed complete myxedema following the removal of a

right suprahyoid aberrant thyroid, which was apparently the only thyroid tissue present. Her recovery was complete following replacement therapy.

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MEDICAL PROGRESS

RECENT PROGRESS IN PHYSIOLOGY

BY PERCY G. STILES, PH.D.*

VASOMOTOR Reactions of the Mucosa. A question long discussed in this connection has been reopened and fully examined by Spiesman.¹ The traditional teaching has been that a reciprocal relation is maintained between the vascular condition of the skin and that of the nasal and pharyngeal lining. According to this view the contraction of the surface vessels when the skin is chilled induces an engorgement of the mucous membranes. The resulting congestion has been held to have much to do with the "catching" of colds. The suggestion has been entertained that the primary active congestion becomes passive and that the resistance of the tissue to bacterial infection is lowered in consequence. Twenty years or more ago evidence was presented to show that the reaction of the respiratory membranes to cooling of the skin is quite opposed to what has been pictured. The

observations of Spiesman support this conclusion that the vasomotor changes in skin and mucosa are not contrasted but parallel.

The means employed to discover the behavior of the vessels consists in a thermal couple so secured as to keep a steady contact with the nasal lining. Cold applications are made on various parts of the body surface. It is found consistently that when a patch of skin is cooled the mucous membrane registers a shift in temperature in the same direction and not upward as would formerly have been predicted. Having fallen to a minimum the temperature of the nasal lining gradually returns toward the initial reading but almost always stops short of it showing a lasting effect of the cutaneous cold. It can be lowered again by transferring the cooling to a different area.

Tests have been made from day to day on several subjects who have from time to time developed colds. It appears that the vascular

*Stiles, Percy G.—Assistant Professor of Physiology, Harvard Medical School. For record and address of author see "This Week's Journal" page 1201.

reactions of the mucosa become modified when the symptoms of a cold are manifest. The assumption is made that colds may be either sterile or bacterial, the first being essentially an exaggerated vasomotor disturbance and the second founded on a bacterial or virus infection. Undertaking to distinguish the two in his volunteers Spiesman reports that the simple vasomotor rhinitis is a condition which features the traditional internal engorgement under the influence of external chilling. The more toxic type of cold does not show this reversal of the normal reflex constriction but the readjustment is said to be delayed. The impression is left with the reader that vasomotor changes are not so definitely the cause of colds as they are superficial signs of a change taking place in the tissues.

It has been shown that the sensory nerves concerned in the reaction to external cold are those of temperature rather than those of pain. Intense local cold is definitely painful but the noxious component can be suppressed by subcutaneous injection of butyn epinephrine solution. The responses to cooling of the analgesic area continue unaltered. The heating of a portion of the skin can be demonstrated to increase the blood-flow and hence the temperature of the respiratory membranes.

Reflexes from the Skin as Affecting Skeletal Muscle Tonus. This matter readily linked with the last, has been dealt with by workers in the Yale Medical School.² It has long been taught that the depressing effect of stagnant air may be due in large part to the failure of such air to maintain the desirable type of stimulation of cutaneous end-organs to which we are accustomed. Mild air currents have been said to excite both the vasomotor effectors and the voluntary musculature. In default of this surface stimulation there is conceived to be a retarded return of blood to the heart. To an unfortunate extent it finds storage space at the periphery. Since the heart can obviously pass on only so much blood as it receives, the output to the arteries must be reduced and the tendency of the systemic pressure must be downward. These changes may well explain the drowsiness and the sense of inertia commonly associated with stuffy rooms.

The novel technique described in the paper here reviewed is offered as a means of estimating the varying tone of skeletal muscle. The value recorded is the pressure required to begin the intramuscular injection of sterile saline through a needle inserted into a selected muscle. The more complete the relaxation the more easily the inflow will be started. The effect of the general physical condition on muscle tonus may be judged from the following comparison. Two groups of ten each were examined, ten being in good health and ten patients confined to

then beds. With the normal subjects the average pressure in millimeters of water necessary to begin the injection was 74, for the invalids it was 47. It is pointed out that muscles so softened will harbor a great deal of blood and this is an important factor in prostration.

To determine the effect of air currents on the muscle tone this injection test was made upon naked men lying in a warm room where drafts could be created when desired by turning on an electric fan. The change was definite, the resistance of the muscles to the entrance of water was always increased, commonly by 15 or 20 millimeters of the scale. There was no corresponding increase in the arterial blood pressure. The reaction is found to be based on the mechanical stimulation of the draft rather than on any cooling of the skin.

Supplementary experiments have shown that bathing the skin with carbonated water has a reflex effect on muscle tone in the same direction as that of an currents. This is to say that the entrance of injected saline into the muscles is hindered and it is fair to assume that blood is displaced into the veins. So far as the reaction of the skin is concerned it is opposite for carbon dioxide to what it is for a draft. The gas produces a flushing of the body surface which is evidently the sign of peripheral dilation.

Compressed Air. In a previous review reference was made to the limiting pressure of oxygen which can be breathed with safety. Human subjects have lost consciousness when remaining for forty-five minutes under an oxygen pressure of four atmospheres. This is nearly twenty times the normal atmospheric pressure of oxygen since the percentage in air is just short of twenty-one. In studies of compressed gases it is necessary to make allowance for the presence or absence of nitrogen from the mixtures. A recent communication³ makes it possible to compare the effect of straight oxygen at four atmospheres (already indicated), with that of air having the same pressure. This air, such as might be sent to a diver 100 feet below sea-level, offers oxygen under a pressure of less than one atmosphere and nitrogen at more than three. It appears that nitrogen under such compression adds to the hazard of the situation.

Men remaining long in this compressed air have given evidence of mental confusion. The impairment of their powers of judgment and decision has been suggestive of the early stages of anesthesia. Since the oxygen pressure is far from being high enough to be responsible the rôle of the nitrogen calls for consideration. Among the physical properties of this gas there is noted its rather high solubility in bodies of the lipid group. Many if not all the volatile anesthetics are distinguished in the same way and their tendency to unite with fatty constituents of the nervous system has been invoked

to explain their narcotizing action. It is customary to speak of nitrogen as an inert gas but in this particular respect it may exert a definite pharmacological influence.

As nitrogen modifies the effect of compressed air during the period of inhalation so it figures in the risks of the subsequent decompression. The disturbances collectively called caisson sickness, compressed air illness, or 'bends' have long been referred to the formation of bubbles in the blood and elsewhere as the result of too rapid easing of the external pressure. Both oxygen and nitrogen may conceivably share in this effervescence. But oxygen has the better chance of disappearing promptly from the tissues since their metabolism calls for it. There is no corresponding possibility of getting rid of nitrogen; its removal must be by way of the lungs and of necessity a gradual process.

When an animal has been subjected to severe compression and a quick reduction of pressure has followed, a great variety of symptoms may appear. Many of these are explicable as due to obstruction of the pulmonary circulation by minute bubbles described as nitrogen emboli. A renewed application of pressure, using either pure oxygen or air, may relieve the situation. The significant fact has been noted that such relief is less likely to be succeeded by fresh embolic signs when oxygen is used than when compressed air is employed. It seems rational to charge the "iron doctor" with oxygen or at least to limit its nitrogen content to that measured by the partial pressure of this gas in the atmosphere.

The Cerebral Cortex and Heat Production
It has been shown that decorticate warm blooded animals preserve some power of temperature regulation although the function is more or less impaired. It has remained until now to determine the effect of cortical lesions on the metabolic rate. The communication to be summarized is from Rakieten.⁴ In the cerebrum of the monkey as in the human being motor and premotor areas are distinguished standing in relation to the tension and use of the skeletal muscles. These areas have been removed in variously modified experiments and the metabolism of the surviving animals has been measured on the basis of oxygen consumed and carbon dioxide liberated.

The excision of both motor and premotor areas on both sides has been followed by an increase in metabolism in proportion to surface area, amounting to from 15 to 30 per cent. The high level has been maintained for as long a period as seven weeks with no tendency to decline, therefore it can hardly be attributed to irritation. The nutrition of the monkeys has suffered in some degree but this would be expected to depress the metabolic rate. The rise is rather to be associated with the increased spasticity of

the musculature which is characteristic of the condition. The observation calls to mind the fact that a large share of the influences exerted by the cerebral centers are inhibitory in their nature. This has long been recognized as regards muscular activity and it might have been predicted that it would be paralleled in metabolism.

In fact a paper has just been published by Rioch and Rosenbluth⁵ which reopens the subject of cortical inhibition as exercised upon the lower motor mechanisms. It will be recalled that there are comparatively few parts of the cortex stimulation which can be relied on to call forth muscular movements. When, however, movements variously caused are going on cortical excitation at numerous points will be found to check them. Furthermore it has been noted that stimulation of one hemisphere will often put a stop to muscular activity on either side of the body.

The Role of Nerves Having Slow Conduction
The fibers which are bound together in mixed nerves have lately been assigned to three classes usually designated as A, B and C. Those of the third type are the most slender; they are nearly or quite without myelin, and they are difficult to stimulate. In particular the impulses propagated along the C fibers are incredibly slow by all the standards of a few years ago; they may proceed at such rates as 1 meter per second. If all the fibers in a long nerve are stimulated at one end it will be clear that, as the impulses pass along those in the fastest conducting (A) fibers will forge ahead and those in the C fibers will lag behind. Instruments are available to detect the flight of these disturbances as they pass selected points.

Using the techniques of electrophysiology Clark, Hughes and Gasser⁶ have been able to analyze the activities of the different fiber groups in nerves of the cat. Means have been devised for blocking conduction along some of these without interfering with it in others. Differential studies show that when only the C fibers are functioning in afferent nerves it remains possible to obtain vascular and respiratory reflexes. When a stretch of nerve is subjected to asphyxia the C fibers are found to be the latest to become blocked. They are still in condition to convey impulses after forty-five minutes suspension of circulation.

Comparing this finding with what is known of the properties of human nerves the inference is encouraged that the C fibers include those responsible for sensations of warmth and pain. This is in the light of the fact that only these sensations persist after such an interruption of blood supply to a limb as suppresses the A and B components in the cat.

The study of action potentials in nerves, the experimental method just referred to is more

and more employed in analyzing the details of various reactions. A curious example is afforded by a case of stuttering.⁷ Galvanometric records were made from the two masseter muscles in the victim of the speech defect and from those of a normal subject. In the control there was a practical identity between the features registered on the right and on the left. In the patient the tracings were dissimilar, the faulty co-ordination found expression at the low level of the motor centers in the brain-stem. The curious question is raised of how high up among the superimposed levels of the nervous system the trouble may be supposed to originate. Does the thought of the unfortunate individual meet with the same interruptions which we find so painful in the halting vocal performance? In other words, are we to think of the cortex as stuttering or does it start well-ordered currents to the subcenters only to have them meet with derangement en route?

A large share of the current physiological literature pertains to vitamins, hormones and humoral agents. Obviously these have much in common and have ill-defined border lines. The part played by humoral compounds in the development of processes formerly charged to the direct action of nerves on their effectors is constantly discovered in new localities. A typical example may be mentioned. This is embodied in a paper by Bunting, Meek and Maaske.⁸ The subject is the chemical control of the small intestine through the vagus nerve and its hormone, a substance having many of the properties of acetylcholine and perhaps identical with it. Two methods were employed, the first

made use of an isolated intestinal loop which was under observation during vagus stimulation. The loop although no longer supplied with nerves was found to reproduce the motor activities of neighboring parts still subject to nervous control. This is good evidence of a humoral agent at work but does not indicate where it has been formed.

The additional information that the hormone is really to be obtained from the small intestine has been secured by perfusing the vessels of the gut and testing the power of the perfusate to inhibit the frog's heart. An effect could be produced which it was possible to reduplicate with acetylcholine in Ringer's solution. The inhibitory property was found to be characteristic of the perfusate returning from the small intestine even when the vagus was not stimulated but the degree of the effect was much increased by such stimulation.

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ROCKY MOUNTAIN SPOTTED FEVER

According to the Department of Agriculture, three recent cases of Rocky Mountain spotted fever have been found near Washington, D C. This disease is widespread and has a high mortality. The wood tick is the vector largely responsible for the spread of the disease. Dr F C Bishopp of the United States Department of Agriculture has warned the public of the danger of the existing prevalence of these parasites here in the East especially in Maryland, Virginia, Delaware and North Carolina.

Spotted fever has been reported from many states in the Eastern part of the country, except in New England, Ohio, Michigan, Wisconsin and Mississippi.

These ticks attach themselves to dogs and other animals and hence may be transported to widely separated areas. In the far West a different species of ticks is responsible for spotted fever infection.

Further information with respect to the menace of ticks may be obtained on application to the United States Department of Agriculture.

A PLAN FOR CONDUCTING MENTAL TESTS

The report is current in the daily press that psychiatrists are to be employed by the Federal Gov-

ernment to examine the mental condition of defendants in Federal Court proceedings.

The list of psychiatrists appointed to serve the Massachusetts Federal Courts is as follows. Dr Joseph E Barrett, Assistant Commissioner of the State Department of Mental Diseases, Dr C MacFie Campbell, Medical Director, Boston Psychopathic Hospital, Dr Gerald F Houser, Assistant Superintendent of Boston State Hospital, Dr Frederick LeDrew, Senior Physician, Boston State Hospital, Dr E Houston Merritt, Jr, Boston City Hospital, Dr Winfred Overholser, Commissioner, Massachusetts Department of Mental Diseases, Dr Tracy J Putnam, Boston City Hospital, Dr Harry C Solomon and Dr Henry R Viets both of Boston.

Selections from these appointees will be employed when desired by the Court.

A NEW GENERATOR FOR X RAY THERAPY

A new form of high voltage generator for x ray outfits used in medical therapy, operating on radically new principles and with marked advantages and economy over previous types, has been invented and tested, and the first unit is being installed in the Huntington Memorial Hospital—*Science*, May 29, 1936.

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

ATTN. MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT M.D.

TRACY B. MALLORY M.D. *Editor*

CASE 22241

PRESENTATION OF CASE

A fifty three year old native painter was admitted complaining of weakness and hiccuph.

Three years before entry the patient had an attack of right sided pleurisy which caused him to remain at home, but not in bed under medical care for nine months. His illness was associated with marked weakness, slight cough but no fever or chills. During this time there was aching pain in the right shoulder arm and elbow with some numbness of the fingers. This was termed neuritis. Thereafter all symptoms subsided and the patient felt very well until three months before admission. At this time he noticed increasing weakness of his legs and arms with some numbness of the fingertips and slight dull headache. There was no fever, cough, or pain. There was slight dyspnea on exertion. Three weeks ago having been unemployed for some time, he succeeded in obtaining work. At this time he contracted a slight cough which persisted and was associated with some hoarseness. Seven days before entry upon his own initiative, he had six teeth extracted. He continued to work for three days afterward although he became very weak, felt dizzy and developed hiccuph. The latter was continuous and, although he obtained some rest by means of soporifics, his wife stated that it continued during his sleep. His weight had decreased from 130 to 116 pounds during the preceding three months.

Physical examination showed a well-developed and nourished man hiccuphing at frequent intervals. Many small telangiectases were noted on the nose and cheeks. The right pupil was slightly larger than the left but they both reacted normally. The right disc was slightly more blurred than the left. There was inconstant lateral and vertical nystagmus. With transillumination the right antrum appeared less translucent than the left. Small epitrochlear nodes were palpable bilaterally. There was dullness over the right lower chest anteriorly and posteriorly and in this region tactile fremitus and breath sounds exhibited diminished intensity. No rales were heard. The heart was normal. The blood pressure was 110/72. The prostate was slightly enlarged and boggy. No other de-

tails were noted. The upper and right lower abdominal reflexes were absent. The patient showed a wide based gait but the tendon reflexes were all normal and no abnormal reflexes were elicited.

The temperature was 99.4°, the pulse 70. The respirations were 20.

Examination of the urine was negative. The blood showed a red cell count of 4,150,000 with a hemoglobin of 75 per cent. The white cell count was 3,400, 88 per cent polymorphonuclears. The smear showed no stippling of the red blood cells. No tubercle bacilli were seen in a specimen of sputum, sputum was not obtainable. The stools were negative. A basal metabolic rate was -1. A Hinton test was negative. The serum calcium was 7.85 milligrams and the phosphorus 2.5. An intradermal injection of 1.20,000 tuberculin showed a 9 millimeter raised area without erythema. The serum protein was 5.5 and the cholesterol was 175 milligrams. Agglutination tests for undulant fever and the typhoid group were negative. A lumbar puncture showed an initial pressure of 40 mm. Dynamics were normal. A cell count showed one lymphocyte. The alcohol test was positive and the ammonium sulphate faintly positive. The total protein was 48 milligrams and the sugar 77 milligrams. A Wassermann test of the fluid was negative.

X ray examination of the chest showed dullness at the right base obscuring the costophrenic angle and lateral portion of the diaphragm. There was considerable thickening of the axillary pleura. In the lateral view the dullness lay posteriorly. There was indefinite mottling in the left first interspace. Another film two days later showed mottling in both infraclavicular regions. A film of the skull was negative as was a gastrointestinal series.

During his hospital stay the patient's temperature fluctuated between 98° and 101° and his pulse between 70 and 100. Further details elicited from his wife demonstrated the fact that he had showed drowsiness, slow slurred speech, and considerable headache during the preceding three months. Examination on the fourth hospital day showed the patient to be drowsy. His speech was slow and hesitant. The facies exhibited a mask-like quality. There was no nystagmus and the pupils and fundi were negative. Deep reflexes were symmetrically active. Both abdominal and the right cremasteric reflexes were absent. There was no Babinski sign. The patient walked on a wide base and deviated to the right with his eyes closed. In the Romberg position he fell to the right and backward. His course continued relatively unchanged. The hiccuph ceased occasionally and there were infrequent attacks of vomiting. On the sixteenth hospital day a lumbar puncture showed an initial pressure of 270. A cell count showed three lymphocytes and one polymorpho-

nuclear cell. The total protein was 44 and the qualitative tests for globulin were unchanged. On the same day a ventricular puncture was performed. Clear fluid was withdrawn from the left ventricle without evidence of increased pressure. The right ventricle could not be entered. The patient exhibited bradypnea after this procedure and his blood pressure dropped to 50/20. He was treated supportively and two days later a ventriculogram showed filling of all the ventricles. There was slight dilatation of both anterior horns and the third ventricle but no definite displacement. He became comatose and died on the following day.

DIFFERENTIAL DIAGNOSIS

DR DONALD S KING. This patient had two sets of symptoms—pulmonary and neurologic. Let us take up the two pictures separately, first the respiratory picture, and secondly the cerebral picture. Three years ago for a period of nine months he is said to have suffered from pleurisy accompanied by weakness, cough, pain in the right shoulder, pain in the right elbow, and numbness of the fingers, but all these symptoms cleared and he was free from symptoms for two years. This story, I should say, is consistent with tuberculous pleurisy. The pain in the right shoulder could be accounted for on the basis of a diaphragmatic referal and I am inclined to discount the diagnosis of neuritis in the right arm. Three months before his admission to the hospital there were weakness and dyspnea and the start of a fourteen-pound loss in weight. Three weeks before admission cough and hoarseness began. The respiratory history is consistent with pulmonary tuberculosis which started with pleurisy followed two years later by a reactivation of a pulmonary process.

The physical signs are consistent with old tuberculous pleurisy at the right base. The temperature and pulse are those of an acute tuberculous process. If military tuberculosis were present it would probably not give any additional physical signs, so that the examination is consistent with old tuberculous pleurisy and acute military tuberculosis.

A tuberculin skin test was positive. There was a definite leukopenia and a high percentage of polynuclear neutrophils. These blood findings are consistent with military tuberculosis and are occasionally responsible for the confusion of this disease with typhoid fever. The blood chemistry shows a low total protein, a low serum calcium and phosphorus, and a normal cholesterol. So far as I know, this chemical picture has no especial diagnostic value and is consistent with military tuberculosis.

The x-ray film in my opinion, Dr Holmes, is consistent with tuberculous pleurisy at the right base and military tuberculosis at the apices. Do you agree with this diagnosis or do you feel that some other diagnosis is more likely or that

the changes which suggest military tuberculosis should be discounted?

DR GEORGE W HOLMES. My interpretation would be about the same. The amount of change is not so marked as one would expect with a full-blown military tuberculosis. It looks more like an old infection or a rapid form of tuberculosis rather than true military.

DR KING. We have only these two films. They are not far enough apart to tell whether the disease is progressing. I take it that the x-ray department does not believe this to be sarcoid, military carcinoma, military abscesses, fungus infection, and so forth.

DR HOLMES. No.

DR KING. The respiratory picture is then in my opinion consistent with old tuberculous pleurisy and military tuberculosis.

Now as to the neurologic picture. The "neuritis", which he had three years before I am throwing out. During the three months before the hospital admission there were drowsiness, slurred speech, headache, weakness of the arms and legs, and numbness of the fingertips. After admission to the hospital there was a continuous stupor going into coma, increased weakness, vertigo, hiccup and vomiting. If one has accepted the diagnosis of military tuberculosis, he would then naturally with these neurologic symptoms make a diagnosis of tuberculous meningitis. It is perfectly consistent for the symptoms to drag for three months or even more.

The neurologic examination showed mask-like facies, a wide based gait, absent abdominal and right cremasteric reflexes, and a deviation to the right when the patient walked with eyes closed. In the "Romberg position" the patient is said to have fallen to the right and backward. I cannot on the basis of this neurologic examination localize a central nervous system lesion. It does not seem to me like a cerebellar tumor, and, as you will see later, the service was looking for tumor in the region of the ventricles.

Lumbar puncture showed at first a low pressure of 40 and later a high initial pressure of 207. Examination of the spinal fluid showed the protein and sugar to be slightly elevated. I am sorry that there is no report of the sugar found in the fluid taken at the second examination. A determination of the amount of sugar is helpful in the diagnosis of tuberculous meningitis since there is usually a progressive fall in sugar though it may have been high at the onset. The protein was unchanged in the second examination. There is no mention of a fibrin clot or a search for tubercle bacilli in the spinal fluid.

The ventriculogram, as I understand it, is normal. I do not know how much stress to put on the fact that at the time of puncture the right ventricle could not be entered since later examination showed that this ventricle did

fill with air. We will have to ask the neurologists about this point.

On the neurologic side then it seems to me that the evidence is against tuberculous meningitis because the spinal fluid examination showed a normal cell count and a normal sugar so far as these examinations were made. There is no definite evidence of a tumor involving the walls of the ventricle. There are no characteristic cerebellar symptoms. If then, one is trying to make a single diagnosis with an etiological factor that would explain both the respiratory and central nervous symptoms and had already made up his mind that there was miliary tuberculosis in the lungs, the natural conclusion would have to be that the cerebral symptoms were due to a tuberculoma rather than meningitis. Just where the tuberculoma is located, I will not attempt to say. There is no proof that it is near the ventricle or in the cerebellum. I should guess that it was a cerebral tuberculoma.

I do not believe that we are dealing with other disease conditions which might give the two sets of symptoms in the lung and brain these possibilities being bronchiogenic carcinoma, pulmonary abscess, or hypernephroma with metastases to both lungs and brain.

My final diagnosis would then be (1) old tuberculous pleurisy, (2) acute pulmonary tuberculosis of the miliary type, (3) cerebral tuberculoma, (4) generalized miliary tuberculosis with only slight if any involvement of the meninges.

DR. GERALD BLAKE. At entrance this man did not look very ill. He looked sleepy, was well nourished and not complaining of anything except his three months of weakness, ten days headache and more recent hiccup. His subjective symptoms were slowness of speech which he said he had always had but which the family said had increased within the last three months. He also had blurring of the right disc, nystagmus and noticeable lassitude. The signs were, as described of a healed process at the right base and the early process by x-ray at the apex. It was impossible to say whether that was active or not. We did not get much help from the first lumbar puncture and his course was gradually downhill with rather few changes in the neurologic signs. Following the second lumbar puncture within fifteen minutes he stopped breathing and then for about half an hour he breathed three or four times normally and then would stop for fifteen or twenty seconds, not the Cheyne Stokes type but an abrupt stopping and abrupt beginning without much change in color. He was stimulated and continued to breathe in this way. The neurologic service saw him again and took him over for further investigation.

CLINICAL DIAGNOSES

Pulmonary tuberculosis
Cause undetermined origin

DR. DONALD S. KING'S DIAGNOSES

Old tuberculous pleurisy
Acute pulmonary tuberculosis of the miliary type
Cerebral tuberculoma.
Generalized miliary tuberculosis with only slight if any involvement of the meninges

ANATOMICO DIAGNOSES

Miliary tuberculosis of the lungs
Pleuritis, chronic fibrous, right
Solitary tubercle of the medulla
Tuberculosis of the adrenals, bilateral
Atherosclerosis slight, aortic and coronary
Operative wound. Ventriculography

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY. Members of the neurological service were evidently not very anxious to commit themselves on this patient. Various possibilities were suggested such as a lesion in one of the cerebral hemispheres, possibly tuberculoma, possibly abscess or tumor. Later another note in the record says that the symptoms appear to be due to medullary compression.

The autopsy showed the old fibrous pleurisy and the widespread miliary tuberculosis which were predicted. The tuberculoma was also found though no one had succeeded in localizing it. It was not quite a centimeter in diameter and lay in the right side of the medulla just in the region of the olive. There was no meningitis. The surprise of the autopsy was the finding that both adrenals were almost completely replaced by large tuberculous masses. Only a small fragment of the cortex about half a centimeter in diameter was left undestroyed. That alone stood between this patient and Addison's disease.

CASE 22242

PRESENTATION OF CASE

A fourteen year old white native schoolgirl was admitted complaining of pain in the left knee.

About one month before entry the patient began having pain in the left knee which was followed in a few days by slight swelling and limitation of motion. The pain occurred first in the popliteal region but after one week appeared anteriorly as well. Walking caused no increase in discomfort but standing for a short period produced aching pain along the lateral aspect of the thigh and calf. Tenderness gradually ensued and the pain became constant both night and day. It was worse between 5:00 and 7:00 A.M., when it became rather throbbing in character. As limitation of motion progressed the patient became unable to walk up or down stairs. No history of contributory trauma was obtainable.

Physical examination showed a slender slightly undernourished girl in no acute discomfort. Except for the left lower extremity the examination was essentially negative. The affected knee was held by preference in approximately 150° extension, it could not be further extended but could be flexed to 80°. The leg was normal but the knee showed a visible fullness extending up and about the thigh for a distance of three inches above the joint. At the upper margin of the patella the circumference was fourteen and a half inches compared with twelve and a half inches on the right. Some evidence of fluid in the joint was elicited. The external femoral condyle was enlarged, bony in consistency, and exquisitely tender. There was tenderness to a lesser degree about the remainder of the knee. On a later examination tenderness and bone-like overgrowth could be indistinctly made out on the interosseous margin of the upper end of the tibia just lateral to the patellar tuberosity. The inguinal lymph nodes were not remarkable.

The temperature, pulse, and respirations were normal.

Examination of the urine showed a specific gravity of 1.020 with a faint trace of albumin and a positive reaction to the Benedict's test. The degree of this reaction was not noted. Tests for diacetic acid were positive. Examination for Bence-Jones bodies was negative. The blood showed a red cell count of 4,400,000, with a hemoglobin of 100 per cent. The white cell count was 8,600, 60 per cent polymorphonuclears. Tuberculin and Hinton tests were negative. The serum calcium was 10.8 milligrams and the phosphorus 5.00. The phosphatase was 8.6 units, Bodansky method.

X-ray examination showed a fusiform soft tissue thickening surrounding the lower end of the femur. The cortex in the involved area was eroded and at the margins of the lesion on the shaft the periosteum was separated and exhibited typical lipping. There was ray spicule formation but no bone atrophy and the joint was not involved. A similar lesion was present at the upper end of the tibia, posteriorly and laterally. This also showed spicule formation and elevation of the periosteum. No definite soft tissue tumor was identified. Films of the bones, skull, and the chest showed no significant abnormality. Later films showed, in addition, bone destruction in both tumors.

On the ninth hospital day, operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. JOSEPH S. BARR. This is the case history of a fourteen year old white schoolgirl who began to have pain in the left knee four weeks before entry. The onset was insidious without history of trauma. At first localized to the popliteal space, the pain gradually spread until the whole knee was involved. There was

no particular change in the amount of discomfort caused by change in position or by weight bearing. The pain was throbbing in character, present night and day, and seemed to be worse early in the morning. The knee began to flex, motion was limited, and finally the patient was unable to walk.

This history is suggestive of a malignant process or of a subacute infectious process such as tuberculosis or Brodie's abscess. The history of disability in children is notoriously unreliable, and the diagnosis hinges much more on the physical findings and laboratory tests than on the history. On physical examination nothing remarkable was noted except for the left lower extremity. The knee showed definite limitation of both flexion and extension. There was apparently a slight excess of fluid in the joint. The lower end of the femur was enlarged, the swelling being bony in consistency, and exquisitely tender. There was less definite tenderness about the remainder of the knee. The vague findings in the tibia will become significant when interpreted in the light of the x-ray examination. The temperature, pulse, and respirations were normal. Examination of the urine showed a faint trace of albumin, and the Bence-Jones reaction, as one would expect, was negative. The positive reaction to Benedict's test and the presence of diacetic acid can have no significant relationship to her bone lesions. Blood examination was essentially negative except for slight anemia. We note the white cell count of 8,600, with only 60 per cent polymorphonuclears. The tuberculin and Hinton tests were negative. The serum calcium was 10.8 milligrams, phosphorus 5 milligrams per 100 cubic centimeters, and phosphatase 8.6 units.

These data yield us definite information and serve to rule out some of the diagnostic possibilities. Tuberculosis will practically always give a positive tuberculin test unless there is an overwhelming infection present, which would not seem to be so in this case. A single negative Hinton test does not eliminate the possibility of lues, but makes it unlikely. The normal temperature and pulse with a normal white cell count and differential would seem to rule out pyogenic infection. On the other hand, the physical examination and laboratory studies are entirely compatible with the diagnosis of primary malignancy, presumably of the lower end of the femur. Osteogenic sarcoma is most common in this age group, and this is a perfectly typical history and physical examination of such a case. The phosphatase is moderately elevated in this case, and I believe that is true of malignancy involving epiphyses.

The extraordinary interest in this case centers around the x-ray examination. The appearance of the lower end of the femur is quite characteristic of primary osteogenic sarcoma. The cortex is eroded. The periosteum is sep-

arated and there is typical ray spicule formation without involvement of the joint, but a similar lesion is also present in the upper end of the tibia, particularly evident on its posterior and lateral aspects. X-rays taken eight days after the original films showed increased bone destruction in both the tibia and the femur. If either the lesion in the femur or the tibia were there alone, the only reasonable diagnosis would be osteogenic sarcoma. To have two primary bone tumors developing simultaneously must be extraordinarily rare. I know of no such case reported in the literature. Simultaneous development of tumors in brothers and sisters has been reported. I can think however of no alternative diagnosis which would give this characteristic picture. Metastatic bone lesions in this age group are rare and no primary focus was found on physical examination. I presume that one of these two lesions might be primary with secondary involvement of the other bone by direct extension through the soft tissues around the joint. This occurs rarely if ever as the mechanism of dissemination through the blood stream or lymphatics does not permit of direct extension past a joint line into the adjacent bony structure. I am therefore forced to make a diagnosis of a double primary bone malignancy, in spite of the fact that I have never heard of such a case occurring.

If this diagnosis is correct the prognosis is practically hopeless, for in this age group the primary osteogenic sarcomas are uniformly rapidly fatal.

DR. CHANNING C. SIMMONS. I should agree with the foregoing remarks of Dr. Barr with one exception, that is as to the prognosis. It is admittedly bad but there are on record in this hospital several cases of proved osteogenic sarcoma living without disease five or more years after operation.

As a matter of record it is interesting to note that twelve days after amputation the blood phosphatase fell to 2.68 units, Bodansky method.

PREOPERATIVE DIAGNOSIS

Osteogenic sarcoma of the left leg

DR. JOSEPH S. BARR'S DIAGNOSIS

Primary malignant bone tumor lower end of the left femur and the upper end of the left tibia probably osteogenic sarcoma of the osteoblastic, osteolytic type

PATHOLOGIC DIAGNOSIS

Osteogenic sarcomas of the femur and tibia

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY. The unusual clinical picture which the patient presented natur-

ally aroused a great deal of interest and Dr. Codman was appealed to for an opinion about it. He wrote the following note:

"The films seem typical of osteogenic sarcoma in both the femur and tibia. I have never seen juxta-epiphyseal syphilis have this appearance although it occurs above and below the knee as this does it is usually chiefly osteolytic. If the Wassermann is negative amputation is indicated. Within a year I saw an article in the *Journal of the American Medical Association* reporting a number of instances of osteogenic sarcoma in the same family of children. In one case I think, two tumors occurred in the same patient. I know of no other case of the kind."

Other opinions which were suggested naturally included metastatic involvement of the bones and also Ewing's tumor. The x-ray pictures however, were much more typical of osteogenic sarcoma than of Ewing's tumor and the patient did not show the febrile reaction which is so common with this tumor.

After a week of study she was operated upon by Dr. Simmons. A biopsy of the femoral tumor was done and following a frozen section diagnosis he did an amputation just below the lesser trochanter of the femur. When the two bones were dissected out in the laboratory we found osteogenic sarcomas of both the femur and the tibia. The tumor of the femur encircled the shaft for a distance of 10 centimeters, beginning at a point 1.5 cm. above the lateral condyle. The tumor of the tibia was on the lateral surface of the upper third of the bone and projected chiefly into the interosseous space so that it was naturally difficult to make out on physical examination. No evidence of any connection between the two masses could be found and the knee joint was not invaded by either tumor.

On microscopic examination there was a considerable difference in the histologic character of the two tumors. The one from the femur would do well for a textbook illustration of a typical osteogenic sarcoma. In various areas it showed pure fibroblastic zones, islands of relatively well-differentiated cartilage lamellae of osteoid material, and trabeculae of well formed bone. The tumor from the tibia in contrast showed no trace of cartilage or bone formation and appeared to be entirely fibroblastic in its differentiation. It contained a very high number of multinucleated tumor giant cells. That it too, however, should be classed in the general group of osteogenic sarcomas admits of little doubt in view of its location and gross character. This is the first case that any of us have seen of multiple osteogenic sarcomas in a single patient and, as Dr. Codman has pointed out, cases are extremely rare in the literature and in the material of the registry of bone sarcomas.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

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SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States Canada \$7.04 per year \$8.62 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office, 8 Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass.

CONTRARY OPINIONS RESPECTING THE USE OF ANALGESIC DRUGS IN CHILD- BIRTH

At the annual meeting of the American Medical Association in the section on obstetrics and gynecology three papers were read this year on methods for the amelioration of labor pains. These contributions were made by physicians of ability and judgment, working in well-organized clinics and all included a sufficiently large number of cases to be of value. A discussion arose which, if reports in the lay press are true, was characterized by considerable vigor, and appeared at times to have been slightly tinged with acrimony. Those who dissented did not hold that the methods described were inefficient, then contention was that it was wrong to relieve the pains of childbirth. Such a mental attitude recalls the protest by the established Church of England which greeted Sir James Young Simpson's use of chloroform for that purpose in 1847. The objection raised eighty-nine years ago was that of impiety and

the aid was invoked of the third chapter of Genesis where it is written that women should bring forth children in sorrow. Continuing this same unworthy spirit of revenge upon Eve for her misdemeanors in the Garden of Eden it was decreed that all of her daughters should endure the same unpleasant experience. Today, possibly because not so many people are familiar with the Bible, the attack has shifted from the soul to the psyche. We are told that if a woman is prevented from enjoying the pains of childbirth it may cause great damage to her personality, and the development of nervous disorders will be the price for an escape from reality. Although the pains of labor are apparently beneficial to the woman who is so fortunate as to enjoy them, we are also told that they may be made to vanish if the fear of childbirth is eliminated by suggestion both in the prenatal period and during labor by careful explanation of their physiology. An individual who has sufficient powers of persuasion to convince a parturient woman in full cry that she is mistaken, that she is not suffering at all, or who can induce a light anesthesia by a bedside description of the autonomic nervous system has gifts that are wasted in the practice of medicine.

It was further stated that the use of analgesic drugs produced high maternal and fetal mortalities, although no statistics were given to substantiate these contentions, nor are any such figures available in the literature. Since no proof of these serious charges were given we must accept them solely as the personal opinions of those who advanced them and assign to them as much or as little value as we please. If the experience of one Boston hospital is of any importance it may be of interest to note that during the years that analgesic drugs have been largely used the neonatal death rate from intracranial hemorrhage has fallen to less than one third of its former figure while the death rate from atelectasis and asphyxia has remained unchanged. Such results do not indicate that the use of these drugs has led to violent operative deliveries, nor do they show that more babies have died because they were employed. On the other hand, it is the opinion of many that analgesics, properly used, protect the interests of both mother and infant since the knowledge that the patient is not suffering enables the obstetrician to await the normal conclusion of labor and removes any temptation, because of her agony and importunities, to operate too soon.

One needs but to question a few women who have had babies without any anesthetic and have had a subsequent delivery under analgesic drugs to be convinced that such methods are in the nature of a great blessing. It would require much argument to convince these women that

they did not suffer at their prior deliveries, or that it was good for their nervous systems, or that they should have their next child with out anesthesia.

While the benefits derived from analgesic drugs are great, they should be used by the proper persons in the proper patients and in the proper places. Physicians who employ these drugs should be trained in their use and should be thoroughly familiar with their pharmacological action. Once medication has been given, the physician must be with the patient on ready call. From the time the drugs are first given until the patient is fully awake she must never be left unattended by a nurse who must be thoroughly familiar with the use of these agents. These drugs are never to be used in the patient's home; they belong essentially to hospitals with good maternity departments. These methods are not recommended for practitioners who do obstetrics as part of a general practice and who lack the time and experience to carry them out nor are they advocated for the small hospital with an occasional obstetrical case. These methods, moreover, are not suitable for abnormal cases and they may prove dangerous when employed in the presence of respiratory infections or when the patient has recently eaten.

THE CYTODIAGNOSIS OF MALIGNANCY

It has long been claimed by McCarty of the Mayo Clinic that the malignant cell has one pathognomonic characteristic—a very large nucleolus, far larger than occurs in most normal cells. Several of his students have confirmed this diagnostic point. However remembering the large nucleoli of the liver parenchymal cell and the nerve cell, most pathologists have been reluctant to regard nucleolar size as specifically diagnostic of malignancy. In fact, most of them are unwilling to make any differentiation between malignant and benign cells on cytologic characteristics alone.

Research for specific stains for malignant cells has met with the same degree of success as would be expected from any other rainbow-end quest. Lewis¹ in summing up the characteristics of the malignant cell in contrast with the benign was forced to depend on the time-honored criteria of anaplasia of abnormal mitotic forms, and of altered function. However, any or all of these can be duplicated in repair. Thus in simple epithelial repair of the skin we see loss of differentiation, rapid growth, mitotic activity very occasionally even with abnormal mitoses occurring.

An interesting report in this regard is made by Foote who found that the degree of aciculation in distinguishing malignant from benign ascitic fluid was only 70 per cent, using all

available criteria for differentiating malignant and nonmalignant cells. His conclusion was that in the absence of clear-cut histologic organization, that is, the formation of glandules or cell clusters, the differentiation of malignant and nonmalignant cells was uncertain.

This difficulty of distinguishing cells has considerable bearing on the practical value of the so-called punch biopsy advocated by a few pathologists and some surgeons. The punch biopsy if it obtains only isolated cells, rather than a definite plug of tissue, is of low reliability. Its chief value lies in instances where the diagnosis of malignancy hinges not on the recognition of the detail of cells involved but the finding of cells of specific character in a given site. Thus if the patient has had cancer of the lip and keratinized epithelial cells are obtained from a punch biopsy of a neck node, it is a reasonable assumption that metastasis of cancer of the lip has occurred to the node. On the other hand if one obtains poorly differentiated lymphocytes from the node the diagnosis of lymphoma certainly would not be justified, even though mitotic figures may be present. All in all the assumption seems justified both on theoretical grounds and from practical experience that the diagnosis of malignancy from a single cell is highly inaccurate and may react unfavorably on the welfare of the patient.

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AN ANTHROPOLOGIST SPEAKS HIS MIND

Dr. E. A. Hooton, professor of anthropology at Harvard University speaking before the American Association of Physical Anthropologists in New Haven last month demonstrated that no justification exists for the preference of Nordic and Arvan stocks among the recognized racial types. A study carried on at Harvard among three social groups—the cream of the population, the middle class and the criminal class according to a dispatch to *The Boston Herald*, showed that the racial types were represented in the same proportion in all three groups.

Maintaining that every racial strain should be purified by sterilization of its criminal, insane and diseased, Dr. Hooton denounced as 'ridiculous and pernicious' the 'doctrines of racial inequality which have become a menace to the peace of the world and have brought tragedy upon millions.' Every one of our so-called racial types in the series studied according to Dr. Hooton is represented by a substantial body of convicted felons at one end and a group of eminently respectable and intelligent citizens at the other.

In the words of the speaker, "one does not need to be an anthropologist to recognize that there is rampant, not only in this country but elsewhere in the world, a selfish stupidity, which reeks of human decay and degeneration. It manifests itself in some quarters by brutal oppression of minorities selected for ill treatment on account of religious, linguistic or fancied racial differences.

"Elsewhere it is expressed in shameless aggression against defenseless primitive peoples. Here in the United States it is horribly evident in maudlin sympathy for criminals and in the toleration of crime that seems to characterize the mass of our population, in the looting of our national treasury in the name of patriotism, the wasting of our resources for political patronage, and even perhaps in muddle-headed efforts at national planning and regimentation, which bid fair to reduce us to the unfortunate economic status of those fabled inhabitants of the Scilly islands, who were 'forced to eke out a precarious livelihood by taking in each other's washing'."

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

BRANCH, CHARLES D. A.B., M.D. University of Michigan Medical School 1931 Resident Surgeon, Peter Bent Brigham Hospital Instructor in Surgery, Harvard Medical School Address 721 Huntington Avenue, Boston Associated with him is

ZOLLINGER, ROBERT B.S., M.D. Ohio State University College of Medicine 1927, F.A.C.S. Junior Associate in Surgery, Peter Bent Brigham Hospital Associate in Surgery, Harvard Medical School Address 721 Huntington Avenue, Boston Their subject is Acute Cholecystitis A Study of Conservative Treatment Page 1173

FITZ, REGINALD A.B., M.D. Harvard University Medical School 1909 Associate Professor of Medicine, Harvard Medical School His subject is From Cow-Path to State Road Page 1178 Address 721 Huntington Avenue, Boston

HOUGH, GARRY DEN, JR. B.S., M.D. Harvard University Medical School 1921 F.A.C.S. Assistant Surgeon, Shriner's Hospital for Crippled Children, New England Unit, Springfield Orthopedic Surgeon, Wesson Memorial Hospital, Springfield His subject is The Hereditary Aspect of Progressive Pseudohypertrophic Muscular Dystrophy Page 1189 Address 146 Chestnut Street, Springfield, Mass

PROBSTEIN, J. G. M.D. Loyola University School of Medicine 1917 F.A.C.S. Instructor in Clinical Surgery, Washington University School of Medicine Associate Surgeon, Jewish Hospital Attending Surgeon, St. Louis County Hospital Address Jewish Hospital, St. Louis, Mo Associated with him is

AGRESS, HARRY B.S., M.D. Washington University School of Medicine 1932 Hematologist, Jewish Hospital, St. Louis Address Jewish Hospital, St. Louis, Mo Their subject is Myxedema Following the Removal of an Aberrant Thyroid Tumor Page 1191

STILES, PERCY G. S.B., Ph.D. Assistant Professor of Physiology, Harvard Medical School Assistant Editor, Biological Abstracts His subject is Recent Progress in Physiology Page 1193 Address Harvard Medical School, Boston

MASSACHUSETTS TUBERCULOSIS LEAGUE

GREETINGS BY DR. HENRY D. CHADWICK,
STATE COMMISSIONER OF PUBLIC HEALTH

After reviewing the progress of tuberculosis work in Massachusetts, Dr. Henry D. Chadwick, State Commissioner of Public Health, spoke of the 200 new beds at Westfield State Sanatorium of which one fourth are for cancer and three fourths for tuberculosis. He also mentioned the 150 new beds in the Middlesex County Sanatorium, as well as the new nursing home in Norfolk County Hospital which will release some ten beds for patients in that institution. In each project 45 per cent of the cost is paid from the Public Works Administration.

Dr. Chadwick pointed out that Massachusetts has 24 beds per annual death prior to use of this new construction, so this state will be well equipped to hospitalize its tuberculous. It will greatly reduce the centers of tuberculosis infection in the communities. In this connection may be mentioned that few states have yet passed the national goal of tuberculosis workers for two hospital beds per annual tuberculosis death.

THE PREVENTION AND CONTROL OF TUBERCULOSIS IN THE COMMONWEALTH OF MASSACHUSETTS WITH SPECIAL REFERENCE TO THE ACTIVITIES OF THE MASSACHUSETTS TUBERCULOSIS LEAGUE*

BY FREDERICK T. LORD, M.D.

We meet to celebrate the twenty third anniversary of the establishment of the League.

During the past year Mr. Frank Kiernan resigned after ten years as Executive Secretary of the League.

*President's Address presented at the Annual Meeting at Springfield April 8, 1936.

to accept the position of Executive Secretary of the New York Tuberculosis and Health Association. During his term of service the machinery of the League and its affiliated organizations operated efficiently and smoothly and we owe much to his leadership organizing ability energy and enthusiasm. His place has been taken by Mr Arthur J. Strawn, who acted as Field Secretary for the National Tuberculosis Association for a number of years and who resigned his position as Executive Secretary for Southern Worcester County to come to us.

During the past year Miss Jean V. Lathimer, Educational Secretary for seven years, resigned to take a position in another field. Through her efforts valuable progress was made in increasing the interest of school authorities and the public in child health education. Her Teaching Units on Tuberculosis for Secondary Schools is now used in many large cities of the country. Miss Elma I. Perkins succeeds Miss Lathimer as Educational Secretary.

THE MASSACHUSETTS STATE HEALTH COMMISSION

In 1935 in accordance with an act of the Legislature of May 10 His Excellency Governor Curley appointed a commission to collect data and make recommendations concerning a revision of the Public Health Laws of the Commonwealth. The Commonwealth Fund of New York generously contributed \$10,000 to defray expenses. Various aspects of matters pertaining to Public Health have been assigned by the commission to subcommittees. Among these a subcommittee on Tuberculosis Control was appointed. This subcommittee has under consideration and will make a report to the Commission on the incidence of tuberculosis, case-finding, facilities for and adequacy of sanatorium treatment, rehabilitation services, health education, volunteer agencies, summer health camps and prevention, open air schools and medical education as it relates to tuberculosis.

An extended discussion of these matters is therefore unnecessary and I confine my remarks to a brief statement of the present situation with respect to the declining mortality, institutional care, tuberculosis dispensaries and case-finding.

DECLINING DEATH RATE

The rates of mortality and morbidity from tuberculosis continue to fall in spite of the severe industrial depression and there is the prospect of the practical elimination of the disease as a serious public health problem. The favorable showing is to be ascribed to environmental rather than natural factors. Improved standards of living and a diminishing amount of community infection through education and hospitalization are largely responsible.

In Massachusetts the case-fatality rate for pulmonary tuberculosis has fallen from 395 per 100,000 living in 1857 to 43.8 in 1934 and 41.6 in 1935. Considering actual figures there were 1814 deaths from the disease in 1935 and estimating nine cases per

death there are about 16,000 patients to be cared for and prevented from infecting others.

In spite of the encouraging decline tuberculosis is still a major public health problem and the chief cause of death from disease in early adult life. New methods of attack maintain an unabated demand on our resources.

INSTITUTIONAL CARE

Adequate facilities for hospitalization are essential and accomplish the double purpose of the elimination of spread of the disease by contact and the promotion of recovery through the application of modern therapeutic measures. There are in Massachusetts 4500 beds in federal state county municipal and private institutions or 248 beds per death. Enlargement of the Middlesex County Sanatorium and the Westfield State Sanatorium by 150 beds each may be expected to provide a sufficient total provision to meet the needs of the state.

The state and county sanatoria have on the whole furnished adequate and easily available service. Some of the tuberculosis hospitals in cities or towns have on the other hand been handicapped by small size and inability adequately to apply collapse therapy. Two of these institutions have been deprived of the subsidy of five dollars per week for indigent patients because of failure to comply with standards imposed by the State Department of Health. It would seem best eventually in the interest of economy and of quality of service with few exceptions for cities and towns to transfer the responsibility for the care of tuberculous patients to the state or county sanatoria in their respective districts.

TUBERCULOSIS DISPENSARIES

It is now no longer necessary for towns of 50,000 population and over to maintain tuberculosis dispensaries and it would seem desirable in the interest of economy and of efficiency of service for cities and towns with few exceptions to shift the responsibility for diagnostic service to the state or county sanatoria.

CASE FINDING

Early diagnosis of extreme importance to the patient and the community is in large measure a failure when dependence is placed on the patient to present himself for investigation and without the routine use of the x-ray. Significant symptoms and physical signs are frequently lacking in the early stages of the disease and it seems desirable to select easily available groups and those with more than the usual chance of the disease for investigation.

In the continuing project following the termination of the Ten Year Program in June 1934 facilities are available for the routine examination annually of children in the seventh, ninth and eleventh grades. In a few of the larger cities the examination of school children is carried out under the direction of local boards of health. The state and county sanatoria furnish neighborhood service on request from the local board of health and the school committee.

Where towns are near enough, the work is done at the sanatorium. For the more remote towns in the district a traveling clinic from the sanatorium is available. For isolated communities where the sanatoria are unable to furnish such service, the State Department of Public Health provides portable x-ray units and a clinic unit until the entire responsibility can be taken over by the local community.

The family contacts of tuberculous children and of tuberculous patients in sanatoria and in the practice of physicians should be investigated, including an x-ray examination.

As a matter of protection for children, all school teachers should have an x-ray examination or be tested with tuberculin and the reactors x-rayed. School teachers with active tuberculosis should not be permitted to teach. All diabetics should have an x-ray examination when the diagnosis is made.

MEDICAL EDUCATION

The success of measures for the prevention and control of tuberculosis in the community depends in large measure on the participation in the program of adequately trained physicians in general practice. The standards of medical education and licensure in Massachusetts are too low. In consequence, physicians may still enter practice inadequately equipped. At least two years of premedical college training are desirable. Of six medical schools in the country incapable of the proper education of medical students, two are in Massachusetts.*

LICENSURE FOR PRACTICE

Graduation from medical schools of approved standing is the most important qualification for practice but Massachusetts is one of sixteen states in the Union in which graduates of unapproved medical schools are licensed to practice.

Massachusetts is among the worst offenders with respect to qualifications for practice as no attention is paid under the present law to the scope or quality of instruction in the medical school in the acceptance of the candidate for examination. Authority (as in House Bill 34) should be given the licensing board to accept for examination only those candidates who are graduates of approved medical schools.

PUBLIC HEALTH

Extension of public health service through increased financial support and the establishment of more full time health officers is desirable. Organization should be on the basis of the unit of local government and is often best on a county basis to spread the cost over a larger population.

A difficulty in the carrying out of an adequate community health program is the lack of appreciation on the part of the public of its importance. Education by unofficial health agencies will improve the situation and lead to the wider acceptance of

well established measures for the control of communicable disease. As an indication of shortcomings in this direction, in the investigation of school children for tuberculosis in the Ten Year Program paid for by taxes, lack of parental consent deprived about one out of three children in the grade schools and one out of two in the high schools of the advantage of the investigation.

Of the two demonstration centers in Massachusetts, it is encouraging that one of them, that in the Nashoba district, embracing ten towns, will itself carry on the improved service with assistance from the State and without further reliance on the Commonwealth Fund of New York.

ANNUAL REPORT OF THE EXECUTIVE SECRETARY*

YEAR ENDING APRIL 8, 1936

BY ARTHUR J. STRAWSON

In coming before you for the first time I wish to extend to you my sympathy in the loss of your tried and true executive, Mr. Frank Kiernan. Your loss is a gain for the New York City Tuberculosis and Health Association.

In reviewing the past twelve months' work at this 23rd Annual Meeting your executive secretary who came only in January, 1936, will include a report on nine months of program prior to his coming to the Massachusetts Tuberculosis League. His work has begun pleasantly. He asks your indulgence while he becomes familiar with the programs and problems of all the affiliated associations.

REHABILITATION OF TUBERCULOSIS PATIENTS

In 1935 was completed at Middlesex County Sanatorium in cooperation with Dr. Sumner H. Remick, Medical Director, a study of what may be done to aid recovering tuberculosis patients in selecting an occupation and in preparing to earn a better living despite their changed physical condition.

This study was financed by the League with the National Tuberculosis Association supplying at first Mrs. B. W. Burhoe, Rehabilitation Secretary. Dr. John C. Flanagan of Harvard University was found to have the qualifications required and, on part time, did much of the work.

It is now recommended that such a course might better be given by a full time sanatorium employee who selects from time to time, lecturers or teachers in specialized lines. Such a person would be a Director of Social Adjustment or Rehabilitation. Under this person would be a social worker, occupational therapist and librarian. He would know enough of psychiatry to diagnose mental cases and to assist them. His work would be with physicians and nurses whose programs he should understand. Finally, he must have a deep social interest. With out such a worker the more important parts of the rehabilitation program may better be omitted.

*EDITORIAL NOTE: An amended bill raising the standards of medical education under the title of House 17-0 was enacted and signed by the Governor April 30, 1936.

*Presented at the Annual Meeting of the Massachusetts Tuberculosis League at Springfield April 8, 1936.

MASSACHUSETTS UNDER THE MICROSCOPE

A report was made last year on the formation and financing of the Massachusetts State Health Commission. Under the direction of Dr Carl E. Buck, of the American Public Health Association and fourteen Massachusetts committees the health work of the Commonwealth is now being intensively studied. Our President Executive Secretary and Health Education Secretary are aiding on various committees. The League Office did much of the Commission's clerical work in the organization period. In 1937 will arise the task of putting to work the Commission's recommendations. Obviously it will call for many changes of procedure in the conduct of public and voluntary health work. Into this project it is hoped that all tuberculosis and other health-minded agencies of the Commonwealth will, in 1937 enter with enthusiasm. The final report of the Commission is due by the end of this year.

GRANITE DUST CONTROL

Through its Committee on Granite Dust Control a study is now in progress on control methods in smaller granite cutting industries. The League has joined other New England state tuberculosis associations as well as various national health and insurance agencies in helping Mr Manfred Bowditch of the Division of Occupational Hygiene in the State Department of Labor and Industries to conduct this study.

Delay in completing the study was due to difficulty in getting a suitable group of stone workers paid for by the Public Works Administration to follow up those paid for by the terminated Federal Emergency Relief Administration. Happily this problem was well solved the work progresses and a report should be completed within the coming summer. The report to be published will give cost estimates and efficiencies of the several installations within the cost range of the smaller granite cutting companies. Thereafter some local associations may be able to aid in securing use of newer dust stopping devices.

DIABETES STUDY

With the aid of a financial contribution for the purpose a study was made of the final illness of the 301 diabetics who died in Boston in 1935. For this work the Diabetes Committee of the League found the services of Dr George W. Lynch eminently satisfactory.

The study may result in securing a more adequate and correct use of insulin. Diabetic persons seem to be more subject to tuberculosis than most others while diabetic children as recent studies show are ten times more likely to develop tuberculosis than are nondiabetic children.

LOWELL STUDY

In the spring of 1935 a study of the mortality and morbidity statistics for tuberculosis was completed. Tabulations were made by age sex ward distribution, form of the disease, number of contacts in families, case-reporting etc. The report was submitted

to the Lowell Tuberculosis Association which in turn passed it on to the co-operative City Director of Health for his active consideration. Through the study a more or less complete picture of the tuberculosis problem in Lowell was secured according to areas of concentration. Such a picture is always helpful to a health agency public or private in shaping its program to concentrate its efforts where ever they are most needed. This branch of service by the League staff is practically available to any Massachusetts association interested in making a similar study of its tuberculosis problem.

HEALTH EDUCATION INSTITUTE

At Fitchburg State Normal College led by the Northern Worcester County Public Health Association the Southern Worcester County Health Association, Franklin County Health Association the State League and other agencies united to provide a health education institute for one day. Dr Fredrick W. Maroney of Teachers College Columbia University New York City was the principal speaker and a jury on health education was conducted. The many superintendents, principals and teachers in attendance seemed well pleased and well repaid.

ASSOCIATION PROGRAM DEVELOPMENT

The affiliated associations and League early in 1935 were fortunate to have a study made of their programs by Dr Philip P. Jacobs the vigorous long time worker of the National Tuberculosis Association. Since the study and report on programs of the associations many of the recommendations have been adopted. Others merely await revision of conditions. While use of still other recommendations seems impractical the effort leads us all to try out our established methods to make sure which ones need replacement or revision.

After the association program study a very well attended State Tuberculosis Institute was conducted in Boston by Dr Philip P. Jacobs for all tuberculosis workers of Massachusetts.

EARLY DIAGNOSIS CAMPAIGN

The spring health education campaign of local state and national tuberculosis voluntary agencies maintains a vigorous program. Not all associations use it but some derive large benefits. Not least is the public appearance of the local associations in a health campaign wherein no funds are sought or mentioned. Besides advancing popular education against tuberculosis the Early Diagnosis Campaign thus improves the community status of our local associations. The National Association prints material for the campaign on a national scale with resultant cost savings to all concerned.

In time for the 1936 Campaign the League procured Eastman Classroom Films for the use of local associations. The following new films are available: Bacteria Breathing Home Nursing (Routine Procedure) Posture and Care of the Teeth.

In the older films now largely rehabilitated are Story of My Life by Tee Bee Dolay is Dangerous,

Consequences, Tuberculosis—How it May be Avoided and The Kid Comes Through.

All of these films, both old and new, except Consequences, are available in 16 mm size. While there is no charge for their use the local associations pay the return transportation.

SUMMER HEALTH CAMPS

At Worcester all summer health camp workers were invited by the League to discuss among themselves and with Dr. Henry D. Chadwick, State Commissioner of Public Health, the selection of camp children so as best to advance tuberculosis prevention. Such meetings have much to do with the improvement in various lines of summer health camp standards. Without such efforts camps tend to remain or to become recreational camps rather than camps for tuberculosis prevention. At present several of the Associations have extended the camp period to eight weeks, while others are struggling to do so.

MASSACHUSETTS HEALTH JOURNAL

The Massachusetts Health Journal was continued as a plan for aiding and encouraging the many workers in tuberculosis throughout the Commonwealth. Besides the *Journal*, twenty-six special mimeographed bulletins were sent to local workers on routine or special matters.

ORGANIZATION

After much loss of population from Haverhill and considerable financial difficulty the Haverhill Tuberculosis Association rather wisely voted on March 1, 1936, to consolidate with the Essex County Health Association. This Association with its capable executive secretary and health education worker can give Haverhill good service. Miss Christine B. Higgins, R.N., the former Haverhill executive, has fortunately secured a position with the State Department of Public Health in its work of social security.

In Southern Worcester County, Mr. Doyle E. Hinton, formerly executive of the Delaware Tuberculosis Society, has been appointed as executive secretary.

In the Malden Tuberculosis and Health Association, Mrs. Frederick R. Makepeace, R.N., was appointed secretary in place of Mrs. F. Anna Green, resigned. Mrs. Green had been secretary of that Association since its formation in 1911.

SEAL SALE

Preparatory to the opening of the 1935 Seal Sale the League secured the expert Seal Sale organization services of Miss Frances E. Brophy from the National Tuberculosis Association to conduct intensive courses with workers in all sections of the State.

As in most other states, we are rising from the depths reached in 1932 and 1933. In 1933 the Christmas Seal Sale amounted to \$185,913, in 1934, \$189,259. As a few associations have not settled up their Seal Sale account with the League, we can

not today tell the 1935 total. We expect that the total sale for the state will pass the \$195,000 mark.

Of county associations reporting to date Southern Worcester has the highest gain over 1934. It rivals its 1934 sale by \$1,515.49. Of city associations reporting to date Lawrence has the largest gain over 1934. Its gain is \$265. If the history of the 1921 depression repeats itself, our Seal Sale may be made to increase for the next few years.

SCHOOL CHEST CLINICS

The opportunity our associations have in the field of the new school chest clinics, Miss Perkins will fully present. In this connection the League is happy to find its tuberculosis teaching unit able to aid the schools and sanatoria by increasing the number of pupils consenting to the tests and x-rays.

LEGISLATION

Considerable has been done, particularly to advance the measure for better education of persons studying for medicine. The local associations also helped to secure the passage of this measure which for twenty-five years, according to Dr. Walter P. Bowers, Editor of *The New England Journal of Medicine*, has been knocking at the doors of our Legislature. Having passed with a good majority, it will soon await the favoring pen of our Governor.*

In 1937 the aid of all associations will be needed to secure passage of the health legislation now being worked out by the Massachusetts State Health Commission. The Commission will have the new legislative proposals drafted in bills ready for your consideration and backing.

Your executive secretary wishes for each worker and association that the coming year may be a happy and successful one.

*This Bill under the title of House 1720 was signed by Governor Curley April 30, 1936.

ANNUAL REPORT OF EDUCATIONAL SECRETARY*

BY ELNA I. PERKINS

In giving an account of the beginning of my work as Educational Secretary of the Massachusetts Tuberculosis League, I wish first to express my appreciation of the work of my predecessor, Miss Jean V. Latimer, who served the League for seven years with excellent leadership and capability in the field of health education. Her accomplishments have shown the way to follow in both direction and method and we are most grateful for her fine example and for the materials which she created that we are now using.

After considering our well established program and the work of the official agencies in Massachusetts, the greatest need of the immediate year appeared to be an extension of educational work on tuberculosis in all the junior and senior high schools.

*Presented at the Annual Meeting of the Massachusetts Tuberculosis League at Springfield April 8, 1936.

in the state with the purposes of establishing the subject more definitely in courses of study and in aiding the new tuberculin testing program inaugurated last year in the seventh ninth and eleventh grades

Dr Frederick T Lord, President of the League in his report made to you last year indicated the need for this work in the schools by saying that the failure to secure as many consents for the tuberculin test from high school pupils as from elementary school pupils in the Chadwick Clinic should be regarded as an indication of our shortcomings in health education. He also said that parental consents should be obtained from more nearly one hundred per cent of parents of children in the grades tested and that the responsibility of the League and the affiliated organizations in this matter is obvious. I wish to give emphasis to Dr Lord's statements and to say that the Educational Secretary has assumed responsibility for the League in developing an educational program on tuberculosis that will directly aid the tuberculin testing work. Our Executive Secretary Mr Strawson gives wholehearted support and assistance in this undertaking with a knowledge of helpful procedures based on his experience as Executive Secretary of the Southern Worcester County Health Association. He and Miss M Eleanor Hanson R.N. Field Secretary of the Southern Worcester County Association accomplished much in promoting the school clinic work last year in co-operation with Dr Edson W Glidden Superintendent of the Worcester County Sanatorium.

May I suggest that every affiliated organization should likewise assume responsibility for very definite co-operation with the sanatoria which do the tuberculin testing the local Boards of Health and the schools in aiding the tuberculin testing work to the end that larger numbers of children may be given the test.

The tuberculosis associations may help the tuberculin testing program by the following definite plans which have proved their value, particularly in Southern Worcester and Essex Counties

Inquire of the sanatoria the time of year when the testing is to be done in each town in the association's territory

Offer to the superintendent of schools in each town at least two months before preparations for the testing are begun the materials which the association can furnish for classroom teaching on tuberculosis

Offer the service of the association or assistance from the League in giving information to principals and teachers at their group meetings

Contact all organizations in the community which could devote a program to the subject of preventing tuberculosis in young people. Have exhibits prepared for libraries or other suitable public meeting places and give pub-

licity to newspapers on the purpose of the tuberculin testing program

After consent blanks have been returned from parents offer the service of a worker from the association to assist the local public health nurses or school nurses in communities having inadequate numbers of nurses to do the necessary home visiting to secure consents from parents

Towns which have not yet had tuberculin testing in their schools under the new arrangement may be helped to see the need for having school clinics by suggestion from the local associations. Since the services of the school clinics are provided by sanatoria on joint request from the local boards of health and school committees, the tuberculosis association may take up the matter with the local boards of health and school committees

Our National Association and the League have printed suitable, helpful materials to offer teachers for classroom use in teaching the subject of tuberculosis. We have the Teaching Unit on Tuberculosis prepared by Miss Latimer which is being used in this state and others increasingly and is much appreciated by teachers who have used it. This year the League reprinted a pamphlet originally published by the National Tuberculosis Association entitled Do Children Have Tuberculosis with a new cover having a picture of the application of the von Pirquet test as used in the school chest clinics in Massachusetts. This pamphlet is intended to serve as a text to be placed in the hands of pupils when the Teaching Unit is used. Many of the publications of the National Association are very helpful to teachers as supplementary material to the Teaching Unit and I recommend wider use of them. The question of who shall pay for this material if used in quantities each year needs to be agreed upon. I believe that Seal Sale funds cannot be used to greater advantage in any community than in the purchase of this material for use in schools. Funds now being spent for milk or other relief purposes might be budgeted for this purpose and have more direct effect in tuberculosis prevention. The policy of spending Seal Sale funds for educational purposes rather than for relief purposes is strongly recommended by our National Tuberculosis Association in the Seal Sale contract. Towns whose Seal Sale Committees have a large percentage of Seal Sale funds to spend locally at their discretion should consider the opportunity they have to furnish literature on tuberculosis to their own local schools if the county associations are unable to provide literature for all towns on health education budgets.

It is fitting to quote Dr Stuart Pritchard a former president of the National Tuberculosis Association who referred to the tuberculin test in his address at the National Association meeting in 1934

'Any given child's attitude toward the tuberculin test depends not alone on what he learns from the teacher or the text, but also on the attitude of his mother, his father, other children, the Boy Scout leader, the physician, the dentist the Sunday School teacher, the newspaper and the motion picture—offset against each other with varying weights according to the value the child unconsciously places upon the source."

Dr Pritchard also reminds us in the same address that future health programs will require less crusading and more practical assistance to individuals and communities in the form of organization and education. Let us give practical assistance to the tuberculin testing program in Massachusetts schools in any way that we can.

One other service of the League related to health education I wish to mention as having greater possibilities of usefulness is the free loan library which the League has always maintained. This year the library has been enlarged, and a list of all books printed and distributed. The library is intended to serve the affiliated organizations, and we hope it may be increasingly used by them. One of the chief uses of the library is for exhibits of new and useful books on all phases of health at group meetings of teachers and of nurses. The library is one of the most valuable services in health education offered by the League to all persons interested in public health, and it is hoped that more people may be made acquainted with the opportunity to use it.

During the year, group meetings for public health and school nurses have been held at some sanatoria in co-operation with the local tuberculosis associations, and with assistance from the League on programs. Since these meetings have proved to be very helpful to nurses in instructing them in the newer methods of treatment and prevention of tuberculosis, the League offers assistance to other local associations which may plan similar meetings.

The League has co-operated with several of the state teachers' colleges this year by arranging for Miss Fannie Shaw, School Health Education Secretary, of the National Tuberculosis Association staff, to visit them and talk to classes in health education or special assemblies.

The League has provided in its Health Education budget for institutes for teachers, similar to those successfully conducted in the past two years in co-operation with local associations and school officials. It is hoped that at least three institutes may be arranged for next year.

Our associations have made many fine contributions to health education in schools and communities in past years, and can be expected to continue to apply new knowledge in developing programs that meet the needs of the future. Co-operation with all other agencies is the proved method by which we shall arrive nearer the goal of "equality in health for all men."

REPORT OF TREASURER

Statement of Income and Expense
January 1, 1935 to December 31, 1935

Income

Percentage from Christmas Seal Sale	\$18,925 90
Memberships	346 00
Grant for Study of Diabetes in Boston	500 00
Interest on bank funds	672 27
Salary Refunds from Executive Secretary	250 00
Repayment of Loan by Affiliated Organization	600 00
Total Income	\$21,294 17

Expense

<i>Health Education</i> —Including institutes, books and periodicals, <i>Health Journal</i> , purchase and printing of health pamphlets, travel, salaries	\$7,129 95
<i>Summer Health Camps</i> —Assistance to Affiliated Organizations in securing workers and equipment, visitation and inspection, travel, salaries	723 81
<i>Legislative Work</i> —Including circularization of local associations, conferences, clerical service	390 06
<i>Special Studies</i> —Including Study of Diabetes in Boston in 1935, Study of programs and work of Affiliated Organizations, Social and Vocational Rehabilitation at Middlesex County Sanatorium, and Study of Granite and Dust Control	1,310 87
<i>Administration</i> —Rent, office supplies and equipment, postage and express, telephone, meetings, salaries, printing, etc	3,423 41
<i>Seal Sale</i> —Field service, regional conferences, publicity, newspaper material, telephone, shipping clerk, charges on supplies, salaries, postage	3,651 98
<i>Organization and Field Work</i> —Visitation of local organizations, individual	

and group conferences, public addresses travel salaries reorganization.....	3 536 70
Total Expense.....	\$20 166 78
Excess of Income over Ex pense	1 127.39

(From Financial Statement and Balance Sheet
prepared by Fox Gill and O'Brien Boston
Certified Public Accountants)

HEALTH SECURITY*

BY KENDALL EMBERSON M.D.

Managing Director National Tuberculosis
Association

As a result of the years of depression the subject of economic security dominates our social problems. By this we mean that wealth shall be so distributed as to insure to each family such share in national production as may be necessary to provide an income for comfortable living and the avoidance of penury in old age. Among the hindrances to realizing these objectives are improvidence, unemployment and unpredictable disaster. Improvidence is an unfortunate characteristic of many human beings. No social device can wholly ward off its penalties. Unemployment is to an extent an insurance problem. Disaster may come in the form of accident such as fire, flood or cyclone and can be partially offset by insurance also. But the chief unpredictable disaster is that of serious, expensive and prolonged illness with its accompanying loss of earning capacity. No adequate economic security is possible without effective provision for health security as well.

This fact was fully recognized by the planners of the Economic Security Act. That a program for health insurance could not be fabricated for inclusion in this Act is evidence of the proximity of the problems which such inclusion would involve. An enormous amount of time and effort was expended by wise counsellors in the attempt to solve the puzzle. It is probably greatly to their credit that nothing concrete accrued since a half-digested measure would quite certainly have been worse than none.

I cannot tarry to discuss the polar points of view that have been expressed, may vociferated regarding compulsory health insurance. As in such emotional conflicts personal prejudice has blurred clear thinking and thwarted fair debate. Both sides being human, neither is right. On the whole, coercion at the present moment of heat would invite needless disaster. The reasonable procedure would appear to be to rest on our oars until cooler judgments may prevail. Meanwhile we may profit by the variety of local and more restricted experiments which are in progress. This is consonant with our genius. The clear thinking of the few rarely impresses the herd.

Experience is a costly school but its ripper fruits are more sound and enduring.

Meanwhile it is wholly proper and fitting to examine with interest and some care just where we stand at the moment in this matter of health security. In so doing we are faced with a rather striking paradox. There is general agreement that hard times the resulting poverty, physical hardship and mental strain wreak havoc with health. Yet in 1933 the year of deepest depression this country struck a new all time low in its mortality rate. Throughout the years of idleness from unemployment and reduced income comes the death rate from tuberculosis supposedly a disease of poverty has continued to decline with its predepression regularity. No grave epidemics have occurred, hospitals have shown no overcrowding. How can such facts be reconciled with the outcry for health security when on the surface at least, we seem to have more of it under conditions of underprivilege than in times of prosperity?

We need invoke no miraculous explanation of this apparent paradox. The bulk of the answer is contained in the two words public health. Consider this matter of health security from the historical angle. What is your health security today as contrasted with that of your grandfather? Seventy-five years ago yellow fever, cholera and plague were still knocking occasionally at our maritime portals. Malaria was rioting unchecked in many parts of our country. Typhoid touched most households in our more crowded centers. Diphtheria put to death thousands of helpless babies annually and tuberculosis was reckoned a fatal disease. Your chance today of surviving the perils and risks of infancy are four times better than your grandfather's. Your life expectancy at birth is twenty years longer than his. You are relatively secure from the hordes of controllable pestilences. For these changes community organization for the administration of preventive medical measures is largely responsible.

Right here I want to pause and stress a most important point in this discussion. Public health is not an abstraction. The public health service does not exist as a disembodied force. Its value hinges exclusively on the personnel engaged in its application. To a major extent the discoveries on which its evolution rests, the methods of practical application of such scientific knowledge have been functions of that profession which I honor above all others, the profession of medicine. Certain enthusiastic lay partisans there are who fall deliberately or through ignorance to give due weight to these facts. Some even accuse the medical profession as a body of dereliction of its highest duty to maintain the health of the people forgetting that the successful administration of preventive medicine would be non-existent were it not for the basic contributions of the medical profession itself. One must not wax oversensitive on this point. Physicians too are human. But to accuse them as a class of lack of sympathy with the progress of every legitimate preventive medical measure is to exhibit a woeful lack of judgment and good sportsmanship.

Presented on the evening of April 8, 1936, at the joint dinner in the City Hospital Co. by Tuberculosis and Health Association and the Massachusetts Tuberculosis League at Hotel Kimball, Springfield.

And so the credit for your health security of today as contrasted with that of your grandfather rests on a foundation well and broadly laid by the profession whose age old duty it has been to prevent as well as to relieve suffering. On this sturdy foundation a splendid corps of workers, some trained as physicians, some as administrators, some as technicians, some as nurses, some as social workers, have been building the structure of modern public health which is bearing fruits at this present time of stress beyond any dream which we could have cherished thirty years ago.

In addition to the medical profession and the public health service another vital fraction, and that a very large one, enters into the equation which has resulted in the degree of improved health security which we enjoy. I refer to the public itself. Without co-operation from this multitude, very scant progress would be possible. A college president once remarked that though you lead a horse to water and can't make him drink, still you may find a way to make him thirsty. How to make the public thirsty has been among the puzzling problems in the development of public health from the time that it went upon a rational and scientific basis. The only solution to the problem ever suggested or discovered is *health education*. No other means has been found to arouse this essential popular thirst. But that one has had a somewhat amazing success, until today we find it a leading objective among the activities of professional, social and educational groups in a community.

Referring again to the Economic Security Act, we hear the undoubted voice of a health minded populace speaking its approval of the appropriations of large sums to the Federal Public Health Service and to the health work of the Children's Bureau. No better proof could be forthcoming of the effective educational work pushed forward during the decades just past than the fact that from its first reading until its stormy passage no debate or challenge arose as to the wisdom of these two appropriations included in the provisions of the Act.

But to stop on this note of satisfaction with our achievements to date along the line of health security would be to mislead you completely as to the objective of this paper. While honesty requires acknowledgment of progress actually made, equal candor obliges us to admit that we are still lamentably far from the goal of possible achievement.

I will not bore you with figures to show our national penuriousness in the support of our local, state and federal public health services. Suffice it to say that in only one or two small corners of this country is there to be found an adequate public health budget. For the most part our towns and cities and states are spending from one-third to one-half the sums which experience has taught should be expended if our communities are to profit fully from the application of the principles of preventive medicine already known and ready to be put into operation. That is not a creditable showing for

a country that professes a vital interest in economic security, of which health security constitutes one of the most significant factors. Our business today is to stop wrangling over theories and to put facts to work. Whatever brilliant solution of the sick care problem awaits sedimentation in the minds of medical economists, preventive medicine has already crystallized out of our social experience a procedure which, now used with only fractional efficiency, is capable of development into the largest contributor to health security.

Take a single example: suppose that tomorrow the number of public health nurses in this country were doubled, the result in early diagnosis of disease, in early treatment with quicker cure, in saving of lost time and the expense of illness, would be well-nigh incalculable.

Should the medical profession look with apprehension on such a suggestion let me state that theirs would be the chief profit. The nurse does not treat, she discovers. Her duty is to get patient and doctor into contact. Delay in this procedure is a major cause of health insecurity, eliminating such delay is the biggest step forward in health security.

Many other illustrations come to mind. A nearly adequate tuberculosis program reduced the death rate from that disease in Cattaraugus County last year to 18.3 in contrast to a national rate of 57. A well advanced venereal disease control program in Sweden has cut syphilis to one-twelfth of its prevalence in 1919, and brought it under practical public health control.

Without question the way of improved health security lies in large part, as it has in the past, along the path of more effective preventive medical work. To this end the medical profession will contribute an ever deepening interest in health with no sacrifice of their skilled ability in the treatment of disease. Methods of teaching are being developed in the medical schools to insure this indispensable objective. The public health service with increased resources and better trained personnel will make a larger contribution. A sanely educated public will co-operate more nearly to the needful degree. By all these means a brighter outlook is assured for the future just so far as prevention can contribute to the objective.

But this is only one side of the picture. We will always have sickness. Although test tube reproduction seems just around the corner, man will still be born of woman for a great many generations to come. Death comes to each and every one of us in our appointed time. Appendices will continue to disturb our peaceful lives. Strange aberrations of our endocrines, hormones and the vital fluids of our bodies are not destined to desert us in any visible future. And firearms, automobiles and aeroplanes will increasingly work their will on our fragile bones. We must have doctors and we must pay them enough so that they can survive to care for us in trouble.

One effect of depression and reduced incomes is an immediate tendency to ignore doctors' bills. If

our automobile breaks down and needs a new rear axle it is ordered at once and paid for on the same basis. If we get some wires crossed in our own insides we first try to postpone having them adjusted which is foolish and ultimately expensive. Secondly we go to the doctor when matters get too bad and run up perhaps a considerable account. There being no written contract, this bill waits and too often is permanently set aside. From our double delay there result health insecurity for ourselves and notable economic insecurity for the physician.

In an attempt to remedy this maladjustment nothing could be more natural than for the sociologist to turn for relief to the well-tested principle of insurance. At first thought such a course would seem a dependable way out for both parties concerned. By tradition and training however the doctor instinctively shuns regimentation. He is an individualist to a greater extent than most professional people who work naturally in teams or organizations. There is a sacrosanct relationship between him and his patient which is only approximated by that of the clergyman or the lawyer. And there is a great deal to be said for the social as well as the professional value of such relationship. Hence the suggestion of health insurance has had hard sledding with the medical profession as represented by organized medicine.

There is a further difficulty that arises in attempting an equitable solution of the health security problem along insurance lines. It lies in the difficulty of any wide application of the plan especially in this country. One evidence of this appears in the exclusion from the proposal of agricultural laborers and domestic servants, certainly two low paid classes who might naturally benefit by this form of insurance. It gives a flavor of class legislation to the scheme which is not wholly in keeping with our American instincts. Furthermore the limits of income between which health insurance should be applied is a controversial question. What is indigency? Below what income level is all payment impossible on a small insurance premium basis? Is there a determinable upper limit above which a private physician should expect reimbursement for his services at rates current in a given community?

It is a serious mistake to accuse the medical profession of selfish interference with the public welfare when it raises such questions and others in an honest effort to study the community's best interests as well as its own. If an emergency in health security really existed as claimed by some it would be another matter. I have indicated that neither by increased death rate nor by the prevalence of uncontrolled epidemics can a state of true emergency be declared to exist. This does not deny the chronic need for more adequate care of the sick which must be squarely faced both professionally and socially and met by some new plan or plans arrived at as the result of calm and dispassionate consideration of the many puzzling factors involved.

One can only guess at the nature of such plans

No single solution of the problems spread over the vast area of our great country is likely. Much more probable is the suggestion that a number of workable programs will develop each perhaps the most effective for the particular region in which it operates. For example in a small district in Oklahoma the co-operative system of community living has been extended to include medical care. Here a well-equipped hospital has been built with common funds and all members of the co-operative group are entitled to full medical care by skilled physicians who in turn receive adequate remuneration for their services.

Group practice is another of the procedures which has evidently become a permanent settler among accepted projects for the application of expert medical care at an expense within the limits of more modest incomes. The hospital insurance program while not growing with anticipated rapidity has also taken an apparently useful position as a further provision toward the assurance of health security.

District and state medical societies have undertaken with energy and enthusiasm experiments in the distribution of medical care which bid fair to solve some of the problems of reaching more effectively hitherto neglected groups in their respective communities.

Of the plan to pay the doctors bill through the medium of extended credit, I personally do not hold a high opinion. Apparently the American Medical Association is watching this experiment with interest and has not to my knowledge opposed it seriously. On the other hand to me it seems a rather frail and not particularly desirable procedure. The tendency to postpone payments run up bills and buy on the installment plan is too widespread among our American people. Extended credit was certainly one of the reasons for the grim disaster of 1929. I believe it is out of keeping with what should be our economic ideals to promote health security on a deferred payment basis.

Two years ago at Kansas City I read a paper on a topic allied to that with which the present one deals. At that time the depression was still deepening and the questions of adequate care of the sick, and adequate remuneration for the suffering medical profession were even more acute than they are today. To me there then seemed no way out save through federal aid in the direction of health insurance. Today I am largely of the opposite opinion. In fact, it is my definite feeling that federal compulsory health insurance is an increasingly remote probability. I am inclined to the belief that the social workers are not quite so clear in their minds as to just what is best for this country as they were then. I am further strongly of the opinion that the medical profession has been effectively shaken out of its *laissez faire* attitude toward the problem of adequate distribution of medical care. Both agree that there is something wrong but both are now aware that the disability is of a chronic nature amenable to vast improvement by patient and time-

consuming methods of treatment but not likely to be curable by means of any single panacea much less by hasty and ill considered surgical operation

In summary, then, health security depends on three things, scientific medical knowledge both curative and preventive, financial ability to purchase it, both on the part of individuals and communities, a health-minded public with wisdom enough to make the purchase. These are all abstractions and cannot be brought about by legislation. Legal enactments will be needed to protect us from those who through misguidance or viciousness jeopardize their neighbors safety, but in the final reckoning health security will come not through the enactment of laws but through the cumulative effect on all classes of an intensively prosecuted program of health education.

MISCELLANY

CONNECTICUT NEWS ITEMS

The State Department of Health on May 22, 1936, announced the appointment of a public health dentist, a librarian and an assistant mental hygienist. These three appointments represent additions to the department, two of the positions being new ones made possible by funds granted Connecticut under the Social Security Act for expansion of health services.

Dr Franklin M Erlenbach of Boston, graduate of Tufts College Dental School and the Harvard School of Public Health, takes the new position of Chief of the Division of Mouth Hygiene in the Bureau of Child Hygiene. Since the completion of his training Dr Erlenbach has been an instructor at Tufts College Dental School, staff dental surgeon at the Brookline Contagious Hospital, a member of the Staff of the Brookline Dental Clinic and the Middlesex County (Mass.) Dental Clinic, and chief of the dental clinic at the Forsyth Dental Infirmary.

Miss Anna Katherine Tobias, formerly of West Hartford, a graduate of Randolph Macon Woman's College at Lynchburg, Va., and the School of Library Science of Simmons College becomes librarian of the department. She is the daughter of Dr Henry W Tobias, formerly clinical director of the United States Veterans Hospital in Newington.

Miss Helen S Peterson of New York City, graduate of Oberlin College and the Smith College School of Social Work, is appointed to the new position of assistant mental hygienist in the Bureau of Mental Hygiene. Miss Peterson comes to Connecticut after serving as case worker for the Institute of Family Service of the Charity Organization Society, New York City.

Dr Stanley H Osborn, Health Commissioner, also announced that Dr Henry P Talbot, who has been studying at the Harvard School of Public Health for one year, will return June 1 as director of the Bureau of Venereal Diseases, a position from which he had leave of absence. Dr Alfred L Burgdorf, acting director of this bureau, will be transferred

to the Bureau of Preventable Diseases to fill a vacancy existing there.

Dr Charles C Beach, one of Hartford's "grand old men" and for many years prominent in medical, business and social affairs in that city, observed his eightieth birthday anniversary on May 19 1936. He is enjoying good health and still delights in attending gatherings of the Hartford Medical Society and of the Medical Masonic Club of Hartford.

Dr M Vincent Mikolainis of Hartford was recently reelected President of the Connecticut Lithuanian College and Professional Association, an organization of college graduates of Lithuanian extraction. Among the other officers elected was Dr John S Staneslow of Waterbury, treasurer.

A decision in favor of Dr Emerson L Stone, New Haven obstetrician and gynecologist in a suit brought by Mrs Gertrude Green of New Haven, alleging negligent medical treatment following the birth of her child on August 4, 1931, was sustained May 19, 1936, by the Supreme Court of Errors. In the original trial of the action Mrs Green obtained a verdict of \$2,250 damages which the trial court set aside. In the present case, tried before a New Haven County jury and Superior Court Judge Frederick M Peasley now retired, a jury returned for Dr Stone a verdict which was accepted. Justice John W Banks wrote the opinion, holding there was no error in Judge Peasley's charge to the jury.

The Hartford County Mental Hygiene Society held its annual meeting and dinner in Hartford on Tuesday evening, May 19, 1936. Dr Charles W Stephenson of Hartford, retiring president of the society, presided at the meeting attended by more than fifty persons. Among the newly elected directors was Dr John A Wentworth of Hartford.

Dr John A P Millet, New York psychiatrist and neurologist, was the guest speaker. Calling psychiatry the "Cinderella of medical sciences" Dr Millet said, "Psychiatry is playing an increasingly large part in the realm of criminology, but there are still too many people who consider it simpler to lop off a criminal's head or to imprison him for life than it is to treat him as a mental case. While in prison many criminals are affected by their punishment only in that they experience a hardening of their already strong antisocial feelings. How much more intelligent it would be for us to exchange social therapy for social punishment."

"The psychiatrist has the aspirations of a therapist and the hope of the public. As a science psychiatry has extended its operations until there is almost no human sphere in which it does not make itself felt. But it has a colossal obstacle to overcome—now, as always, the public feels that there is some great stigma attached to a psychogenic ailment. This feeling must be changed and it will be changed—by education."

Further than that, progress in this science must come through the psychiatrist's realization of the

limitations of his own present knowledge combined with an overpowering enthusiasm to examine new things in the realm of psychiatry. Psychiatrists must keep an open mind, must master the technique of exact diagnosis and must keep abreast of all developments in psychotherapy.

Reorganization of the Hartford Health Department to provide for the addition of several bureaus and the expansion of personnel that will mean a definite increase in budgeting allotment was proposed in a plan submitted at a meeting of the Board of Health Commissioners on May 20, 1936, by Dr. Robert V. Boyce, President of the Board. The Health Board voted to send copies of the plan to His Honor Thomas J. Spellacy, Mayor of Hartford. The salient features of the plan are as follows:

(1) Return of the Isolation Hospital now under the jurisdiction of the Welfare Board to the Health Department where it rightfully belongs. Such a change would require a change in the city charter. The Chairman of the Welfare Commissioners Hospital Committee objects to this change on the ground of increased expense.

(2) Establishment of a Bureau of Child Hygiene headed by a part-time physician and with a supervisor preferably a woman to act as executive director. At the present time the pre-school hygiene and maternal hygiene is being carried on by the Visiting Nurse Association. Although their work is efficient it does not meet the need as it exists in a city the size of Hartford.

(3) Establishment of a Division of Child Mental Hygiene or Child Psychology and possibly the development of an added Adult Mental Hygiene Division. This division to be directed by a full-time physician with case workers added as the increasing work shall demand. It is believed that such a provision will aid greatly in relieving the rapidly growing juvenile delinquency which is plaguing many social agencies.

(4) Addition of one more sanitary inspector and return of the food and poultry markets now under the Public Buildings Commission to the Health Department. These markets are believed to present a real health menace and under proposed change could be operated as a health unit whereby such complaints such as the sale of smothered poultry that previously existed would be terminated at their source.

(5) Change of City Charter to provide that the secretary of the Health Board be Registrar of Vital Statistics and for the addition of another assistant registrar.

(6) Appointment of a full-time physician in charge of the Venereal Disease Division of the Department and appointment of at least one more nurse. These additions are necessary to carry out a venereal disease program such as has been outlined by an advisory committee to the United States Public Health Service.

THE ONE HUNDRED AND FORTY-FOURTH ANNUAL MEETING OF THE CONNECTICUT STATE MEDICAL SOCIETY

The Connecticut State Medical Society convened at Hartford for its annual meeting on May 20 and 21, 1936. The entire program was one of the best ever afforded its members and the registration of 300 testified to the interest shown.

Officers elected were as follows:

President: Daniel C. Patterson, Bridgeport.
Vice-Presidents: Thacher W. Worthen, Hartford; Hugh B. Campbell, Norwich.
Administrative Secretary: Creighton Barker, New Haven.
Legislative Secretary: Charles W. Comfort, Jr., New Haven.
Secretary on Scientific Work: Stanley B. Weld, Hartford.
Treasurer: James R. Miller, Hartford.

The principal innovation in the administrative personnel passed by the House of Delegates at its session on the second day of the meeting divided the work of the former secretary into three parts, viz., administrative, legislative and scientific work. This resulted as a compromise following a move started a year ago to secure a full-time, non-member secretary in the interest of increased efficiency.

The Connecticut Society voted to abolish publication of its annual Proceedings, a volume placed in the hands of each member almost since the Society was founded. In its place the Secretary on Scientific Work, among other duties, becomes the editor of a quarterly journal, this to serve as a record of the Society's activities and at the same time as a means of keeping its membership informed on matters of medical importance.

Upon recommendation of the Council, the House of Delegates voted to discharge the delegates to the New England Medical Council whose terms have not expired and to elect no further delegates until required by the New England Medical Council having been discontinued. The House of Delegates also voted to discharge the Committee on Emergency Unemployment Medical Relief, there being no further need for such a committee.

Colonel Charles Franklin Craig, United States Army, Retired Professor of Tropical Medicine, Tulane University of Louisiana School of Medicine, was elected an Honorary Member of the State Medical Society.

The Council recommended to the House of Delegates and the House voted the adoption of the recommendations contained in the Report of the Committee on Medical Economics as affirmed procedure for the State Society, viz:

(1) that the study of medical practice in the State as a fact-finding survey be continued to completion.

(2) that in view of the fact that local factors influence the program for the care of the indigent, those matters be referred to local medical organiza-

tions, where they appear properly to belong for adjustment, and that the State Society withdraw from further attempts to co-ordinate or standardize procedure throughout the State, with the reaffirming of the policy that patients should be allowed the free choice of physicians

One of the most important actions taken by the House of Delegates was the following vote, viz, That in accordance with the recommendation contained in the Report of the Committee on Public Health, the Committee on Public Health be charged with the formulation of a detailed specific directive for the handling of accident cases to prevent additional further injury from the process of transportation, to include standard fracture equipment for all ambulances or vehicles regularly used as such, that such directive be submitted for approval by the Council, that, upon approval by the Council, such directive be referred to the Committee on Public Policy and Legislation for transmittal in the name of the Society, to police, press, and other agencies, in such manner as will make most effective the sense of this recommendation

The House of Delegates voted to request the Council to consider the draft of "Standing Orders and Policies for Public Health Nurses", prepared by the State Department of Health and presented through the Committee on Public Health and to authorize the Council, when it considers such approval may be given to approve, officially in the name of the Connecticut State Medical Society, said "Standing Orders and Policies for Public Health Nurses", and to transmit such approval to the State Commissioner of Health for use therewith

During the first forenoon of the Annual Meeting, clinics were held at the St Francis Hospital, the Municipal Hospital, and the Cedarcrest Sanatorium, and during the second forenoon at the Hartford Hospital, the Neuro Psychiatric Institute of the Hartford Retreat, and the Newington Home for Crippled Children. These clinics were very well attended

The afternoon programs comprised the following papers

Activities of the State Department of Health in Carrying Out Provisions of the Social Security Act Stanley H Osborn, M D, Commissioner, State Department of Health, Hartford

Activities of the Committee on Public Health of the State Medical Society in Relation to the Social Security Act Joseph I Linde, M D, Chairman, Committee on Public Health

Surgical Treatment of Craniocerebral Injuries Richard C Buckley, M D, Hartford

Injection Treatment of Hernia Daniel C Patterson, M D, Bridgeport

President's Address. Expert Medical Testimony * Thomas P Murdock, M D, Meriden

*This paper created considerable discussion in the lay press comment being both favorable and unfavorable

Clinical Aspects of Thyroid Disease. Adrian S Taylor, M D, Clifton Springs, N Y

The Limitations of Pneumothorax Therapy in Lobar Pneumonia Francis G Blake, M D, Sterling Professor of Medicine, Yale University, New Haven

Early Motion in Fracture Treatment. Merrill K. Lindsay, M D, Associate Professor of Orthopedic Surgery, Yale University, New Haven

At the Section on Radiology two papers were presented

Results of Comparative Doses on Human Tumors using Fever and Roentgen Irradiation, by Stafford L Warren, M D, Assistant Professor of Radiology, University of Rochester, N Y

Roentgenologic Study of the Appendix, by Hugh Wilson, M D, Assistant Professor of Radiology, Yale University School of Medicine, New Haven

The Section on Obstetrics and Gynecology presented Emil Novak, M D, Baltimore, on The Use and Abuse of Endocrinology in Gynecology

At the Section on Neurology and Psychiatry Arthur P Noyes, M D, Superintendent, State Hospital for Mental Diseases, Howard, R I, spoke on Relationship of Psychiatry to Medicine

At the Section on Dermatology and Syphilology two papers were presented

Pustular Bacterids of the Hands and Feet, George C Andrews, M D, Assistant Clinical Professor of Dermatology and Syphilology, College of Physicians and Surgeons, Columbia University, N Y, and Occupational Dermatoses, Harry S Reynolds, M D, Hartford

The Hezekiah Beardsley Pediatric Club presented its scientific program on the afternoon of May 20 at the Municipal Hospital

At the Section on Eye, Ear, Nose and Throat two papers were presented

Clinical Considerations of Ocular Fatigue Conrad Berens, M D, New York City

Review of Operative Technique in Nose and Throat Surgery E Ross Faulkner, M D, New York City

On the evening of May 20 the Hartford Medical Society and Hartford County Medical Association were hosts to the guests and members at an Entertainment and Smoker. The following evening the Annual Dinner was held at the Hartford Club. On this occasion Dr Arthur B Landry acted as toast master. Remarks were made by the retiring president Dr Thomas P Murdock, and by the newly elected president, Dr Daniel C Patterson. George Ross Wells, Ph.D, Professor of Psychology, Hartford Theological Seminary, spoke on "Is Civilization Getting Us Anywhere?"

Members who so desired enjoyed the golf facilities afforded by the Wampanoag and Hartford Golf Clubs. The Woman's Medical Society of Connecticut met for its annual luncheon at the Hartford Club on Wednesday, May 20

THE MASSACHUSETTS PUBLIC HEALTH
ASSOCIATIONREPORT OF THE COMMITTEE ON THE RELATIONSHIP OF
BOARDS OF HEALTH TO THE MEDICAL PROFESSION

The committee of five appointed by the President to recommend to the Executive Committee of the Massachusetts Association of Boards of Health as to the duties, programs and responsibilities of Boards of Health and the relationship of the same to the medical profession submits the following report:

Boards of Health are charged with the responsibility of preventing disease in and promoting the health of the people within their local jurisdiction. Specific powers and duties are delegated to them by state laws and they are empowered to adopt and to enforce reasonable local rules and regulations. Their work is supported by taxation and they are the servants of the people.

The advancement of the science of health particularly in the fields of bacteriology and immunology and also the demonstration of what may be accomplished in health promotion by the diffusion of health information among the people has during recent years greatly expanded the scope of public health activities. Traditionally Boards of Health have been thought of chiefly as exercising broad police powers through the power to license to abate nuisances to condemn contaminated property and to order personal or property quarantine. While environmental sanitation and the other phases of work mentioned are still important the recent trend has tended to bring health departments and their personnel more directly in contact with individuals, or groups of persons for prophylactic treatments, diagnostic advice and education through clinics by home visits or in other ways. Properly administered, such services are clearly preventive in nature and in no way infringe upon private medical practice. No line can be drawn as to what persons are entitled to health protection and health services any more than in the case of police protection or fire protection. The taxpayers pay for health work and all alike are entitled to the benefits of milk control work, laboratory diagnosis or tuberculosis diagnostic clinics.

Boards of Health do not and should not, generally treat disease or render medical services beyond diagnosis, or protection against certain epidemic diseases. We believe and experience supports the belief that Board of Health activities make the people more aware of health and of the value of medical services resulting in many more persons seeking medical advice, treatment and prophylaxis privately than would be the case in the absence of such services. It should be the aim of Boards of Health and their agents to recommend and encourage individuals to consult their own physicians in all cases of sickness and also for prophylactic treatment and health examinations.

There should be no conflict between Boards of Health or their agents and private medical practice. Boards are not interested in administering to the

sick. They are interested in protecting the community from preventable diseases and spreading the gospel of health. They do not provide preventive services to those who are receiving them from the family physician.

Be it therefore resolved

- 1 That it is the responsibility and duty of Boards of Health to employ professionally qualified personnel to administer public health work and that such persons should be free from political influence or interference.
- 2 That the basic activities of Boards of Health include
 - (a) The control of communicable diseases by enforcing the provisions for prompt reporting of cases of diseases declared dangerous to the public health by isolation and quarantine by providing for immunization against certain specific diseases by providing for the diagnosis and sanatorium treatment of tuberculosis and by any and all other measures that are lawful and effective.
 - (b) The promotion of maternal and child health by adequate provision for maternal and infant care and preschool and school child health.
 - (c) Sanitation including the protection of the water and milk supplies and other foods and responsibility for other environmental sanitary measures and the proper disposal of sewage and other wastes.
 - (d) Laboratory services for aid in diagnosis and the testing of milk, water food and other commodities that may affect the public health.
 - (e) The recording and analysis of vital statistics.
 - (f) Other recognized practices including health education, epidemiological studies and research.
- 3 That the services and resources of Boards of Health are available to all citizens within the legal jurisdiction of a given Board.
- 4 That it should be the responsibility of the Boards of Health to encourage the medical profession to a greater participation in the practice of preventive medicine and to inform the general public of the availability of the medical profession for this type of service.
- 5 Finally be it resolved that to further these mutual interests of Health Departments and physicians it is recommended that the Massachusetts Medical Society be invited to appoint a committee or delegates to meet with a committee of the Massachusetts Association of Boards of Health to discuss from time to time matters of joint interest and concern.

DR. WILLIAM O. HEWITT *Chairman*
DR. CHARLES F. WILKESKY
DR. ERNEST M. MORRIS,
MR. JOHN J. McGRATH
PROFESSOR CURTIS M. HILLIARD

The Association voted to accept this report at its annual meeting, January 30, 1936

At the same meeting the Association changed its name to "The Massachusetts Public Health Association"

DR HODGKINS ADDRESSES THE MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS

Dr Edward M Hodgkins, Assistant Professor of Surgery at Tufts College Medical School, read a paper at the annual meeting of the Massachusetts Society of Examining Physicians, May 27 entitled "Direct Inguinal Hernia in Relation to Industrial Accidents"

PROMOTIONS IN THE HARVARD FACULTY

The following promotions in the Harvard faculty have been announced Dr Gordon W Allport, from assistant professor to associate professor of psychology Dr Philip Drinker, from associate professor to professor of industrial hygiene, and Jacob P Den Hartog, from assistant professor to associate professor of applied mechanics—*Science*, May 29, 1936

U S COURT FINES AND REPRIMANDS MANUFACTURER OF LOW-STRENGTH DISINFECTANT FOR HOSPITAL USE

The Century Chemical Products Co., Detroit, Mich, was fined \$300 and rebuked by the Court on May 15 in an action under the Federal Insecticide Act The Food and Drug Administration, in comment on the action, says the company's product, known as "De-Germ," was offered as a disinfectant and germicide for use in theatres, hospitals, schools and other public places It was tested by government bacteriologists and found to be ineffective against some of the commoner forms of bacteria, even when used full strength. Analysis showed it to be a weak solution of formaldehyde (1½ per cent), phenolic substances, soap and perfume materials in water (96 per cent)—*Bulletin*, U S Department of Agriculture

SUMMER CAMPS

For four years the Boston Health League has issued a mimeographed bulletin concerned with summer camps This first pamphlet contained two sections Safeguards from Communicable Disease and Food Economies

In 1935, the material was completely revised and amplified, and with a few changes the bulletin for 1936 has been issued

The Committee wishes to stress the importance of adequately trained personnel, and a well planned program allowing for participation by director, campers and counselors, which will develop in each camper an appreciation of out-door living, and which is sufficiently flexible to permit individual taste and capacities to be developed Fatigue may contribute to ill health as much as malnutrition A

program not too competitive in character will add to the value of camp life

The essential features slightly abbreviated are as follows

I EQUIPMENT

- 1 Tentage or housing for sleeping quarters must give proper protection against the weather, and insects, if necessary It is recommended that each sleeping unit accommodate as few campers as is practicable Every child should have a single bed An average of forty or more square feet of floor space should be allowed for each individual camper
- 2 An infirmary should be provided with adequate first aid equipment available at all times
- 3 Necessary fire fighting equipment should be provided Equipment will depend somewhat upon conditions in each camp, but in general
 - (a) Approved fire extinguishers in sufficient number should be provided for each building, special attention being given to kitchens and other places where cooking appliances are used
 - (b) Nested buckets should be located outside buildings and in wooded sections adjacent to the covered barrels
 - (c) Brooms, shovels and similar equipment should be available to combat brush and grass fires These should be placed in separate enclosures for quick and convenient use, properly marked for fire use only
 - (d) In the case of large camps, one or more 25 to 40 gallon hand drawn chemical extinguishers would be a valuable asset to the equipment It is sometimes possible to provide a greater degree of protection where a pond or river is close by where an electric or gasoline driven pump may be installed with piping laid for fire protection service This system could also be a part of the domestic water supply
 - (e) In addition to equipment, it is most important that the supervisors should hold periodic fire drills for the safety of the children

II SANITATION

- 1 The water supply for drinking, culinary and personal cleanliness purposes should be certified as safe by the local or state department of health before camp opens, and should be tested at adequate intervals
- 2 Common drinking cups should never be used Bubbler fountains should be installed in the main building used for common purposes and on the grounds where the children may reach them easily
- 3 Toilet facilities should be adequate,—one unit for every ten persons They should afford in

dividual privacy. The latrine pits should be fly tight, and handwashing facilities should be provided at the latrines.

4. Provision should be made for hot baths, tub or shower, and each camper should be required to have at least one hot bath weekly.

III. STAFF AND LEADERSHIP

The staff should include:

1. A camp director of mature judgment, who is able to take full administration and responsibility for the program of the camp.
2. At least one adult counselor for every ten children—the ideal is a counselor for every three or four.
3. A registered nurse and arrangements should be made with a physician in the neighborhood for services in cases of emergency.
4. A dietitian.
5. A waterfront director who is an American Red Cross Examiner if there are waterfront facilities.

The camp staff should be well balanced in abilities and personalities, having a knowledge of modern developments in education and child guidance as well as the ability to maintain standards of health, food and safety.

IV. FOOD

1. In order that food money may be used to best advantage it is urged that a trained dietitian be in charge. If this is impossible a student counselor specializing in home economics will be very helpful.
2. Each child should have:
 - One quart of pasteurized or boiled milk daily.
 - Whole-grained cooked cereal daily.
 - Whole-grained bread at every meal.
 - Vegetables twice daily, green or yellow are least expensive and a raw clean vegetable should be served once a day.
 - Fruit twice a day, including an orange, tomato (fresh or canned), grapefruit, apple or pineapple.
 - Meat or fish and an egg daily.
 - Butter should be served on the table; other fats may be used in cooking.
 - Molasses, brown sugar and fruits may well take the place of some white sugar.

V. DINING ROOM FACILITIES

1. Small tables should be used, preferably seating not more than eight.
2. Ample time should be allowed for meals, and children encouraged to learn good eating habits.
3. Method of serving food should insure equal and prompt distribution.

VI. REST

The fatigued child cannot derive proper benefit from camp. Overexcited children are also fatigued children. In competitive events do not permit rivalry to become so keen that children are spurred on to too great activity for their individual strengths.

Activities should stop and there should be a half hour quiet period before dinner and again before supper with a rest of an hour directly after the noon meal when every child is required to lie on his cot.

VII. SWIMMING

The waterfront staff should include:

1. A waterfront director who is an American Red Cross Examiner at least twenty years of age who is in charge of all swimming, boating and canoeing.
2. There should be an American Red Cross Senior Life Saver in charge of each class of swimmers. If there are more than ten swimmers in a class there should be an additional American Red Cross Senior or Junior Life Saver to help supervise each additional ten swimmers in each class.
3. There should be two American Red Cross Life Savers, a Senior and Junior, who are in each of two boats that control the outer area during the swimming periods and an experienced oarsman to handle the oars. The lifesaver sits in the stern of the boat with a bamboo pole—8 feet long with a canvas strap (double thickness 2" made from 4" canvas)—within reach and keeps constant watch over the swimming area.
4. Each person should be classed according to experience and ability in swimming and should be kept within definitely marked areas according to classification.
5. These regulations, with the exception of number three, apply when swimming is in a pool as well.

VIII. BOATING AND CANOEING

1. All boating and canoeing should be in charge of an American Red Cross Examiner at least twenty years of age. He or she should be an experienced boatsman or canoeist, and may be the waterfront director.
2. An experienced oarsman should be in every boat, and an experienced canoeist in every canoe.
3. A person must not be allowed to have the use of a canoe without passing the following requirements:
 - Be a swimmer, one who can jump in the water over his depth, tread water, swim or float on back and who is able to swim 100 yards.*

*These requirements should be passed in an interview.

- 4 Canoe requirements
Tip canoe over when dressed, turn canoe upright, get in and handpaddle to shore *
- 5 Boats and canoes should be used only with permission of the person in charge, and should be tagged in and out. There should be definite boundaries easily seen and reached by canoes and boats
- 6 Lifesaving equipment should be adequate, and kept in perfect order and be placed where it is immediately available. Small life preservers on a long rope (60 feet), which can be thrown a distance, are essential. They should be placed in boats and hung in conspicuous places on the shore and floats

IX PHYSICAL EXAMINATIONS

- 1 Each member of the staff should pass satisfactorily a physical examination, not more than one week before entering camp
- 2 Prospective food handlers, in addition to the regular physical examination, should be examined to detect possible typhoid carriers
- 3 Each camper should pass satisfactorily a physical examination, not more than one week before entering camp. Evidence of a physical examination in the form of a health certificate should be presented. It is suggested that camps might adopt blanks. Blanks may be secured from the Purchasing Bureau, Boston Council of Social Agencies, for \$1.00 for one hundred copies, \$3.50 for five hundred and \$6.00 for one thousand copies

BIBLIOGRAPHY

There are many helpful books on camping and all its phases. Below are listed just a few:

Camping and Character by Hedley S. Dimock and Charles E. Hendry. Associated Press, N. Y. 1929

Camping and Woodcraft by Horace Kephart, Macmillan Company, N. Y. 1931

Camp and Camping by Eugene H. Lehman, American Sports Publishing Company 1930

Creative Camping by Joshua Lieberman, Association Press, N. Y. 1931

Camping and Education by Bernard S. Mason, McCall Company, N. Y. 1930

Education in the Summer Camp by Lloyd Burgess Sharp, Teachers College Contributions to Education No. 390. Teachers College, Columbia University, 1930

Current Problems in Camp Leadership—A Workbook for Camp Counselors and Directors. Edited by Jackson R. Sharman, Marjorie Hillas and David K. Brace. Ann Arbor Press, 1934. (Contains an extensive bibliography.)

Character Education in the Summer Camp—Setting Standards in the Summer Camp. Asso-

ciation Press, 347 Madison Avenue, N. Y. 75¢
Material compiled at the 1934 Institute of the Chicago Camp Association

The material for this Bulletin was compiled by the Summer Camp Committee

Warren R. Sisson, M.D., Chairman,
Elizabeth Bissell,
Mrs. Donald S. King,
John M. Kingman,
Richard M. Smith, M.D.,
Margaret H. Tracy, Secretary

CORRESPONDENCE

DOCTORS ON RELIEF

Editor, *New England Journal of Medicine*,

In the May 14 edition of *The New England Journal of Medicine* there were some statistics giving the number of doctors and attorneys on relief which I understood to be in the country. If my understanding is correct I believe that the figures given are far from correct.

Shortly before Christmas I obtained a list of doctors on the county or relief for this county. There were fifty-seven. About half were registered in this state. Five were members of the County Medical Association. On eight of them I did not have sufficient data to determine whether they had ever been registered anywhere. Twenty-five per cent were women. It was chiefly in the group of women where evidence of registration anywhere was found.

I understand that the number of attorneys in this county was at that time over a thousand but do not have the figures.

Yours sincerely,

LLOYD A. BURROWS, M.D.

520 Consolidated Building,
607 South Hill Street,
Los Angeles, California

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Illinois,
May 29, 1936

The New England Journal of Medicine,

In addition to the articles enumerated in our letter of May 1 the following have been accepted:

Billhuber Knoll Corporation

Hypodermic Tablets of Metrazol 1½ grains

Hospital Liquids Inc.

Ringer's Solution

Dextrose 5% in Distilled Water

Dextrose 5% in Physiologic Solution of Sodium Chloride

Dextrose 10% in Distilled Water

Dextrose 10% in Physiologic Solution of Sodium Chloride

Dextrose 25% in Distilled Water

*These requirements should be passed in shallow water

Lederle Laboratories Inc.

Refined Alum Precipitated Tetanus Toxoid—
Lederle

Parke Davis & Co

Compressed Tablets Sal Ethyl Carbonate with
Phenacetin

The following articles have been accepted for in-
clusion in the List of Articles and Brands Accepted
by the Council But Not Described in N.N.R. (New
and Nonofficial Remedies 1935 p 445)

Hospital Liquids Inc.

Physiologic Solution of Sodium Chloride

Lederle Laboratories Inc.

Smallpox Vaccine (Lederle) (Preserved with
Brilliant Green)

United States Standard Products Co

Magnesium Sulphate 25% in 5 cc. Ampuls

Yours sincerely

PAUL NICHOLAS LEECH *Secretary*
Council on Pharmacy and Chemistry

RECENT DEATHS

BLACK—DENNIS LEO BLACK M.D. a member of
the Surgical Staff of the Veterans Administration
600 Washington Street, Boston died suddenly at his
office June 4 1936 Dr Black was born in 1882
and graduated from the Dartmouth Medical School
in 1910

He served in the Medical Department throughout
the World War and was appointed to the Veterans
Administration Service immediately after his dis-
charge in 1919

Dr Black is survived by his widow who is ill at
their home in Methuen and a brother Dr James
Black of Nashua New Hampshire

SISSON—MITCHELL SISSON M.D., of Brookline
whose office was at 468 Commonwealth Avenue
Boston, died June 1 1936

Dr Sisson was born in 1887 in East Boston and
graduated from the Harvard Medical School in 1913
He had served as school physician for the East Bos-
ton School district since 1920

He was a Fellow of the Massachusetts Medical
Society and the American Medical Association His
widow Mrs Hattie C Sisson and a son Harrison
Sisson, survive him.

GUIBORD—ALBERTA SYLVIA BOOMHOWER GUIBORD
M.D., of 1932 Beacon Street Waban died May 27
1936

Dr Guibord was born in 1873 She graduated
from the Boston University School of Medicine in
1899 and was a Fellow of the Massachusetts Medical
Society and the American Medical Association

NOTICES

1936 GRADUATE FORTNIGHT OF THE NEW YORK ACADEMY OF MEDICINE

The Ninth Annual Graduate Fortnight will be held
October 19 to 31 and will be devoted to a considera-
tion of Trauma Occupational Diseases and Haz-
ards

Twenty three important hospitals of the City will
present co-ordinated afternoon clinics and clinical
demonstrations. At the evening meetings prominent
clinicians from various parts of the country who
are recognized authorities in their special lines of
work will discuss various aspects of the general
subject.

A comprehensive exhibit of books pathological
and research material apparatus for resuscitation
and other first aid appliances will be assembled
Demonstrations will be held at regular intervals.

Some of the features to be presented at the meet-
ings, in the clinics and in the exhibit will be
First Aid in industry in the home and on the high
way

Accidents and their management
Resuscitation

Shock and hemorrhage

Hazards in athletics

General principles of fracture treatment

Fractures of the extremities

Injuries of the head spine abdomen chest and
genito-urinary systems

Hand injuries

Burns—thermal electrical radiant and chemical

Medicolegal aspects of trauma and disability

War injuries and emergencies including—

Injuries caused by high explosives

Medical aspects of chemical warfare

Gas attack, gas defense

Carbon monoxide poisoning

Fatigue and noise in industry

Harmful conditions in industry

Occupational diseases

Occupational hazards

Industrial poisonings

Relation of trauma to disease

The medical profession is invited to attend

A complete program and registration blank may
be secured by addressing Dr Frederick P Rey-
nolds The New York Academy of Medicine, 2 East
103d Street New York City

LADIES HELPING HAND HOME FOR JEWISH CHILDREN

The Ladies Helping Hand Home for Jewish Chil-
dren 35 Chestnut Hill Avenue Brighton desires to
call attention to the continuance of its Health Pro-
gram for undernourished Jewish children as an-
nounced in previous communications

The organization is equipped to care for those
children who need Convalescent Care during their

recovery from operative procedures and severe illnesses

This program includes a definite schedule of medical care, rest, diet and recreation, under the supervision of our medical, nursing and consulting staffs

This service is intended for such worthy patients as may come within the above specifications

Applications may be procured by writing to the Ladies' Helping Hand Home for Jewish Children

Visits to our Home at any time will be cordially appreciated

Telephone Garrison 6116

REMOVAL

A. H. DELMAN, M.D., announces the removal of his office to 479 Beacon Street, Boston Telephone Kenmore 8000 and 8001

REPORTS AND NOTICES OF MEETINGS

BOSTON HEALTH LEAGUE CORPORATION

There was a meeting of the Corporation of the Boston Health League on Thursday, May 21, at 12 30 o'clock Dr Bartol, President, presided, and representatives from the following agencies were present

Boston Dispensary
Boston Health Department
Boston Metropolitan Chapter, American Red Cross
Boston Tuberculosis Association
Community Federation of Boston
Community Health Association
Housing Association of Metropolitan Boston
Massachusetts Department of Public Health
Massachusetts General Hospital
Massachusetts Society for Mental Hygiene
Massachusetts Society for Social Hygiene
Metropolitan District, Massachusetts Dental Society
Suffolk District Medical Society
Women's Municipal League of Boston

Dr Bartol stated there was one item of business before the Corporation. The Community Federation has requested that the Boston Council of Social Agencies, the Boston Health League and the Hospital Council of Boston give consideration to moving their offices to be adjacent to those occupied by the Community Federation of Boston. At the Quarterly Meeting of the Council of Social Agencies on Tuesday, May 19, the following vote was passed "That the Council move to offices adjacent to those occupied by the Community Federation of Boston as soon as practicable." On motion duly made and seconded, it was

Voted that the Health League also move to offices adjacent to those occupied by the Community Federation of Boston as soon as practicable

TREASURER'S REPORT

Dr Wadsworth reported that the Health League balance was \$1,249 after the bills were paid on May 1. He also stated that at the meeting of the Permanent Charity Fund Committee on May 7 the Committee voted to contribute \$500 for the coming year to the Boston Health League. This reduces the annual contribution from the Permanent Charity Fund by \$500, and it will be necessary to ask the Allocating Committee for a special appropriation to make up this deficiency if the work of the Health League is not to be seriously curtailed during the rest of the year.

The remainder of the meeting was devoted to committee reports

CANCER

The Educational Committee on Cancer of the Boston Health League was formed at the request of the Massachusetts State Health Department in 1930 to carry on the educational work for the city, and receives a small grant from the Department for this purpose.

In the spring of 1935 the Division of Adult Hygiene, which is responsible for the state cancer program, asked this Committee if it would consider concentrating effort in one section of Boston, and by stimulating interest of local organizations in cancer control, arrange for talks on the subject by the practicing physicians of the community before these local organizations. Hyde Park was selected as the district because it is a homogeneous unit of 24,000 population where the families are cared for in the main by the family physician. On January 29 of this year, a general meeting was held in the Municipal Building in Hyde Park under the joint sponsorship of the Massachusetts State Department of Health, the Boston City Health Department and the Boston Health League. As a direct result of this meeting two cancer talks were scheduled in Hyde Park, both given by local physicians. In addition, members of the Educational Committee of the Health League spoke to two other organizations in Hyde Park.

The Health League purchased a portable projector, and additional interest in cancer control has been stimulated by the showing of the delineascope film, "Fight Cancer with Knowledge," which was prepared by the American Society for the Control of Cancer. This film is very simple, can be run off in a very short time and serves as a valuable adjunct to the talks by physicians. One physician in Hyde Park thought so highly of the film that he showed it in his office for the benefit of groups of patients.

Since October 1935, the Educational Committee on Cancer, of the Health League, has been directly responsible for eight talks. These were given before women's groups in churches and settlement houses throughout the city, with Dr Shedden addressing the Men's Club of the Weston Baptist Church. Literature on the subject of cancer control was distributed at these lectures and at the majority of them the delineascope film was shown.

CHILD HEALTH

The activities of the Child Health Committee have fallen into two divisions this year (1) The Underprivileged Child Committee of the Kiwanis Club of Boston asked the Boston Health League to outline a health program to be undertaken by them and the matter was referred to the Child Health Committee. At a meeting on April 7 1936 it was decided that there were three objectives which would appeal to a committee of this character and which would fill a distinct need

- 1 This committee might adopt a few individual children who were tuberculosis contacts and be responsible for their care at Prendergast Preventorium
- 2 There are always individual children known to the Harvard Infantile Paralysis Commission who need more care than the Commission can furnish and these children might become the special charge of this committee
- 3 It is generally felt that there is insufficient care for cardiac children

Material regarding these three projects was submitted to the Kiwanis Club on May 8 and Dr. Sisson and Dr. Smith met with the Underprivileged Child Committee on Friday May 22, to discuss the matter further

(3) Summer Camps At a meeting of the Committee on April 22 regarding summer camps it was decided to revise slightly the material published last year. Interest in these summer camp pamphlets has grown to such an extent that 750 copies have been mimeographed. Morgan Memorial has ordered one hundred copies at five cents each to be distributed among their workers. At this meeting on April 22 the Committee stated that they considered that physical safeguards were the major concern of the Health League but that interest in summer camps had broadened beyond physical standards and it was voted to request the Boston Council of Social Agencies to form a committee on recreation or camping which would be representative of all groups engaged in running nonprofit camps and which would consider all sides of camping programs. At the meeting of the Executive Committee of the Council of Social Agencies on May 7 it was voted to accept this recommendation of the Health League and to form such an organization

At the meeting of the settlements on Wednesday May 20 Mr. Kingman, a member of this Committee presented the 1936 pamphlet and there was considerable discussion and interest. The settlement group wished to study these recommendations during the summer to find out whether they were practicable and it was planned to have a small committee which hopes to visit summer camps.

At the meeting of the Children's Division the same afternoon Miss Tracy presented the pamphlet and stated that the Health League offered this as

a guide but that it was realized every camp could not follow specifically all recommendations made. This material is intended as a guide to indicate whether camps in general are able to maintain proper physical standards

Copies of the pamphlet will be mailed to all organizations conducting summer camps. Members of the Health League Executive Committee of the Boston Council of Social Agencies and since its first publication in 1932 the Massachusetts Tuberculosis Association and the State Department of Health have used the pamphlet in helping to determine criteria in physical standards.

HEALTH EDUCATION

The Health Education Committee has been working upon two educational projects during the year. One of these was a series of food exhibits demonstrating elementary principles of nutrition. In addition to teaching nutrition, these exhibits demonstrated the importance of visual education in teaching health to the community. Enthusiastic cooperation in working out the plans has been given the committee by the City Health Department, the Department of Public Welfare, the nutrition workers of the voluntary agencies and the agencies housed in each health unit where the exhibits were displayed.

The first exhibit urged the importance of using the whole-grain product as a source of iron and vitamins and showed the cost of each cereal. This exhibit has been displayed in the Health Units in the West End, South Boston and Charlestown. In each unit a meeting of neighborhood people was held and was well attended. Miss Foster talked at these meetings.

On the planning and organization of the exhibits the Department of Health Education of the Boston Dispensary has spent a great amount of time and effort including the special service of a paid worker and it is hoped that the work may be continued under the service of a special worker. A great deal of material has been accumulated as a foundation for its continuance. The files of the Boston Health League contain photographs of the exhibits, plans drawn to scale and copies of materials distributed and the furnishings have been preserved so far as possible.

As another means of advancing the education of the public in nutrition the Chairman of the Health Education Committee conferred with the teacher of Health Education in Boston Teachers College and arranged a meeting for her class at the Boston Dispensary at which there was a demonstration by the Director of Health Education of methods of teaching nutrition to children. As a result three students in the class have come to the Dispensary on Saturday mornings throughout the winter and spring to join in the weekly health education conferences and to take a responsible part in teaching the children about food and health as they wait for treatment.

NEEDS OF WARD 9

The Committee on Needs of Ward 9 was formed originally because this district showed the highest incidence of tuberculosis.

At present the Boston Tuberculosis Association is doing intensive work there and, while the chairman of this Committee is actively concerned in it, it has seemed more important to the Committee to extend its work into other fields of health education.

Last year the exhibit of food values was carried out at the Whittier Street Health Unit and this year the Committee voted to undertake some educational work in social hygiene.

Our program was to get in touch with groups already formed in social or church organizations and arrange to send speakers to them. We are indebted to the State Department of Public Health for one speaker and to the Massachusetts Society for Social Hygiene for our other speakers. We have had cordial co-operation from the women's organizations of the neighborhood through Dr McGillicuddy.

Many men's clubs are carried on by churches and, through Dr Epstein's approach to the ministers, we were able to arrange talks in their churches.

Mr George W Goodman, Executive Secretary of the Boston Urban League and a member of this Committee, has been very helpful in making many of these contacts. Several doctors gave us their strong endorsement. Talks have been given by Dr McGillicuddy at the League of Women for Community Service, by Miss Craine at the Women's Service Club and also at a joint meeting of the Health Guild of the Boston Tuberculosis Association with the Mother's Club of Robert Gould Shaw House.

We are indebted to Dr Rolf Lium for speaking to groups at three churches and one club: Dudley Street Baptist Church, St. Cyprian's, Charles Street Church, and the 8-20 Club of Young Men, meeting at the Women's Service Club House.

Your chairman has heard most encouraging reports of the reactions of these groups to the talks, and Dr Lium also feels that the members have shown an intelligent interest through the questions that have been asked. Several of these groups were of very young men.

It is due to the co-operation of the Massachusetts Society for Social Hygiene that we have been able to carry out the plans made by this Committee.

NURSING

The Public Health Nursing Committee of the Boston Health League has held one meeting during the winter. It is felt that with the formation of the Hospital Council and the interest of the National Organization for Public Health Nursing in developing adequate nursing care to meet all the needs of a community that there should be a more inclusive organization than the Public Health Nursing Committee of the Health League. A subcommittee was therefore appointed to consider the advisability of forming a nursing council which would consider

nursing and nurses in relation to the community program. Meetings of this subcommittee have been held and it is planned to have a meeting of the larger group in the fall, when it is hoped definite recommendations regarding the formation of a nursing council will be presented.

PNEUMONIA

Since November 7, 1935, the Pneumonia Committee has sent a card to 1,774 practicing physicians, members of the Norfolk District Medical Society, the Suffolk District Medical Society and the Middlesex South District Medical Society, calling attention to laboratory facilities for the typing of sputum. The State Health Department reported that during December there was an increase in the use of the State laboratory facilities for this purpose by physicians in this area who had not formerly availed themselves of this opportunity.

In March 1936, reprints of the article written by this Committee which appeared in the January 30, 1936, issue of *The New England Journal of Medicine* were distributed to these physicians with a letter signed by the president and secretary of their respective medical societies, again calling their attention to the reduction of mortality for types I and II of lobar pneumonia if serum is used promptly. Dr Smillie requested copies for one of his classes at the Harvard Medical School and this article was also distributed to members of the Health League and was enclosed with 900 copies of the Bulletin of the Boston Council of Social Agencies.

The Committee is concerned with the question as to the best policy for lay education regarding the use of pneumonia serum, but has been of the opinion that physicians should first know the value of this therapy and how to obtain it, and has, therefore, not attempted lay education.

SOCIAL HYGIENE

There are three matters with which the Social Hygiene Committee has been particularly concerned. These are the following: (1) The co-operation with the Committee on the Needs of Ward 9 in stimulating interest in regard to syphilis and gonorrhea, on which Mrs Lord has reported. (2) The continuation of sponsoring the meetings of the Staff Council on Syphilis and Gonorrhea. Since November four meetings have been held with the following guest speakers discussing community problems:

Dr Nels A Nelson of the Department of Public Health who conducted a round table discussion on improved methods of a social service and administrative program for syphilis and gonorrhea. *Mrs Evangeline Morris*, Social Hygiene Supervisor of the Community Health Association, whose subject was "The Community Health Association and Hospital Clinics—Their Interrelationship."

Dr Harry O Solomon, who spoke on "New Treatment Methods in Neurosyphilis" with a demonstration of apparatus, and

Miss Ora M Lewis of the Massachusetts General Hospital who spoke on "The Public Health Department and Social Service"

The third matter is the study of social hygiene literature available in the Boston Public Library system. Several of the branches of the Boston Public Library have already been visited in addition to the main building with a view to ascertaining the situation in regard to the supply and demand for this literature. Branches in the remaining sections of the city will be visited so that some comparison may be made as to the uses which are being made of the available facilities and the Committee may know in which districts greater effort should be made to further educational activities in social hygiene.

REPORT OF DR. SHATTUCK

You have heard from chairmen of many of the committees about what has been done during the past year. I should like to say that the work has been steadily extended for a number of years with more and more being accomplished. Perhaps we do not realize that the permanent staff of the Health League is exceedingly small having the half time of the executive secretary and her assistant who work also for the Hospital Council and the full time of one stenographer. The Health League shares the telephone service with the Council of Social Agencies. It is obvious that a large part of the work must be done and has been done by volunteers many of whom are exceedingly busy yet willing to give of their time. Most of the committees whose reports you have heard today are continuing but temporary committees have been formed this past year and dissolved when their special task has been accomplished. We have had splendid co-operation. Membership on committees is not limited to board members or members of the Executive Committee. Whenever we see anyone who can help we ask that individual to serve and help us when and as he can. I should like also, to call your attention to the co-operation from *The New England Journal of Medicine*. Dr. Bowers has been interested in our work for years and has been most generous in publishing some of the things we wished to bring to public attention.

For the future we should continue to push the programs and policies for which we stand. We should bring more effectively to the attention of boards of member agencies, policies in which we need the help of their organizations. I wish to thank the board members who are here today and ask them to take up this matter with their organizations and give us greater co-operation along these lines and offer advice as to how we can be more helpful.

One of the major concerns of the Health League should be legislation. During the past, representatives of the organization have appeared at hearings in favor of many bills or to combat legislation which would be harmful to public health. Upon the completion of the report of the Massachusetts State

Health Commission the Boston Health League should concern itself with the recommendations which will be made to the next general session of the Legislature.

There being no further business the meeting then adjourned.

MARGARET H. TRACY, Secretary

CHAIRMEN OF COMMITTEES

Anna C. Palmer, M.D., Chairman Educational Committee on Cancer

Warren R. Sisson, M.D., Chairman Child Health Committee

Mary Pfaffmann, Chairman Health Education Committee

Mrs. Frederick T. Lord, Chairman, Committee on Needs of Ward 9

Sophie C. Nelson, Chairman, Public Health Nursing Committee

Frederick T. Lord, M.D., Chairman Pneumonia Committee

Mrs. Maida H. Solomon, Chairman Social Hygiene Committee.

HAMPDEN DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Hampden District Medical Society was held at the Skinner Memorial Clinic of the Holyoke Hospital Tuesday April 28, 1936 at 4 P.M. The President, Dr. Theodore S. Bacon was in the chair. About seventy members attended.

Dr. Hervey L. Smith, Secretary-Treasurer read the minutes of the previous meeting which were approved and submitted the Treasurer's Report showing a balance of \$536.07 after disbursements. He also noted that the dividend returned by the Massachusetts Medical Society this year for early payment of dues was the largest in the history of the District Medical Society also that the appropriation from the Hampden District Medical Society toward the expense of radio talks by Dr. Miles of Brockton, Chairman of the Committee on Education of the General Court, exceeded that of all the other district societies in the state.

According to the Secretary the average attendance per meeting was 100 the total active membership 301.

The President, Dr. Bacon reported that during the recent flood period, under conditions of interrupted communication, a Hampden District representative had attended a number of consecutive meetings of the Presidents of the District Medical Societies in order to discuss an important matter of ethics and discipline.

Nominations for officers of the Society for the ensuing year were made and seconded and the following were elected by the Secretary casting a single ballot:

President Dr. Patrick E. Gear of Holyoke.

Vice-President Dr. Allen G. Rice of Springfield.

Secretary-Treasurer Dr. Hervey L. Smith of Springfield.

A vote of thanks was given to the officers for the

the trichinella spiralis in their earliest stage are about ten times as long and twice as broad as a large organism such as the anthrax bacillus. In trichinosis just as in bacterial infection the lesions produced are essentially a combination of toxic manifestations plus embolic depositions. The recent researches of Bachman have definitely shown that from the very beginning of the disease evidences of toxemia are present, and this is shown by the very early appearance of a positive skin test which may occur even on the second day after infestation. Whether the toxemia is entirely due to products of the trichinellae or whether, as some suppose, it is partly due to toxins produced by the destruction of muscular tissue, is still an open question but as I shall point out later in discussing the symptomatology there is no lack of evidence of toxemia. There is also no lack of evidence that in addition to their toxic effect the parasites produce definite embolic effects which are comparable with those which are produced by bacteria in certain types of septicemia.

The second point that I wish to make is that the spectacular character of the lesions in the voluntary muscles which has dominated our conception of the disease since its first careful study by Zenker and Leukhart has led to the minimizing of important lesions in the internal organs, particularly the heart muscle and the nervous system, which are worthy of serious consideration inasmuch as they have a definite bearing on the symptomatology of the disease. I do not mean to infer that these lesions have been entirely overlooked, for the cardiac manifestations were described in 1918 by Simmonds¹ under the heading of myocarditis trichinosa, and were also carefully described and adequately illustrated by Channing Frothingham² in 1906. In essence, the pathological changes show that the embryo may be demonstrated in organs in which it does not encyst, and that in association with these parasites there are to be found localized destruction of tissue and cellular infiltration of a character extensive enough to produce damage in various internal organs which may result in demonstrable clinical manifestations.

SYMPTOMATOLOGY OF THE ORDINARY FORM OF TRICHINOSIS

One purpose of this article is to call attention to the fact that in addition to the ordinary form of trichinosis there exist unusual forms, to which attention has not been adequately directed. I think, however, that it will be well to describe first of all the common type of the disease.

The onset of the disease is not the same in all individuals. There is one group of patients in whom within a few hours after the ingestion of the infected meat, gastrointestinal symptoms

appear. These patients usually have nausea and vomiting, sometimes accompanied by abdominal cramps and diarrhea, and these symptoms may continue up to the time when the manifestations of the invasion of the body by the young parasites make their appearance. There is another group of patients in whom no immediate effect follows the ingestion of the infected meat. In these individuals there is an interval of time, at least six days and sometimes as long as four or five days, during which the patient is free from symptoms. When symptoms do occur they are those which are associated with the dissemination of the larvae through the blood stream. It is difficult to say why in one group of patients the gastrointestinal symptoms are prominent from the beginning and in the other group they are absent. It was formerly assumed that those patients who developed gastrointestinal symptoms within a few hours after the ingestion of the infected pork did so because the pork was not only infected with trichinellae but was also more or less putrified. The work of Bachman³ on the skin test indicates that toxins are present in association with the trichinellae from the very beginning of the infection and that there is therefore no need to assume that putrefactive changes were present. It is possible that the reason why some individuals do not develop gastro-enteritis at the beginning is a matter of dosage, that is to say, individuals who receive a heavy dose of infected material develop gastro-enteritis while those who receive a lighter dose do not develop symptoms until the trichinellae are invading the system. No doubt, too, individual resistance plays a part. The important point to remember is that, so far as onset is concerned, there are these two groups of cases.

The ordinary case of trichinosis develops symptoms associated with invasion of the blood and organs by the parasite about the end of the first week after infestation. As has been stated already, these symptoms are partly toxic and are partly due to the mechanical effects of the parasite. The fever, which is a prominent feature in well-marked cases, and the accompanying headache, general muscular pains and anorexia, are all doubtless of toxic origin. The swelling of the eyelids which is such a common finding in the disease, the chemosis, the occurrence of small hemorrhages beneath the conjunctivae and the occasional occurrence of skin lesions which simulate rose spots, are all embolic in nature. The symptoms which are associated with the invasion of voluntary muscles, such as muscular pains occurring later than those due to the toxemia and associated with muscular stiffness and tenderness and, particularly in children, with pseudo-paralysis, are also due to the lodgment and wandering of the parasites in the voluntary muscles. In the ordinary case the evidence of damage to the internal organs is usually not

very pronounced, with the exception of the pulmonary lesions which are quite common and present clinically in the form of a bronchitis, which is often accompanied by definite signs of bronchopneumonia. Many cases however do show a certain amount of evidence of myocardial weakness, and some of them show definite evidence of involvement of the meninges in the form of stiff neck, meningismus and sometimes extreme restlessness or delirium.

The ordinary case then presents the picture of a febrile disease, the fever varying in degree according to the intensity of the infection and lasting from a few days to six or seven weeks. The usual toxic accompaniments of an infection are present and in addition chemosis, edema of the eyelids, painful and tender muscles, subconjunctival hemorrhages and quite frequently pulmonary complications and cardiac weakness. Physical examination in the ordinary case shows changes which are very variable in intensity depending on the severity of the case. In any outbreak involving a number of individuals, and in this country we see mostly sporadic cases and family outbreaks there are some who are obviously acutely ill and some who may hardly appear ill at all and may never have to go to bed. As a matter of fact in the infected families that I have seen there have usually been some members going about their business entirely unconscious of the fact that they were suffering from the disease. In such individuals fever and obvious muscular involvement do not exist, and a diagnosis of the disease would not be considered if the observer did not make a blood examination. The blood count and differential count are the most significant laboratory findings, and a leukocytosis with eosinophilia is only rarely absent. However it has not been sufficiently emphasized that in the early stages of the disease eosinophilia may be absent and that repeated blood examinations are often necessary.

THE UNUSUAL CLINICAL FORMS OF TRICHINOSIS

In addition to the ordinary type I wish to discuss briefly three forms of the disease which are of rather unusual occurrence and which have been generally recognized only since it has been appreciated that the lesions in the internal organs are at times just as important as the lesions in the voluntary muscles. There are three groups of these unusual cases. (1) those in which myocardial symptoms are prominent, (2) those in which the lesions in the central nervous system dominate the picture, and much more rarely, (3) those in which evidence of kidney damage is a feature.

The observation of Simmonds,⁴ who described a trichinous myocarditis in 1918, was followed by a long period when little or no reference to the clinical effect of trichinosis on the heart

was found in the literature. Recently interest in the subject has been revived by the articles of Weller and Shaw,⁵ Dunlap and Weller,⁶ and Spink⁷ who have once more called attention to the myocardial changes and the importance of their bearing on the clinical manifestations of the disease.

I can best illustrate the cardiac effects of trichinosis by briefly reporting a case seen with Dr. Gissler of Middletown in 1934 which showed both cardiac and renal symptoms.

An American schoolteacher aged twenty-seven on or about December 23, 1933 ate some fresh sausage meat which was insufficiently cooked. There was no immediate effect but about a week or so later the patient began to complain of pain in both knees but did not feel ill enough to call in a physician until January 20, 1934. At that time she was complaining of headache over both eyes, pain in the back of the neck, pains in the joints and diminished excretion of urine. The knees were slightly swollen and tender, there was tenderness over both eyes, the nasal mucosa was congested and the patient had a fever of a little over 100. It was first thought that she had an acute upper respiratory infection with sinusitis, arthritis and possibly a mild nephritis. Several days later she consulted her physician again showing marked edema of the eyelids. The fever was about the same, the urine was still very scanty and there was definite puffiness of the eyelids with in addition some edema of the ankles. The presence of palpebral edema led to a blood count which showed 8500 leukocytes of which 26 per cent were eosinophils. She had no muscular tenderness but a biopsy was performed on one of her muscles and three trichinae were found in a teased specimen. At this time she was somewhat nauseated and still showed a pronounced diminution in urinary secretion. With an intake of 2500 cc there was an average output of only 175 to 250 cc, on some days although occasionally as much as 1400 cc were excreted. The bowels were very constipated. She continued to run fever and during the course of the disease a rash simulating rose spots appeared which was later followed by a marked urticarial rash. The leukocytes reached a maximum of 14,000 per cubic millimeter always accompanied by a pronounced increase in the eosinophils which rose as high as 34 per cent. Fever was seldom above 101.4 F. There was a trace of sugar in the urine at times but the blood sugar was only 80 milligrams per cent and the non protein nitrogen was normal. There was no rise in the blood pressure. About March 4 that is to say after she had been sick for about two months she began to develop attacks of syncope with a sensation of coldness, a feeble pulse and rather scratchy heart sounds which were somewhat muffled and occasionally suggested the possibility of pericardial friction though no definite friction was detected. There were a good many rales at the bases of the lungs. There were attacks of palpitation with a regular rhythm and spells of weakness, which on one occasion were accompanied by air hunger, precordial pain and actual syncope. An electrocardiogram showed slurring of the peak of the QRS complex with other slight changes which suggested to the cardiologist a diagnosis of myocardial damage with left axis deviation. An x-ray of the heart was normal. Physical examination showed that the patient was propped up in bed and decidedly pale but did not appear very acutely ill when I saw her on March 18. There was still some pain on movement of the eyes, the calf muscles, deltoid and bi

ceps were still tender. There were a few moist râles at the bases of the lungs. The pulse was regular, of medium volume and moderately compressible. The heart sounds were clear and of fairly good quality. There was no enlargement of the liver, and no definite edema of the lower extremities. Under continued rest in bed the patient did fairly well but a report from Dr Gissler early in June, 1935 showed that she still had dyspnea on exertion, that her pulse was still 90 while at rest, and that at times she was orthopneic.

There can be little doubt, I think that this patient suffered severe cardiac damage as a result of her trichinosis. No doubt if an examination of the heart muscle had been possible we should have found degenerative changes in the myocardium such as were described by the authors named above, together with areas of cellular infiltration. The subsequent course of events indicates that the damage to the heart is probably more or less permanent. There is evidence, too, that in all probability there was some kidney damage, although it is possible that the marked diminution of urinary secretion was partly due to the cardiac insufficiency. However, it would certainly be unusual for cardiac insufficiency alone to produce such a marked diminution of urinary secretion as occurred at times in this case, especially since the blood pressure was never very low. It is true that the urine never showed more than a trace of albumin with an occasional red blood cell and an occasional leukocyte, and that casts were never present.

The *second group* of cases to which I wish to call particular attention are those in which there is marked evidence of damage to the central nervous system. There are a fair number of cases of the ordinary type in which stiffness of the neck and a Kernig's sign are present but I am referring to patients who show evidence of involvement of the parenchyma of the nervous system or of the nerves.

Aside from the cases showing evidence of meningism there are two groups of cases which show more pronounced evidences of gross damage to the central nervous system: (1) patients with hemiplegia, and (2) patients with symptoms which must be interpreted as encephalitis.

The following patient illustrates well the first of these two groups.

An American truck driver, aged twenty-six, was seen with Dr Brophy, of Norwich, on December 7, 1935, at which time the patient was completely unconscious. In the course of his work he made extended trips, frequently ate at all sorts of places and was known to have occasionally eaten pork.

His illness began rather acutely on November 22, 1935. At this time he complained of being drowsy, suffered from nausea and vomiting, was running a fever ranging from 100° to 101°, and had swelling of the face with edema of the eyelids. When first seen by Dr Brophy on November 25 there was definite injection of the conjunctivae, a coated tongue, swollen eyelids, rigidity of the neck, and a good

deal of complaint of lumbar backache. He was passing large quantities of amber colored urine and was sweating profusely. He continued to run a temperature of from 99½ to 100, and on December 3 became mentally confused, fell out of bed, complained of numbness of the left arm and leg, and subsequently became delirious. At this time examination of the blood showed a leukocyte count of 20,000, with 44 per cent eosinophils. He was sent to the hospital where, after twenty-four hours, he became comatose and his left arm became spastic. The next morning the arm became limp and this condition still persisted at the time I saw him on December 7. The urine contained only a slight trace of albumin and no casts. A lumbar puncture showed no increase in cells but a definite increase in globulin and sugar.

When I saw him on December 7, 1935, he was completely unconscious and could not be aroused. There was a constant, slow, side-to-side movement of both eyes. The pupils were equal in size, moderately wide, but reacted poorly to light. It was rather difficult to see the eyegrounds on account of the movement of the eyes but so far as could be judged they were normal. There was no retraction of the head or stiffness of the neck. The left arm and leg were flaccid, with a slight increase in the deep reflexes. There was a suggestion of ankle clonus on both sides but there was no definite Babinski. The superficial reflexes were very sluggish. The lungs were clear. The heart was not enlarged and the heart sounds were clear. Blood pressure 114/72, and the pulse was regular, of medium volume, and compressible. No changes could be detected in the abdominal organs. Another specimen of spinal fluid was obtained and was sent to the Laboratory of the State Department of Health where trichinal larvae were recovered. About December 18 the patient regained consciousness. By December 26 power began to return in the arm, though the leg was still completely paralyzed. By December 29 there was some movement of the toes and on January 8 the patient sat up, completely recovered so far as his mental status was concerned, but with a residual partial paralysis of the left arm and leg.

I have had no personal experience with cases of trichinosis presenting the picture of encephalitis but such cases have been reported by Pund and Mosteller,⁸ and by Gordon, Cares and Kaufman.⁹

In Pund and Mosteller's patient, a colored boy of eleven years, there was drowsiness, hypertonicity of the muscles, and diminished reflexes three weeks after vaccination against smallpox. The patient showed a leukocytosis of from 12 to 16 thousand but there was no eosinophilia. He died and an autopsy showed inflammatory foci in the cortex, in the basal ganglia, the medulla, and the cerebellum. These foci contained trichinellae. There was also a myocarditis.

In addition to these two types of involvement of the nervous system, there are other rarer types which may simulate poliomyelitis and polyn neuritis. These have been well described by Merritt and Rosenbaum¹⁰ who give a very thorough review of the literature.

These cases of neurological involvement in trichinosis are not very common but now that they are known it will probably be found that they are less uncommon than was formerly.

thought. They illustrate the axiom that "cerebral localization indicates the situation of a lesion but not its nature," and they call attention to the fact that in obscure febrile neurological lesions of the brain and cord and even of the peripheral nerves trichinosis must be considered as a possible etiological factor.

THE DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS OF TRICHINOSIS

In one of his articles Bachman states that the diagnosis of trichinosis is difficult. This is doubtless true of the unusual types as is likely to be the case in most diseases. The diagnosis of the average case of trichinosis is not difficult if the practitioner is aware of the common clinical picture. Any febrile disease which is accompanied by edema of the eyelids and evidences of involvement of the muscles at once calls for a blood count. In most cases of trichinosis eosinophilia will be present. In the occasional case where it is not present repeated blood counts are called for as it may develop later in the disease. I have called particular attention to the edema of the eyelids because this is almost always present and is not a feature of other general infections with which trichinosis is likely to be confounded.

If after the use of the primary tests there is still doubt as to the diagnosis the skin test of Bachman may be of value. The reaction occurs in a large percentage of cases of trichinosis, it is present early in the disease and it is clear cut in positive cases.^{11, 12} Bachman's precipitin test is of much less value because it does not appear for three weeks or more after the onset of the disease.

Needless to say the finding of the embryo parasite either in a piece of excised muscle in the feces in the blood or in the spinal fluid clinches the diagnosis. However, no one of these methods is 100 per cent perfect. Unless an infected muscle is chosen the pathologist may draw a blank. The finding of parasites in the blood, the feces or the spinal fluid occurs only in a relatively small proportion of infected patients.

With regard to the differential diagnosis the following conditions are important:

The disease which is most commonly mistaken for trichinosis is typhoid fever. In an epidemic of typhoid fever which occurred in Boston some years ago investigation by the Board of Health demonstrated that twenty cases that had been diagnosed typhoid fever were in reality trichinosis. The mistake is not likely to be made if it is borne in mind that edema of the eyelids is not a feature of typhoid fever and that the blood picture in the two diseases is entirely different. There is of course no positive Widal reaction in trichinosis and there is almost always

a well marked leukocytosis with eosinophilia. However, there are certain points common to the two diseases so that there is a superficial resemblance. The fever in trichinosis is usually of the remittent type and quite comparable with the fever of typhoid. Bronchitis is frequent in trichinosis and occasionally a papular rose-colored eruption is present in this disease.

On account of the prominence of the eye symptoms some patients with trichinosis fall into the hands of the ophthalmologist before consulting the internist. The eye muscles are often extensively invaded by the trichinella and consequently pain on movement of the eyes is a not infrequent symptom. This may be so intense as to lead to the patient fixing the gaze. Furthermore, chemosis of the ocular conjunctiva is a frequent symptom and these symptoms, together with the edema of the eyelids, suggest to the patient that the trouble is with the eyes. An alert ophthalmologist will usually have a blood count which will at once lead to the suspicion that the process is a local manifestation of a general disease rather than a primary eye disease.

As Pratt pointed out many years ago, some of these patients first consult a nose and throat specialist. Severe headache and edema of the face, particularly in the region of the eyelids may lead to the suspicion that the patient is suffering from sinusitis. Here again the almost negative findings in the nasal cavities and paranasal sinuses will lead the alert nose and throat man to the suspicion of a general disease, and a blood count will put him on the proper track.

There is one disease which simulates trichinosis fairly closely, and that is the so-called acute dermatomyositis which has sometimes been called pseudotrachinosis. This disease is very rare however. It is often preceded by an acute upper air passage infection. It is generally accompanied by an erythematous eruption on the face without edema of the eyelids and the muscles which are usually involved are those of the extremities, where the overlying edema which accompanies the myositis is located. Furthermore, dermatomyositis is not accompanied by eosinophilia.

There are some cases of trichinosis in which the meningeal symptoms are so pronounced that a suspicion of meningitis may be aroused. As a matter of fact there is actually a trichinous irritation of the meninges in a fair number of cases of trichinosis and this may be accompanied by an increase in the cells and globulin. As Van Cott and Linz first pointed out the embryos may be found in the spinal fluid in these cases. The course of the disease, together with the blood findings, clears up the diagnosis.

On account of the edema of the face a diagnosis of Bright's disease is not infrequently

made in patients with trichinosis. However, most patients with acute Bright's disease are free from fever, the urinary changes in trichinosis are usually merely those of febrile albuminuria and the leukocytosis and eosinophilia differentiate the two conditions.

The cases in which involvement of the *myocardium* is a prominent feature can usually be recognized without difficulty because the myocarditis is merely an incident in the disease rather than the predominant feature. These patients, as illustrated by the case reported, show other evidences of trichinosis and there is generally no difficulty in recognizing them.

The same cannot be said of the cases in which involvement of the *nervous system* is a prominent feature. In these patients the clinical evidences of nervous disease, such as hemiplegia or symptoms suggesting encephalitis, are so outstanding that the clinician may at first be led astray. However, there are usually other evidences of trichinosis if the disease is thought of. Edema of the eyelids, muscular tenderness, and the characteristic blood changes should permit the clinician to avoid error.

THE TREATMENT OF TRICHINOSIS

It is obvious that patients with trichinosis must be treated along the lines that have been established for the treatment of any general febrile disease. The patient must be kept in bed, an adequate supply of fluids and nourishment must be furnished, a preliminary purge should be given because some parasites may persist in the intestines for a considerable period, pain must be relieved, and the patient must be assured of a proper amount of sleep.

There have been many attempts to treat the disease by destroying the parasites in the body. A great variety of different drugs has been employed for this purpose, notably arsphenamine, but also thymol and other antiseptics. The experimental work of Miller, McCoy and Bradford¹³ with neoarsphenamine, antimony and potassium tartrate, acriflavine, rivanol, gentian violet, metaphen, and Lugol's solution showed that all of these drugs were useless. The results which have been obtained in human beings are contradictory and, when the natural history of the disease is considered, it would seem that so far no definite results have been achieved. There is some question, I think, whether it is desirable to destroy, at one fell swoop, the enormous numbers of parasites which are present in the body. It would be possible, if an effective parasiticide were discovered, that the destruction of the parasites *en masse* might result in a sudden flooding of the system with large quantities of toxic substances. It is obvious that the parasites cannot be removed from the body after they have left the intestinal tract

and it is well known that ultimately those which survive become encapsulated and comparatively harmless.

The quest for an effective antitoxic serum of fers, I think, a more hopeful solution. McCoy's¹⁴ work on rats shows that a natural immunity can occur after light infections, and while the work of Schwartz¹⁵ shows that immune serum does not damage the parasites and this has been confirmed by Hall and Wigdor,¹⁶ this does not prove that a serum might not neutralize the toxemia. The results of Salzer¹⁷ who used serum from recovered patients are decidedly encouraging and warrant a further trial of this method.

Whether the use of calcium as advocated by Goldschlager,¹⁸ or the administration of vitamin D to accelerate calcification as proposed by Barker and Wantland¹⁹ will prove of value needs further investigation. Under normal circumstances calcification of the encysted trichinellae does not begin for at least six months after infestation, and the degree of acceleration of the process in man has not yet been demonstrated.

MEDICOLEGAL ASPECTS OF TRICHINOSIS

In conclusion I wish to say a few words about the medicolegal aspects of trichinosis, because during this period of depression an unusually large number of lawsuits have been brought against both wholesale meat dealers and retailers of pork. The assumption underlying these suits is that the wholesaler or the retailer is responsible for the illness of the patient because he has offered for sale food unfit for consumption. I would point out that the United States Government and also the German government long ago gave up attempts to eliminate trichinosis by microscopic examination of pork. The late Charles Wardell Stiles pointed out many years ago that the microscopic examination of pork was a futile procedure. He showed that of 6,329 cases with 318 deaths which occurred in Germany, 2,402 cases and 112 deaths followed the consumption of government inspected meat released to the trade as free from trichinae. It is perfectly obvious from these figures that the government inspection of pork entirely fails to eliminate infected meat. It follows from this that suits against meat dealers are, at least from the medical point of view, a racket pure and simple. The only effective prevention of trichinosis lies in the adequate cooking of pork and the individuals responsible for the occurrence of the disease are not the meat dealers, but the meat consumers.

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COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1925 AND SEVEN YEAR AVERAGE

MONTH ENDING MAY 23 1926

	1926					1925			
Diseases	Week ending May 2	Week ending May 9	Week ending May 16	Week ending May 23	Average cases reported for week corresponding to May 23 for past seven years	Week ending May 4	Week ending May 11	Week ending May 18	Week ending May 25
Actinomycosis	—	—	—	—	—	—	—	1	—
Chickenpox	34	109	95	84	106	164	117	150	127
Conjunctivitis Infectious	1	2	6	10	2	3	6	12	9
Diphtheria	0	6	1	3	13	2	5	2	1
Dysentery Bacillary	1	—	—	—	—	—	1	—	1
Encephalitis Epidemic	—	—	—	—	—	—	—	2	—
German Measles	169	435	892	283	40	261	248	268	266
Influenza	1	8	2	—	7	5	1	—	2
Malaria	—	—	—	—	—	—	1	—	—
Measles	167	249	233	219	306	1493	1635	1202	918
Meningococcus Meningitis	2	5	2	3	2	—	1	1	—
Mumps	63	118	76	70	87	43	92	73	38
Paratyphoid Fever	—	—	—	—	—	—	—	—	3
Pneumonia (Broncho)	99	89	20	26	24	37	27	22	16
Pneumonia (Lobar)	46	38	42	21	37	48	41	28	27
Poliomyelitis	—	—	—	—	—	1	—	—	—
Scarlet Fever	50	40	36	34	75	90	108	104	130
Smallpox	—	—	—	—	1	—	—	—	—
Streptococcus Sore Throat	4	5	2	—	2	5	8	2	7
Tetanus	1	—	—	—	—	—	—	—	—
Trichinosis	—	—	—	—	—	2	—	2	—
Tuberculosis (Pul.)	43	25	39	19	29	45	31	45	27
Tuberculosis (O. F.)	2	6	2	1	3	2	1	2	4
Typhoid Fever	2	2	1	—	2	1	—	1	1
Typhus Fever	—	1	—	—	—	—	—	—	—
Undulant Fever	4	1	2	—	—	2	—	—	1
Whooping Cough	198	125	120	114	65	62	53	64	65
Gonorrhea	25	29	19	16	31	31	36	23	18
Syphilis	49	104	37	38	40	72	55	50	47

Remarks No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years.

THE SYNDROME OF ALKALOSIS COMPLICATING THE TREATMENT OF PEPTIC ULCER*

Report of Cases With a Review of the Pathogenesis, Clinical Aspects and Treatment

BY HAROLD JEGHERS, M.D.,† AND HENRY H. LERNER, M.D.†

MUCH has been written about the complications of peptic ulcers such as hemorrhage, perforation, obstruction, or malignant changes. There is still another complication arising during the usual Sippy treatment of a peptic ulcer with alkaline powders, which, if unrecognized, can have as serious a consequence as any of the above-mentioned sequelae. This little understood complication was first described in 1923 by Hardt and Rivers,¹ who gave to it the name of alkalosis. Since it has been the subject of but few reports and is not described in some textbooks, the clinical picture is probably an unfamiliar one to many physicians. Because many of the data available are in the form of statistics, it was felt that the report of three additional cases along with a brief review of the clinical syndrome, and the basic physiological factors probably responsible for it, would be desirable.

Cooke,² in reviewing the literature in 1932, found only sixty-eight reported cases (including nine of his own), with a mortality of 44 per cent. Since then forty-three additional cases have been described by Rafsky et al.,³ Jordan and Kiefer,⁴ Berger and Binger,⁵ Gatewood et al.,⁶ Oakley⁷ and others.

INCIDENCE

These few reports would seem to indicate a very low incidence of this complication, considering the frequency of peptic ulcer. However, it is interesting to note that while the total number of cases is small, each investigator reporting noted in his own series of peptic ulcers, an incidence varying from 2 per cent by Rafsky,³ 4.5 per cent by Cooke² to 18 per cent by Gatewood.⁶ Gatewood⁶ states that Sippy in his early clinics found that 17 per cent of his cases had a plasma carbon dioxide combining power of over 80 volumes per cent. A few authors (MacLean⁸ and Bloch and Serby⁹) state that they have rarely seen any such complications in their series of peptic ulcer cases.

This variation in incidence is probably best explained on the basis of different dosages plus the fact that recognition of the mild cases requires not only the knowledge of the clinical

features but adequate laboratory studies of all peptic ulcer cases under alkaline therapy. Jordan and Kiefer,⁴ in an excellent study of five hundred and seventy-seven cases of peptic ulcer, reported an incidence of 8 per cent (transient alkalosis 2 per cent, mild alkalosis 3 per cent, and severe alkalosis 3 per cent). Considering the size of this series, these values probably approach the true incidence. A complication of peptic ulcer of such frequency certainly deserves more attention than it is receiving in the literature at present.

PATHOGENESIS

Originally Hardt and Rivers¹ regarded the nonmetallic ions present in the alkaline powders as the cause of the toxic symptoms. However, their added suggestion that the condition simulated the gastric tetany produced by McCallum in dogs with mechanical pyloric obstruction and a consequent loss of hydrochloric acid, a decrease in the chloride of the plasma, and an increase in the alkali reserve, proved to be closer to the truth as shown by later studies. It is now well recognized that in the severe cases, the clinical and laboratory picture of alkalosis resembles that seen in cases of persistent pyloric obstruction.¹⁰ That one or more of the following mechanisms may be responsible and that the clinical course of the case is determined by the degree and number of factors present is probably true.

(1) *Loss of Gastric Juice* Normally the gastric juice contains chlorides secreted by the gastric mucosa. Originally, these chlorides were held in the blood in combination with basic ions. Under the normal process of digestion, the chloride ions of the gastric juice are reabsorbed and recombined with the basic ions of the blood. Failure to reabsorb the chloride ions results in an excess of uncombined basic ions in the blood stream. These, not having chloride to unite with, combine with carbon dioxide already present in the blood to form bicarbonates. As a result, the carbon dioxide combining power of the blood increases and a state of alkalosis is present. Excessive vomiting, and, in rare instances, gastrocolic fistulae can result in the loss of enough chloride to cause hypochloremia. An added factor is that in peptic ulcer the gastric contents are those of hypersecretion and hyperchlorhydria. When vomiting ensues in such a case, chlorides and fluid are rapidly lost in relatively larger amounts.

*From the Fifth (Boston University) Medical Service, Boston City Hospital, Evans Memorial and the Medical Service, Massachusetts Memorial Hospitals, and the Department of Medicine, Boston University School of Medicine, Boston, Mass.

†Jeghers, Harold—Resident in Medicine, Fifth Medical Service, Boston City Hospital; Lerner, Henry H.—Resident in Roentgenology, Massachusetts Memorial Hospitals. For records and addresses of authors see This Week's Issue, page 1253.

Vomiting is by no means a constant concomitant of alkalosis however, as is shown by the reported instances where it was not present or only developed after the syndrome was manifest.^{2,7} It is interesting to note that vomiting associated with carcinoma of the stomach rarely causes hypochloremia because of the associated and preceding achlorhydria.

(2) *Pre-existing Renal Disease* The importance of the kidneys in maintaining a constant pH value of the blood is well established. To compensate for an increase in blood alkalies, the normal kidneys will excrete large amounts of basic ions (diuresis of alkaline urine) until the osmotic requirements of the blood are disturbed. When this occurs there is a diminution in the urinary output, while the blood carbon dioxide and nitrogenous constituents increase. It is uncertain whether this is due entirely (1) to the nitrogenous degeneration caused by toxic products or (2) to failure on the part of the kidney to secrete those products, or (3) to an attempt on the part of the kidneys to maintain the osmotic pressure of the plasma.

Pre-existing renal disease was long under suspicion as a factor in causing this secondary retention and bringing about the development of alkalosis. Wilkinson and Jordan¹¹ seem to have shown definitely that preceding renal pathology does exist in those cases of peptic ulcer which develop alkalosis while under alkaline therapy. By the use of the sulphate clearance test before alkaline therapy was begun they were able to show that kidney damage pre-existed in those patients who later developed symptoms of alkalosis, and did not exist in a control group of patients who responded well to the same treatment. Jordan and Kiefer⁴ in addition noted a definite clinical correlation between alkalosis and hypertension, arteriosclerosis and vascular nephritis.

While conceivable, there is no evidence at present that alkalosis cannot develop in patients with normal kidney function. In such cases, Rafsky² felt that these patients were sensitive to alkalies. It has however been shown by Wilkinson and Jordan¹¹ that these individuals are invariably those with impaired renal function.

Since the syndrome of high intestinal obstruction with vomiting is known to occur in the absence of kidney damage,¹⁰ it is conceivable that the syndrome of alkalosis (which it resembles closely) complicating peptic ulcer without pyloric obstruction may occur in the presence of normal kidney function provided enough additional factors besides the dosage of alkali are present.

(3) *Hyperalkalinization* In the normal person the ingestion of large doses of alkali is followed by a compensatory alkaline diuresis which

prevents the development of alkalosis. No satisfactory evidence has been adduced that prolonged increased alkali intake, per se can cause kidney damage in human beings. Experimentally, Addis et al¹² were unable to produce hematuria and hydronephrosis in a large percentage of rats fed on a long-continued alkaline diet, and microscopic study showed no abnormality in the kidney parenchyma, although the rats on an alkaline diet had higher blood ureas than a control group. Nuzum et al¹³ feel that an alkaline diet is capable of causing moderate hypertension and renal damage in rabbits. Stieglitz¹⁴ states that it may cause renal irritation and on occasion true nephrosis. Gatewood et al⁶ do not believe renal injury can result from the intake of alkali. It is probable that this factor is more dependent on the previous state of kidney function than on the amount of alkali ingested or its possible effect on a normal kidney.

Although it is generally accepted that the systemic effect of alkalies is due to the soluble carbonates and citrates, the action of the insoluble salts in fixing the gastric secretion and thus preventing the neutralization of the alkaline pancreatic juice permits the reabsorption of the latter into the blood from the small intestine thus tending to increase the blood alkali.

(4) *Insufficient chloride intake* Frown¹⁵ in experimenting with dogs deprived of salt in their diet, was able to produce symptoms similar to those seen in alkalosis. It is well known that patients on a Sippy diet have a daily salt intake of about two grams instead of the normal ten to fifteen grams. In this respect Euserman¹⁶ states that he feels that the use of the salt free diet in cases of hypersecretion is useless. He permits his patients enough salt to make the food palatable. By itself, this factor is probably unable to cause a clinically significant hypochloremia, but must be considered as contributory.

(5) *Hemorrhage* Boekus and Bank¹⁷ suggest that the chloride lost through hematemesis may be a factor in aggravating the alkalosis and delaying the response to therapy. This would seem to agree with the findings of Jordan and Kiefer,⁴ Hubble¹⁸ and Evans.¹⁹ It is doubtful whether hematemesis alone could ever be a primary cause but it probably should be considered as an important contributory factor.

In the large series studied by Jordan and Kiefer,⁴ the influence of gross hemorrhage on the success of therapy was shown to be of considerable importance. Out of forty seven unsuccessfully treated cases thirteen of which they attributed to hemorrhage three developed alkalosis. Undoubtedly the minor degrees of anemia present in other instances could be

normal may not occur until several weeks or more after the acute episode. Normal values for chloride excretion can be taken as one of the indications of the efficacy of treatment.

One of the most significant findings is the lowered values for the blood chlorides which may drop from 500 mg per cent to a level of 350 mg per cent. Enough sodium chloride should be given to keep the chlorides at a high level. Under adequate therapy it will return to normal in a few days. Periodic blood chloride determinations should be used as a means of checking the therapy.

The blood nonprotein nitrogen rises characteristically and often reaches values of 100 mg or more. Any value over 40 mg is considered indicative of retention. Similar rises are noted for other nitrogenous products such as urea, uric acid, and creatinine. Serum sulphates over 5.5 mg are considered abnormal. Under successful therapy the nonprotein nitrogen values return to normal slowly taking weeks or even months.

A valuable test in the diagnosis of alkalosis is the estimation of the alkali reserve (carbon dioxide combining power) of the blood which usually shows a marked rise especially in the more severe cases. Slight rises of 10 to 20 vol per cent are common. Tetanic symptoms are more apt to be manifest when the value reaches from 80 vol per cent to 100 vol per cent. Under proper therapy the carbon dioxide combining power returns to normal quite rapidly.

THERAPY

Treatment is simple and results in a prompt recession of symptoms and rapid improvement of the patient.

In the severe cases with vomiting and tetany, complete restriction of all foods and alkalies by mouth is the first therapeutic step. Hyper tonic or physiologic saline solution is then given intravenously or per rectum.²⁵ At least 20 grams of sodium chloride should be given daily by parenteral routes and when possible by mouth. This serves to control the emesis and rapidly raises the blood chloride to normal levels. Chloride replacement, which is the basis of the therapy, must be continued until the blood chloride reaches normal and a balance is established between intake and output as determined by daily urinary chloride determinations and occasional blood chloride values. Four thousand cc of fluid containing glucose should be given daily. As soon as clinical improvement is noticed the patient is put on a high carbohydrate high salt low protein liquid diet which is gradually changed to solids. Clinical improvement may be noted before the laboratory studies show normal values.

Although the administration of water and sodium chloride usually relieves vomiting it has

been shown experimentally⁴ that this treatment is not always successful, because in the cases with vomiting there is a deficiency of chloride and hydrogen ions (especially when the alkaline pancreatic secretion is not being lost). It would seem logical, therefore that replacement with hydrochloric acid should be the correct treatment. Along these lines Webster and Armour²⁴ managed to obtain spectacular cures by injecting hydrochloric acid intravenously into dogs which had lost so much gastric juice and body fluids that they could no longer respond to the use of solutions of sodium chloride. Further study of this method may give it a place in the treatment of alkalosis. In severe cases where saline solution does not help and where a marked disturbance of kidney function exists the cautious use of acid might be attempted.

Calcium therapy is useless, for no change occurs in blood calcium to suggest it as a causative factor. When tetany occurs during this syndrome, it is usually promptly relieved by the chloride therapy.

In the milder cases where the symptoms are merely suggestive of alkalosis and the clinician is astute enough to realize the fact, simple withdrawal of alkalies alleviates the disturbance. Here the problem of how to treat the peptic ulcer patient who is refractive to alkalies or has recovered from the severe, acute manifestations of alkalosis arises. In the former instance, where continued treatment with alkaline powder is desired it may be possible to build up a so called alkali tolerance by graded doses. It would perhaps be wisest first to determine the status of kidney function in these cases and to use this fact as a basis for treatment. In some instances, triple calcium phosphate may be substituted for the usual alkalies. In those cases where it is felt alkalies should not be used frequent feedings, mucin therapy, histidine nonspecific protein therapy, alumina cream, constant milk drip without alkalies, colloidal aluminum, and sedatives are worthy of trial. Atropine for relief of spasm and its possible effect on secretion may be used. Some combination of these therapeutic procedures will probably be effective. If chronic vomiting (occasionally self induced) is at fault and pyloric stenosis or spasm cannot be eliminated, then surgery is indicated.

In addition to specific therapy the case should be thoroughly studied and other factors eliminated. Anemia, if present, should be treated with iron or transfusions, if necessary. The presence of a renal lesion may require modification of a prescribed diet. In any ulcer case under alkaline therapy it may be advisable to make periodic examinations of the urine and if it is alkaline, it should not be permitted to exceed a pH of 7.

A practice to be cautioned against is the use

of alkalis in their usual form, that is, teaspoonful doses of a powder, because inaccurate measuring by the patient may lead to a great variation in dosage. For this reason Evans¹⁰ advised the use of alkalis in solution.

CASE 1 This thirty-one year old male truck driver was admitted to the Fifth Medical Service, Boston City Hospital, complaining of abdominal pain and vomiting. The patient was known to have had a duodenal ulcer for thirteen years. The diagnosis had been confirmed by x-ray examination on two occasions. Complete relief of ulcer symptoms had been obtained by means of diet and alkaline powders until eight months before admission. At first, belching developed, later to be followed by epigastric pain and distress. Therapy no longer helped

dirty and carious, and the gums showed definite pyorrhea. The eyegrounds were normal. Slight cervical adenopathy was noted. There was some tenderness from deep palpation in the epigastrium. The heart and lungs were normal. Blood pressure was 120 mm Hg systolic and 90 mm Hg diastolic. The muscles of the legs were slightly tender to touch. Reflexes were very lively but no tetany was noted. Temperature, pulse and respiration were normal.

Laboratory Data

On admission the urine showed a specific gravity of 1.011, a trace of albumin and a few casts. Twelve urine specimens between April 13 and June 19 showed specific gravities of 1.008 to 1.012, traces of albumin, hyaline casts and alkaline reactions. Hemoglobin varied from 54 to 77 per cent (Sahl).

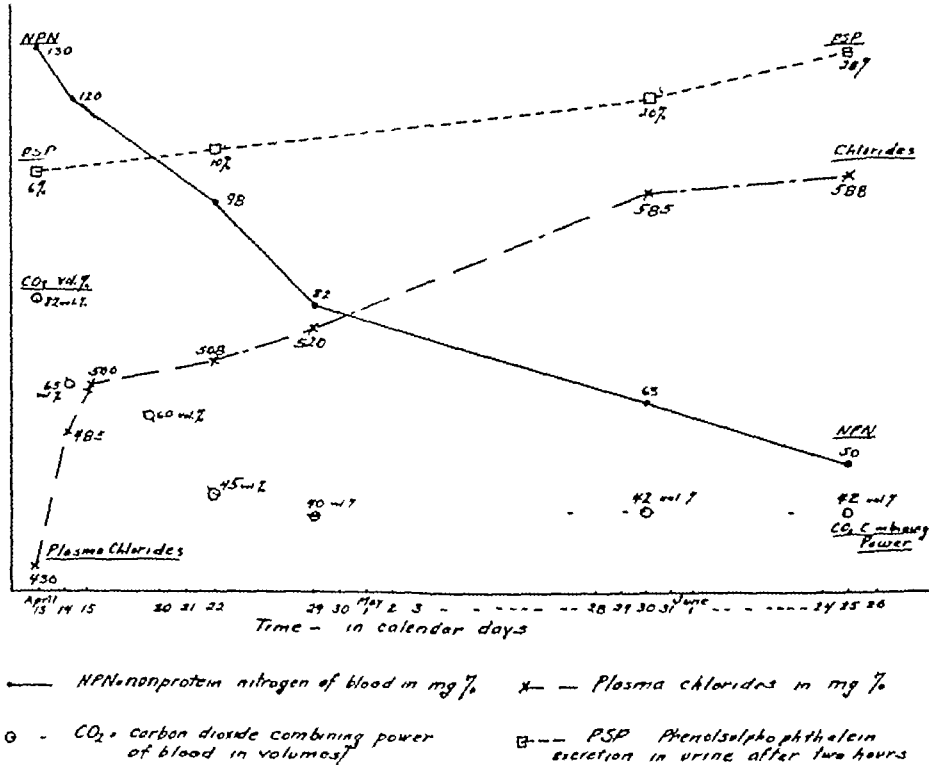


CHART 1 Laboratory data from Case 1

him, although for months he lived on milk, crackers and alkalis. Relief was secured by induced vomiting, which procedure was resorted to daily. Two weeks before admission he had a slight hematemesis for the first time. Following this he began to notice dizziness, nervousness and irritability. Shooting pains and aches in his legs developed. For several weeks, he had nocturia once or twice

Family history, social history and past history were essentially irrelevant except for the following data. He had had measles, mumps, pertussis, diphtheria and scarlet fever. He denied any renal disease or any symptoms referable to his genitourinary tract. In 1929 he was in the Boston City Hospital for treatment of duodenal ulcer. At that time the blood pressure was 125/80. Examination of the urine revealed a specific gravity of 1.022, no albumin or casts. The nonprotein nitrogen of the blood was 33 mg/100 cc. Renal function tests were not done at that time.

Physical Examination

Physical examination revealed a well developed and well nourished man in slight distress. His apparent weight was about 155 lbs. The teeth were

and red blood count from 2,840,000 to 3,840,000. Smears of blood were normal as were the white blood counts. A Kahn test was negative.

Stools showed persistent positive benzidine tests for occult blood for a month, after which they became negative.

The nonprotein nitrogen of the blood at the time of admission was 130 mg per cent, plasma chlorides 430 mg per cent, urea nitrogen 83 mg per cent, creatinine 6 mg per cent, and carbon dioxide combining power 82 volumes per cent. Phenolsulphthalein test showed an output of 4 per cent for the first hour and of 8 per cent output for two hours. A Mosenthal test showed fixation of specific gravity of urine (1.007 to 1.010) with a great increase in the night volume over the day volume.

X-ray examinations of the gastro-intestinal tract showed a slight amount of residue in the stomach at the end of six hours and a tender irritable duodenal cap. The roentgenologist made a diagnosis of partially obstructing duodenal ulcer.

Course

All alkalis were discontinued. The intake of fluids was increased to 4000 cc per day. For the first week the patient received daily 30 grams of

sodium chloride intravenously in the form of 0.9 per cent saline solution. Later sodium chloride 15 grams three times a day was given by mouth. Frequent feedings of a first week Sippy diet were allowed.

Under this régime definite improvement was noted. His muscle pains and nervousness disappeared rapidly. After one week vomiting ceased. Nocturia persisted for two months.

Change in the various constituents of the blood and urine are plotted in chart 1.

An x-ray examination on June 18 showed no pyloric obstruction. Upon discharge June 2, the nonprotein nitrogen of the blood was 50 mg per cent, plasma chlorides 588 mg per cent, creatinine 1.9 mg per cent and carbon dioxide combining power 42 volumes per cent. Phenolsulphonethylate output in two hours was .3 per cent. A flat plate of the abdomen revealed no kidney calcification. Blood pressure was 155 mm Hg systolic and 85 mm Hg diastolic.

The patient was discharged on June 27 definitely improved. He was told to use the prescribed diet and atropine but no alkaline powders. He reported at intervals that he has continued to be free from symptoms. In September 1935 the nonprotein nitrogen was 45 mg per cent and the urine showed a specific gravity of 1.010, a trace of albumin and a normal sediment.

Comment

In reviewing this case it is difficult at first to evaluate the many factors which precipitated the alkalosis. There is no evidence either in his history or the previous hospital records that he had renal damage. It seems odd also that he could tolerate alkaline therapy for so many years without any complications developing if this were the major factor. Probably it was the combined action of anemia, salt deprivation, hematemesis, excess of alkali and persistent vomiting which finally precipitated the full syndrome of alkalosis and hypochloremia.

The clinical picture and laboratory data are typical of this complication. The normal blood pressure throughout and lack of cardiac failure eliminate hypotension or congestive changes in the kidney as the cause for renal failure. The rapid improvement on saline therapy alone indicates that upper intestinal obstruction was not the cause of his symptoms.

CASE 2. This forty-eight year old male appraiser entered the Fifth Medical Service Boston City Hospital on September 22, 1935 complaining of abdominal pain.

Present Illness

Three years before admission he developed typical abdominal pains of duodenal ulcer and vomited blood. The diagnosis of ulcer was confirmed by x-ray examination. Relief was obtained by a Sippy régime and alkaline powders. After several months he was able to discontinue therapy and remained symptom free until July 1935. Pain and vomiting then returned. There was no bleeding.

From August 8 to August 17, 1935 he was studied at the Boston City Hospital. A diagnosis of obstructing duodenal ulcer was made and relief again secured by a Sippy régime and alkaline powders. At that time the urine was alkaline with a specific gravity of 1.010, no albumin or casts. Red blood count and hemoglobin were normal. Stools were free of occult blood. Nonprotein nitrogen was 30 mg per cent, blood pressure 125 mm Hg systolic and 80 mm Hg diastolic.

After several weeks the symptoms again recurred. Vomiting increased and soon followed each meal.

There was a loss of weight amounting to twenty-nine pounds in three months. Melena or hematemesis did not occur.

Past History

This was irrelevant except that nocturia once or twice had been noted for the past four years. He denied genitourinary or kidney diseases.

Physical Examination

Blood pressure was 120 mm Hg systolic and 80 mm Hg diastolic, and the pulse 70 per minute. Physical examination was essentially normal for his age and showed no abnormalities except pyorrhea and slight epigastric tenderness from deep pressure. The eye grounds and prostate were normal. The blood vessels were not sclerotic and there was no evidence of past renal damage.

Laboratory Data

At the time of admission the urine was alkaline, the specific gravity was 1.022, albumin and sugar were absent and the sediment was normal. Hemoglobin was 61 per cent, the red blood cells numbered 3,450,000 per cu mm, the white blood count and smear were normal. Kahn test was negative. Stools did not contain occult blood. Nonprotein nitrogen was .9 mg per cent.

Course

The patient was treated with a Sippy diet, sedatives, atropine and alkaline powders. In spite of this his distress continued and he vomited almost daily. An x-ray examination on October 1, 1935 revealed partial retention of the barium meal in the stomach at the end of six hours.

In addition to his abdominal pain and vomiting the patient began to complain of slight headache, tinnitus and cramps in his legs. The cramp-like pain in his legs became so severe by October 15 that alkalosis was suspected and confirmed by laboratory data. At this time the physical examination showed no change except pain on squeezing the calf muscles, very hyperactive reflexes and slight conjunctivitis of the lids. No tetany could be elicited.

On October 15, 1935 his urine was alkaline, specific gravity 1.010 with a trace of albumin but no casts. Nonprotein nitrogen of the blood was 110 mg per cent, plasma chlorides 500 mg per cent and carbon dioxide combining power 40 volumes per cent. Stools were negative for occult blood. Red blood count and hemoglobin remained the same. Blood pressure was 125 mm Hg systolic and 85 mm Hg diastolic. Phenolsulphonethylate excretion amounted to 10 per cent in two hours. Mosenthal test of the urine showed a fixed low specific gravity with a high night volume.

Alkalies were omitted and 30 grams sodium chloride and 3000 cc of fluids were given intravenously daily. There was rapid improvement of his symptoms, vomiting ceasing within a few days. Detailed changes in his laboratory data are plotted on chart 2.

A pyelogram showed a shadow suggesting a calculus in the right kidney. Blood calcium was 8.9 mg per cent, phosphorus 3.6 mg per cent, phosphate within normal limits.

On November 15, 1935 the patient had recovered enough of his kidney function to withstand the performance of a posterior gastro-enterostomy. Convalescence was uneventful. At the time of discharge his blood pressure was 130 mm Hg systolic and 85 mm Hg diastolic. The urines were alkaline with a specific gravity of 1.014, no albumin and a normal sediment. Phenolsulphonethylate test showed 40 per cent output in two hours. The nonprotein nitrogen of the blood was 31 mg per cent.

Comment

This patient presented what is better called hypochloremia rather than the complete alkalosis syndrome. If treatment had not been instituted early, the carbon dioxide combining power of the blood probably would have increased and more marked symptoms resulted. The history of longstanding nocturia and the possible presence of kidney stone point to kidney damage as one of the precipitating factors. In addition, persistent vomiting, low salt intake, and slight anemia probably all played a rôle. It is difficult to say why the syndrome should develop suddenly while under observation unless it was that he received more alkaline powders after admission than he had taken at home. Determination of blood chlorides on admission would undoubtedly have shown changes from normal. Because of the early diagnosis in this patient, a much more rapid improvement was noted than in the first case

when he began to have frequent attacks of nausea and vomiting. Thinking these were due to his ulcer, he took increasing amounts of alkaline powders, but failed to obtain the usual relief. He became quite irritable, and complained of severe occipital headaches. On July 8 vomiting persisted, and he complained of tingling sensations over his entire body. His muscles felt stiff and twitched spasmodically. He was admitted to the Medical Service (Service of Dr. Crockett) of the Massachusetts Memorial Hospitals at 11:15 P. M. of that day.

Examination showed an apprehensive, dehydrated, flushed, somewhat emaciated man. The temperature was 99.8° F., respirations 12, pulse 110. Conjunctivæ were markedly injected. Fibrillary twitchings of the calf muscles were visible, and there was marked carpedal spasm. Trousseau and Chvostek signs were positive bilaterally. Knee jerks were hyperactive. The abdomen was spastic on

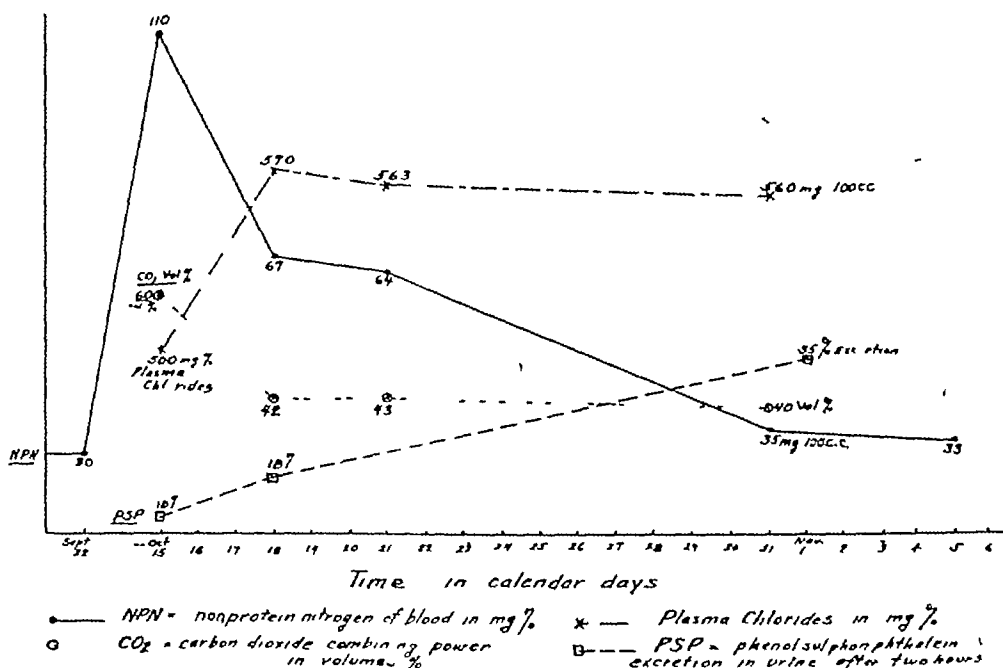


CHART 2 Laboratory data from Case 2

The blood chlorides and carbon dioxide combining power fell to normal within a few days, while the phenolsulphonphthalein values and blood nonprotein nitrogen took much longer to return to normal. It is interesting to speculate how much renal damage resulted from this complication.

In spite of the fact that this patient had partial pyloric obstruction, his vomiting ceased rapidly after chlorides were given, showing that his symptoms were due to alkalosis and hypochloremia and not to mechanical obstruction of his upper intestinal tract.

CASE 3 This patient is a fifty-eight year old man with a ten-year history of peptic ulcer for which he had taken alkaline powders and a moderately strict ulcer diet. In 1934, he contracted lobar pneumonia. During his convalescence he was put on an unrestricted diet which he continued after leaving the hospital. On discharge, his record shows that he had a slight trace of albumin, many coarsely granular casts and a moderate number of leucocytes in his urine.

He was free from symptoms until March, 1935, when he complained of gastric distress after meals. He returned to his previous diet, including the use of alkaline powders, and felt improved. The amount of alkalis ingested varied from 7 to 15 grams daily. He continued on this régime until the end of June, 1935,

pressure and there was some tenderness in the left upper quadrant. Peristalsis was visible in that region. The rest of the physical examination was negative.

Laboratory Data Red blood count was 5,180,000, hemoglobin 85 per cent. Urine was alkaline and contained a very slight trace of albumin. The sediment contained a few pus cells and rare blood cells, which disappeared in three days. But the urine remained alkaline and a slightest possible trace of albumin was still present when the patient was discharged. The nonprotein nitrogen of the blood was 70 mg per cent, uric acid 95 mg per cent, whole blood chloride 355 mg per cent.

The patient was given 1500 cc of physiologic saline solution intravenously. The following morning he received an equal amount of saline solution with glucose intravenously and this was repeated in the forenoon. He then seemed markedly improved. Gastric peristalsis was still visible in the left upper quadrant and a latent Trousseau sign was present in both arms. He was then put on a liquid diet of high caloric value which included 25 grams of sodium chloride daily. On the third day the nonprotein nitrogen of the blood rose to 80 mg per cent, urea was 66 mg per cent, uric acid fell to 5 mg per cent, and the blood chlorides had in

creased to only 360 mg per cent. Because of the kidney damage and nitrogen retention, the protein intake was restricted to a minimum. On this diet his laboratory findings rapidly returned to almost normal levels by the ninth day. On a chloride intake of 25 grams daily he was eliminating 1.5 grams. On the third day an alveolar carbon dioxide determination was done and showed 41 mm. Hg. On the eighth day of his stay in the hospital x-ray examination showed a constant filling defect in the pyloric region. Analysis of gastric contents showed normal fasting acid and normal response to

hot summer weather may have had some effect in the way of dehydration and chloride loss. Although anemia was not present to any degree he did show occult blood in his gastric juice on one analysis and in all stool specimens. It is interesting to follow the course of his laboratory studies, noting the parallelism in favorable response to therapy as marked by the drop in nonprotein nitrogen and the rise in the blood and urinary chlorides. Although no blood carbon dioxide determinations were done, there was undoubtedly some degree of alkalosis present at the start along with the other changes

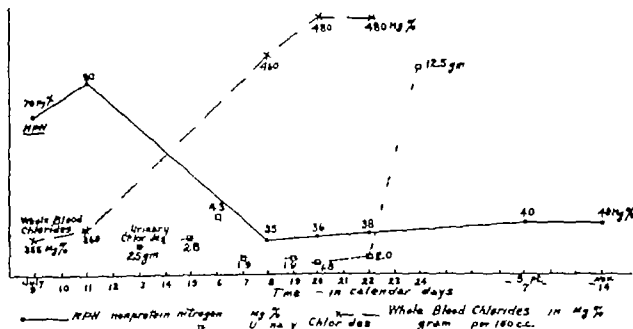


CHART 3 Laboratory data from Case 3

stimulation but there was occult blood which was present also in the stools up to the day of discharge. He was advised that the lesion he had might possibly be a malignant growth and a laparotomy was suggested. Because of his marked clinical improvement the patient refused surgical operation and was released from the hospital. He then went to a private physician who advised resumption of a modified diet and alkaline therapy.

Six weeks later the patient came again to the hospital. A phenolsulphonphthalein test showed an excretion of 15 per cent in the first hour and 5 per cent in the second hour. The nonprotein nitrogen of the blood was 40 mg per cent. The urine showed a slight trace of albumin. He stated that he was taking only occasional small amounts of alkali. He had noticed that he was having some nocturia which was unusual for him. Nine weeks later he was seen again and at this time his phenolsulphonphthalein excretion showed a return of 35 per cent in the first hour and 15 per cent in the second hour. The blood nonprotein nitrogen was 40 mg per cent. The urine showed a slight trace of albumin. A flat x-ray film of the kidneys at this time showed no evidence of calcification in the genitourinary tract but there were deposits of opaque material in the gluteal muscles. (On questioning the patient stated that he had received some injections into the buttock five years previously. The Wassermann Kahn and Hinton tests however were negative.)

Comment

In view of the fact that renal injury was present one year previous to the onset of alkalosis one can suspect, although not prove that this may have been a factor in this case. Here we see the early symptoms stimulating a recurrence of the ulcer developing slowly only to be aggravated by self-medication with increasing amounts of alkalies. The clinical course was obviously accelerated by the vicious cycle of vomiting. The nervous system manifestations were consistent with the severe hypochloremia.

The peculiar curve of urinary chloride output is possibly due to two factors. First, although he was at first put on a daily intake of 25 grams of sodium chloride to which he responded a change to 5 grams was made on the sixteenth day which accounted for the drop in excretion. Beginning with the nineteenth day 20 grams daily were given. The lag in response to this amount might be attributed to compensation of a pre-existent chloride deficiency. Although the question may be raised that the vomiting in this patient (as in Case 2) may have been due to pyloric obstruction and not alkalosis with hypochloremia we feel that in view of the rapid improvement in response to chloride therapy there was probably only a minimal and insignificant obstruction. Very interesting to us were the follow-up studies which showed evidence of kidney dysfunction for at least four months. Whether this may be considered a sequela to the alkalosis or whether it was previously existent is a problem for speculation.

GENERAL DISCUSSION

These cases may be considered as representative types of alkalosis and hypochloremia, complicating the alkali treatment of peptic ulcer. Since complete laboratory studies are rarely performed on cases of peptic ulcer there are probably many instances of milder degrees of alkalosis not recognized clinically. If the possibility of this complication is kept in mind, we feel that it may explain some of the untoward symptoms encountered during the routine alkaline treatment of peptic ulcer. Since the chloride therapy is so simple and effective, and because of the danger of permanent renal damage or death early treatment should always be instituted.

Several investigators¹⁰⁻²⁵ have noted that calcification of the kidneys or tubular nephritis may follow persistent and untreated alkalosis. X-ray examination and renal function tests to detect these complications are advisable. We believe that occasionally it may be the cause of severe renal damage which develops after alkalosis.

SUMMARY

Three cases of peptic ulcer are reported in which treatment by the usual alkaline and Sippy régime resulted in the development of hypochloremia and alkalosis. This syndrome is known to follow persistent pyloric obstruction. It is not so well appreciated that it may also develop without organic obstruction if alkaline powders are given in the presence of impaired ability of the body to utilize basic ions. Persistent vomiting, renal disease, anemia, hematemeses, low salt intake, excessive perspiration, liver disease and excessive doses of alkalis can all impair the acid-base regulating mechanism. Persons with impaired renal function are invariably sensitive to small doses of alkalis. It seems probable that alkalosis can develop in persons with normal renal function, only if one or more additional factors besides excessive intake of alkalis are present. There is also evidence that persistent alkalosis can impair renal function by causing calcification or tubular nephritis. Nitrogen retention invariably accompanies alkalosis and hypochloremia. A characteristic clinical as well as laboratory picture develops which makes the diagnosis relatively easy. Sodium chloride therapy is highly successful.

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AN UNUSUAL CASE OF NEVUS VASCULOSUS*

BY FRANK H. BAEHR, M.D.†

HEMANGIOMA or nevus vasculosus is found in several clinical forms and is commonly classified as (a) nevus flammeus, the superficial, nonelevated discoloration of the skin, usually called the port-wine type, and (b) nevus vasculosus, a deep-seated circumscribed or diffuse, elevated tumor formation. They are usually present at birth with cause unknown, and are said to occur more commonly in females.

Recently an unusual case of nevus vasculosus came under my care, which I believe is of interest.

G. F., an Armenian aged forty-three, complained that a tumor on his left forearm, present since birth, had doubled in size since it was hit with a hammer while he was at work six months before, i.e., December 14, 1931.

*Read at the Annual Meeting of the Hampshire County Medical Association, May 15, 1934.

†Baehr Frank H.—Consulting Surgeon, Wesson Memorial Hospital and Springfield Health Department Hospitals. For record and address of author see This Week's Issue, page 1253.

Physical Examination. A well-developed and well-nourished white male. The general examination was essentially negative. Local examination of the left arm revealed a lobulated, bluish tumor on the volar surface of the forearm, extending from the wrist to the elbow (figs 1 and 2). When the arm was raised, the tumor mass decreased in size and palpation revealed a mass of tortuous vessels and blood sinuses. There was no evidence of superficial ulceration.

Treatment. On June 8, 1932, a preliminary injection of 0.5 cc invert sugar solution (75 per cent) was made just above the wrist. Subsequent injections into the blood vessels of the tumor were made at two to four day intervals, in doses up to 30 cc., until September 9, 1932, when the tumor mass had shrunk to about one-fifth its former size (fig 3). A short beveled 21 gauge needle was used. On June 24, 1932, 5 per cent sodium morrhuate was injected into three different points, 11 cc in one area and 22 cc in two different areas. The writer felt quite certain that the needle was in the venules on each occasion but a subsequent visit showed sloughs at the points where the 22 cc injections were made (fig 2). It was believed that



FIG. 1



FIG. 2



FIG. 3

5 per cent sodium morrhuate was too strong a sclerotic agent to use in the injection treatment of hemangiomas. In all 590 cc. invert sugar were used



FIG. 4

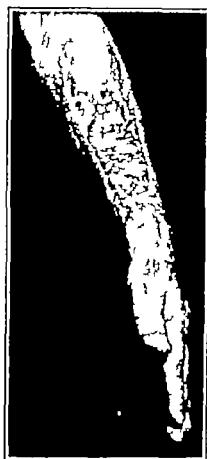


FIG. 5

In the thirty-five injection treatments. As the solution was being injected into the venules they became pink, remaining so for several minutes finally turning to a bluish grey. Following each injection the patient had a sharp cramp-like pain which extended from his left wrist to his left shoulder lasting for about five minutes.

Operation As all visible blood vessels of the tumor mass were sclerosed, it was considered advisable to remove the fibrotic mass. On October 5, 1932, at the Springfield Hospital (No. 107586), under ether anesthesia, an eight inch elliptical incision was made on the anterolateral aspect of the left forearm and the remains of the tumor mass were excised. An eight inch parallel incision was made on the anteromedial aspect of the left forearm, the skin edges undermined effecting a sliding closure of the elliptical incision with the use of dermal sutures. The patient had an uneventful recovery and could have been discharged from the hospital at the end of one week, but, due to poor family and financial conditions, he remained on the ward until the wounds had completely healed, a total of twenty three days (figs. 4 and 5).

The patient was seen at intervals to January, 1933, when he was discharged as completely relieved, having full use of his left forearm, wrist and hand without any discomfort. He was again seen in September, 1933, and stated that, in the interim, he had been working and that his left forearm felt practically normal. Both forearms measured approximately the same in size.

Pathological examination by Dr. Frederick D. Jones: "Specimen consists of skin, subcutaneous tissue and blood vessels, measuring eighteen by eight cm. It is elliptical in shape, soft and shows, on the outer side, wrinkled epidermis. The inner side shows fat, connective tissue and vascular channels, giving it a dark red mottled appearance. On microscopic section, the epidermal layer is somewhat thickened. The vascular channels are widely dilated and supported by thin connective tissue septa. No capsule present." **Diagnosis:** Nevus vasculosus.

Light¹ has reported remarkable success with the use of sclerosing substances, as in varicose veins, in a case of a very large nevus vasculosus of the left ankle. Using this method of treatment, one must keep in mind the usual complications, as infection, emboli, and so forth, but with proper technique these are practically negligible. Ormsby² states that the most efficient method of treatment is with radium. Other means are refrigeration with carbon dioxide snow or liquid air, electrolysis and endothermy. All seem to agree, however, that there are occasions when no physical methods are advisable and even surgical procedure is not feasible, either because the tumor is too large or too deep, or the location is such that any amount of scarring would be disabling or objectionable. In such cases, it would seem that the injection of sclerosing chemicals should be considered.

On the average cavernous type, the combination of preliminary injection treatment and late surgery, after the tumor mass has been greatly diminished in size, seems to be a satisfactory procedure.

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MEDICAL PROGRESS

PROGRESS IN ANESTHESIA IN 1935

BY RUSSELL F. SHELDON, M.D.†

RECOGNITION of his specialty by the constituted authorities is the natural desire of any practitioner who devotes his attention to a single branch of medicine. Two events in 1935 brought the culmination of this desire nearer to every American anesthetist.

In June for the first time in history, a combined meeting of the Canadian and American Medical Associations was held at Atlantic City, New Jersey. In the American Medical Association anesthesia is not given a definite subdivision, it is neither a part of surgery (surgeons specializing in anesthesia) nor of pharmacology and therapeutics, it takes its place, wherever one can be found, in the "Section on Miscellaneous Topics." But the Canadian Medical Association has a Section on Anesthesia. For the joint session, therefore, the Section on Miscellaneous Topics had to be considerably dressed up to share a program with the Section on Anesthesia of the Canadian Medical Association. With Dr.

John S. Lundy* of the Mayo Clinic as Chairman, and Dr. Philip D. Woodbridge of the Lahey Clinic, Boston, as secretary, the Section on Miscellaneous Topics made a very creditable showing. One hundred and eleven American anesthetists registered for this joint session. (For the section which met in the same hall in the afternoon, three were registered.)

The second event of 1935 was the start of a national plan for the certification of American anesthetists, sponsored by an active committee of the New York Society of Anesthetists, resulting in the award of the designation "Fellow in Anesthesiology" to those members of that Society who met the rigid standards set by the committee. This committee, headed by Dr. T. Drysdale Buchanan, deserves the highest praise, and the thanks of every American anesthetist for the careful and painstaking way in which it went about its work. Standards, conforming to those required in other specialties of medicine.

†Sheldon, Russell F.—Assistant Anesthetist, Massachusetts General Hospital and Massachusetts Eye & Ear Infirmary. For record and address of author see "This Week's Issue" page 1258.

*Dr. Lundy's address: The Clinical Use of Anesthetic Agents and Methods' was the Leader in the *Journal of the American Medical Association* for June 29, 1935 with the footnote: Section on Miscellaneous Topics Session on Anesthesia. No mention of the fact that the meeting was held jointly with the Section on Anesthesia. Canadian Medical Association is made.

icine, as laid down by the national boards were first adopted, then the committee certified its own members by these standards. After that it was in a position to certify others. The New York Society, founded in 1905, had members in twenty three states, and was local therefore only in name, which has now been changed to the American Society of Anesthetists. The term Anesthesiology, includes anesthesia in all its forms, inhalation (gas) therapy and resuscitation. It is now felt, therefore that the Fellows in Anesthesiology of the American Society of Anesthetists constitute a nucleus which at the 1936 convention of the American Medical Association may develop into the formation of a section on this subject and thus national recognition of anesthesia as a specialty. The American Medical Association Section on Surgery in business session at the Kansas City meeting appointed R. M. Tovell, Chairman, H. B. Stewart and F. T. Romberger to act in co-operation with representatives from the American Society of Anesthetists, and the American Society of Regional Anesthesia Inc. to investigate the possibility of formation of a National Board in Anesthesia, and report at the next annual meeting."

The British Anesthetists⁷ have united to form a group similar to the Fellows in Anesthesiology in this country by the award of a Diploma in Anesthesia, for which rigid standards, as manifest by written and practical examinations, are required. The Board for the award of the diploma meets in regular session twice each year.

Not only American anesthetists, but those all over the world mourn the death on February 22, 1935, of Elmer I. McKesson, one of the greatest teachers and missionaries of gas anesthesia, and inventor of the apparatus that bears his name.

In 1935 an increase in the interest in the specialty of anesthesia was evident. A local example will suffice to show this trend. The Boston Society of Anesthetists added seven new members, its constitution limiting membership to doctors of medicine who confine their practice to anesthesia. Its mailing list, including physicians who are interested in anesthesia, but do not meet the constitutional requirement, has increased by twelve.

The keynote of the 1935 convention at Atlantic City was the teaching of anesthesia in order to supply the demand that exists among younger practitioners to learn more about it. It is becoming obvious that the practice of that branch of medicine known as anesthesia by others than physicians is to be checked not by legal means but by the supply of a superior, well grounded and trained medical personnel.

This process, of course takes time. "The acquisition of a mastery of anesthesia in art and in practice, with a thorough appreciation of the underlying physiology and pharmacology, involves for the average medical graduate an intensive training of not less than three years."

No attempt will be made to list all the articles on anesthesia which appeared in medical publications during 1935. As in the past, the writer readily admits that many of the best articles may have escaped his notice. However, a certain few are worthy of special mention either on account of the introduction of a new drug or principle, or on account of the classification or emphasis of methods and drugs already known.

The study of costal and abdominal respiration in relation to anesthesia, has been thoroughly carried out in dogs by Gesell and Moyer,¹⁻³ but as to its application to human beings the pneumographic studies now being carried out by Miller will give positive information. Alcock Berry and Daly⁴ show the effect of many drugs on the pulmonary circulation. Stella⁵ and Wright,⁶ by experimental study, show that not only may the respiratory center be stimulated centrally, but peripherally by action on the sino auricular node.

At Vanderbilt University, Emerson⁷ has done a vast amount of work on the autooxidation rate of surviving brain tissue in rats after the administration of almost all the current anesthetics and adrenin, in an effort to find the cause of anesthesia. There does not seem to be a uniform reaction applicable to all drugs. The same author⁸ presents a study on the effect of ether on the bioluminescence of the firefly, alive or dead, the operating room application of which seems rather far fetched.

Inhalation Anesthesia. Ether remains the standard for the judgment of anesthetic drugs by inhalation. In his new position as director of the division of anesthesia at Bellevue and allied hospitals, Roventine is concentrating on simple gas-ether anesthesia for a year, for he feels that it is essential that men new in the specialty be grounded in those agents. Kemp⁹ would be content to go no farther as he feels that with proper premedication ether is the ideal general anesthetic.

It must be recognized that there are other agents. Poe¹⁰ pleads for a more general use of ethylene which he feels has been wrongly condemned in many institutions. The increasing use of cyclopropane is reflected in the number of articles regarding it. Seevers, Di Fazio and Evans¹¹ offer a comparative study with ethylene on body saturation and desaturation. In this reviewer's opinion the best clinical presentation on cyclopropane appeared in this *Journal* from

the pens of Sise, Woodbridge and Eversole¹² of the Lahey Clinic "Because it apparently combines less toxicity with fairly powerful anesthetic action it could conceivably encroach on the field of all the other commonly used anesthetic agents" Because of the large amounts of oxygen (80-85 per cent) used with it, Sise,¹³ finds it especially valuable for thyrocardiac patients Rovenstine¹⁴ extols its use in thoracic surgery Romberger¹⁵ gives various points in technique and presents a chart on signs and phases A statistical study of postoperative morbidity in 2200 cases is presented by Schmidt and Waters¹⁶ It is always used with the soda lime filter Caution in its use is emphasized by all writers It is now easily obtainable from all manufacturers, one new development being the introduction by Squibb of two and six gallon "Amplons"

Trichlorethylene, ordinarily used in dry cleaning, nonexplosive and noninflammable, has been offered for anesthetic use A study of its pharmacology is published by Krantz, Carr, Musser and Harne,¹⁷ and on its clinical use in 300 cases by Striker, Goldblatt Warm and Jackson¹⁸ This drug, however, is hardly beyond the experimental stage

Vinethene, or divinyl oxide, has not apparently made great gains in popularity Bourne and Raginsky¹⁹ discuss its pharmacology, and Marvin²⁰ its clinical use

Rectal Anesthesia Shipway²¹ from England reports a series of 1600 administrations of avertin Though paraldehyde is much used by rectum as a basal anesthetic, the 1935 literature, except in obstetrics, provided no startling article

Intravenous Anesthesia The use of this method is also on the increase, Hale²² states "Administration of this type of anesthesia, even for periods of a few minutes, demands the services of two individuals, one to inject the solution, the other to provide for and supervise respiration

Intravenous anesthesia by means of the barbiturates is valuable, but potentially dangerous

Intermittent administration is essential to success" The best presentation on the use of evipal also appeared in this *Journal* a report from the Massachusetts General Hospital by Garney and Cohn²³ Its value for brief surgical cases is stressed

Evipal, however, is a German preparation, and it is not surprising that other barbituric acid derivatives have been produced by American chemists Lundy²⁴ reports on the use of two new barbiturates, one of which, now called pentothal is likely in American institutions to displace the German product With the American product there is said to be less depression of respiration but to combat this, Lundy²⁵ has

combined 25 mg of coramine to each 1 cc of pentothal

Spinal Anesthesia There is as usual a vast number of publications on this subject, but, again in this *Journal*, Saklad²⁶ leads the field in an extremely valuable classification of drugs, methods and indications which definitely clears up a situation which to many has been decidedly confusing As to the drug used he says "Procaine should be the drug most often used under all ordinary conditions"

Sacral and Caudal Anesthesia From the Mayo Clinic, Campbell²⁷ presents the most thorough work on this subject

Regional Anesthesia The technique of nerve blocking for various orthopedic operations is described in detail by Lundy and Tovell²⁸ Zellhoefer²⁹ illustrates the increase in comfort and saving of time to patients, and of material to the hospital, in the healing of thyroidectomy wounds under regional anesthesia in comparison with local anesthesia

Premedication Calderone³⁰ shows that the value of premedication by morphine and the barbiturates is not in lessening the amount of ether used, as has generally been believed, but lies in the mental and physical relaxation they produce

Therapeutic Use From the Boston City Hospital³¹ has come some interesting work on the use of carbon dioxide and oxygen in cases of dangerous paralytic alcoholism In spite of the fact that some controversy has arisen there is no question that Robinson and Selesnick have saved lives by this therapy

Helium Physiologic and pharmacologic studies by Barach³² on the use of this very light gas have led to its clinical use in cases of respiratory obstruction Used ordinarily with one-third oxygen, there is (1) a marked decreased effort in filling the lungs, (2) an increased volume of oxygen admitted to the lungs, (3) an increased velocity of air movement, and (4), a combination of these effects Barach,³³ and Maytum, Puckman and Boothby³⁴ show its almost miraculous effect in the treatment of severe intractable asthma

General Considerations 1 Explosions Finch,³⁵ from England, discusses the electrical ignition of gases, and methods for its prevention 2 The Thymus Superstition From the Children's Hospital in Boston, Hudson³⁶ questions the value of preanesthetic x-ray of the thymus routine in many clinics and also its treatment The title excellently expresses his opinion Waldbott³⁷ continues his allergic studies and concludes that the "Condition termed thymic death is a preallergic phenomenon similar to, or identical with, anaphylactic shock" Henson³⁸ upholds the older view, supported by

many pathologists that status lymphaticus is a reality, not a superstition.

For a single article giving the picture of anesthesia in 1935 Waters¹⁰ offers the best presentation with description of the carbon dioxide absorption technique and the use of cyclopropane.

Resuscitation The proponents of coramine are gaining. Reports from Kilian¹⁰ in Germany, and Wood¹¹ in this country show that there is value in this drug for respiratory stimulation. Maloney¹² has studied caffeine coramine and metrazol and Barlow¹³ a similar series of anaesthetics but at present the relative merits of these drugs have not been clarified. That they have some value however is clearly demonstrated.

Postoperative Complications Papoport¹⁴ from the Beth Israel Hospital has the best report for the year on these complications following general and spinal anesthesia.

Obstetrical Anesthesia This is almost a situation of *tot homines, tot sententiae*. In an analysis of replies to a questionnaire sent to twenty-four clinics Gould and Hirst¹⁵ find a striking lack of unanimity of type and technique of obstetric analgesia and anesthesia. According to them "The ideal method has not been introduced." Locally, however, this reviewer feels that the "situation is well in hand" and that expectant mothers are assured of safe and satisfactory amnesia and anesthesia.

As in the 1934 report thanks are again expressed to the Reading Report Group of the Boston Society of Anesthetists for its co-operation and assistance.

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CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT, M D

TRACY B MALLORY, M D, *Editor*

CASE 22251

PRESENTATION OF CASE

A fifty-five year old American business man was admitted complaining of abdominal pain.

The patient felt comparatively well until about a year before entry, when he "suddenly" developed pain in the left lower quadrant. The pain was constant and varied from a dull gnawing to a sharp stabbing character which was sufficiently severe at times to cause him to double up. There was no evident relationship to meals and at no time did it interfere with his rest at night. He was treated palliatively for about a month and the discomfort ceased as suddenly as it had begun. Subsequently he felt well until about four months before entry when he noted that he was losing weight. His weight at the onset was 155 pounds and at the time of admission 141. Concomitantly he observed a moderate loss of strength and a recurrence of the left lower abdominal discomfort. The latter was no longer so severe as it had been previously but he was always conscious of its presence, usually as a sensation of gurgling and distention. There was at no time associated diarrhea, melena, nausea, vomiting or fever—nor was there impairment of his appetite. His bowel movements had been costive for many years and he usually took mineral oil to insure a daily evacuation. There was no change in either the frequency or character of the stools.

Five years before coming to the hospital a physician told the patient that he had sugar in his urine. He was given a diet which caused his weight to decrease from 180 to 155 pounds.

Physical examination showed a well-developed and nourished middle-aged man in no evident discomfort. The skin was inelastic and there was general evidence of weight loss. The heart was normal. The blood pressure was 140/75. The lungs were clear. The abdomen was scaphoid in appearance and peristaltic waves were visible near the umbilicus. Hyperperistalsis was audible. Deep in the left iliac fossa a questionable mass was palpated. No details were noted.

The temperature, pulse, and respirations were normal.

Examination of the urine was negative. Examination of the blood showed a red cell count of 5,480,000, with a hemoglobin of 90 per cent. The white cell count was 10,200, 72 per cent polymorphonuclears. Repeated stool examinations showed no evidence of occult blood. The nonprotein nitrogen of the blood was 32 milligrams.

A barium enema met with obstruction just beyond the rectosigmoid junction. After some time a small amount of barium trickled through the markedly narrowed sigmoid. The narrowing involved an area of about 10 to 12 centimeters, the most pronounced narrowing being 5 centimeters in length. Proximal and distal to the narrowing, definite diverticula were visible. The mucosa of the upper portion of the narrowed region was swollen but intact, beneath the lesion the mucosa was incompletely demonstrated. On the following day another barium enema was administered. After the patient was given amyl nitrite the proximal two-thirds of the narrowed area dilated somewhat and there were definite diverticula visible in this region as well as at the rectosigmoid junction. The distal 4 centimeters of the narrowed lesion did not dilate. Longitudinal lines running through this area had the appearance of mucosal folds. The remainder of the colon and appendix gradually filled.

At the end of one week a laparotomy was performed.

DIFFERENTIAL DIAGNOSIS

DR E PARKER HAYDEN. This is a history of the onset of left lower quadrant pain which persisted until some sort of palliative treatment was instituted. One would assume that this consisted in the institution of a liquid or soft diet, possibly with the use of mineral oil, thus eliminating what were presumably obstructive symptoms. On the other hand, if the pain really was constant, that fact would suggest that it was not a case of obstruction alone but that there was a low-grade inflammatory process associated with it. All of the symptoms were relieved, by the institution of this palliative treatment, for a period of about eight months during which time no blood was noted and there was no recurrence of the symptoms.

The x-ray data in this case are very complete and would seem to clear up the diagnosis, though this may not be so. The extent of the narrowing was 10 to 12 centimeters, which is a little long for a malignant narrowing in that locality in most instances. The most pronounced narrowing was 5 centimeters in length. Definite diverticula were visible both above and below the narrowed area. The mucosa above was swollen and intact, whereas below the constriction it was incompletely demonstrated. The re-

port does not say whether it was thought to be normal

Thus we know the patient had diverticula present, and one would assume without much question that there existed some degree of diverticulitis, apparently not acute but probably the sort of chronic diverticulitis that produces a narrowing of the lumen and a thickening of the whole bowel wall without any very acute inflammatory symptoms. The fact that there occurred some relaxation with amyl nitrite suggests that a good deal of the narrowing was due to spasm. The mucosal folds above the narrowed area were normal. When there exists an inflammatory structure for that length of time one is apt to find ulceration of the bowel wall above the narrowed area. Apparently that was not the case here. Simple strictures of the bowel are quite uncommon in that region. They are usually lower down. The only nonmalignant strictures I have seen at that level were produced by radium treatment to the cervix or by diverticulitis.

The amyl nitrite failed to relax the area of most pronounced narrowing, which was at the lower end. It is possible that this individual had a carcinoma superimposed on diverticulitis. The loss of weight must be explained in some way. The lack of blood in the stools is against neoplasm but nevertheless does not absolutely exclude it. Another possibility is that he might have had a very small carcinoma in the sigmoid which had intussuscepted, producing the somewhat unusual barium enema picture. That may be the reason the mucosal folds did not show up in the lower part. It occasionally happens also that one sees an adenocarcinoma which does not involve the mucous membrane but is entirely perirectal. I have happened to see two such cases, with a simple narrowing of the bowel and no interference with the mucosal pattern. That may possibly be the situation here. One must also think of the possibility of a lymphoma of the rectum, another tumor which may not disturb the mucosa greatly. I think it is difficult to say with certainty just what went on here, but we have a barium enema demonstrating the presence of diverticula, and the most logical conclusion would be to say that the patient had a very low grade chronic diverticulitis, quite possibly with a carcinomatous degeneration in one section of it.

DR. AUBREY O HAMPTON. I think this was an exceptional case. I know what the patient had and I think about nine times out of ten we are able to give a little more accurate final diagnosis than we did on this. The note was made that we would like to re-examine the patient after two or three weeks to see if this lesion had changed, hoping that if it was diverticulitis it would, and if it was cancer it would not. Here is the defect that was described as

5 centimeters in length and rigid, that is, there was no muscular activity, nor did it relax after amyl nitrite. When Dr Schatzki did the examination he was fairly certain the patient had had diverticulitis and he was worried about the mucosa in this area. Dr Holmes and I saw the films with Dr Jones and we thought that one end of the lesion looked like carcinoma and the other end did not, which made it very difficult to exclude carcinoma. These lines do look like mucosal folds and yet scirrhus carcinoma will have the same lines in it sometimes. So we were not justified in saying that the patient just had diverticulitis and we were not justified in saying he had carcinoma. We had to admit that this was one case where we could not differentiate diverticulitis and carcinoma. I believe we can usually differentiate these two lesions much better than the surgeons.

DR. DANIEL FISKE JONES. This is a very interesting case in that it was impossible to make a positive diagnosis, and yet from various things it was quite evident that the patient should be operated upon. Here was a man complaining of very little except weakness and some abdominal discomfort which we eventually decided was really considerable pain. It was evident from this man's appearance and manner that he made light of all his symptoms. The symptoms had been going on for at least a year, starting with pain in the left lower quadrant. He improved but later had much rumbling of gas and pain in the lower abdomen. The character of the pain, as gathered from the history suggested obstruction. He had been losing weight for four months. He looked thin and uncomfortable, and had had much discomfort in the last two months due to pain in the lower abdomen and difficulty in getting the bowels to move.

With the tender mass in the left lower quadrant the first thing thought of was a diverticulitis. We then went ahead and tried to prove that it was not a diverticulitis. There was no blood in the stools. Patients with diverticulitis and without carcinoma have blood in the stool in about 6 per cent of the cases. It is therefore only reasonable to assume when the roentgenologist makes a diagnosis of diverticulitis and blood is present in the stool that it will be diverticulitis in only about 6 per cent of those cases. You must operate in such cases to make the diagnosis positive. In spite of the fact that there was no blood in the stool in this case the roentgenologists could not say that there was no carcinoma. When men like Dr Holmes, Dr Hampton, and Dr Schatzki say that the condition is probably diverticulitis but that they do not feel certain about the lower end of the deformed area one must operate. In addition to this the patient was much obstructed, had lost weight and looked bad. Exploratory operation was easy to advise under such circum-

stances We did not have to decide definitely whether it was diverticulitis, in spite of the fact that we thought he had diverticulitis We went ahead because of the loss of weight and the general symptoms

We operated and found a hard mass down in the left side of the pelvis firmly attached to the left side of the base of the bladder, so much so that I had to take off the peritoneum and some of the muscle of the bladder to get it out. It was so hard that I could not possibly tell by pressure whether it was malignant disease or an inflammatory process, but there again I did not have to make much of an effort to tell which it was. I felt that it ought to come out, first because of the symptoms, and secondly because he was likely to have a fistula between the bladder and the diverticulitis, if it was diverticulitis. So there again we had an easy time deciding what to do, and resected the colon. When we got it out it was still so hard that we could not tell and had to have Dr. Hartwell come to the operating room to look at it. He cut it open and said that there was no erosion of the mucous membrane and that he thought it was simple diverticulitis. You see, the thing was rather difficult to decide positively all the way through this case. He was unwilling to say whether there was malignancy until he had had a microscopic examination, which he did. The report came back that it was nothing but inflammatory tissue.

I think that that is the way you have to treat these cases of diverticulitis. It is not an easy question to decide, for the roentgenologist, the surgeon, or the pathologist cannot always make a definite diagnosis until a microscopic examination has been made. One cannot always depend upon the x-ray examination alone.

DR HAMPTON Just nine times out of ten

DR JONES How would you like to be the tenth man? He is the one whom we have to look out for. In diagnosis you must not depend upon any one thing but must use every possible aid to diagnosis and then remember that if you do not operate and the condition turns out to be a carcinoma, you have done a great harm.

I have a letter from the doctor who referred this case to me. He says "The sigmoid was examined with the sigmoidoscope and a marked constriction found about eight inches from the rectum." I should like to comment upon this statement, because to draw the correct conclusions from a proctoscopic examination is often very difficult. To say that there is a stricture is often an error, for the bowel held kinked will often appear to be constricted. In this particular case the bowel was kinked and held in that position by the adhesions. It would have been impossible to see the real zone of narrowing in this case because after the mass had been

freed it could be brought into the wound, making it so high that it could not be seen with the proctoscope. The diagnosis of diverticulitis can be made only very rarely with the proctoscope. If the proctoscope had been used to feel with I believe that the fixed mass could have been felt through the rectal wall. Even with a carcinoma at the rectosigmoid junction the growth cannot always be seen, for the contraction of the growth frequently makes a kink and fixes it so that it cannot be seen with a straight instrument. To see discharge or flecks of blood coming from above the end of the proctoscope is frequently of value in making a diagnosis of carcinoma, but occasionally there will be slight bleeding from a region of diverticulitis, often from a small polyp or due to the inflammatory process in the bowel wall.

The sigmoid was resected, an end-to-end suture done and the man left the hospital today.

PREOPERATIVE DIAGNOSES

Diverticulitis of the sigmoid
Malignancy?

DR. E PARKER HAYDEN'S DIAGNOSIS

Chronic obstructive diverticulitis with possible carcinomatous degeneration

PATHOLOGIC DIAGNOSES

Chronic localized colitis
Diverticulitis?

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY This man's lesion was without any question inflammatory and not neoplastic. On the other hand, it was a bit more difficult to say exactly what sort of inflammatory lesion it was. When Dr. Hartwell first examined the specimen he found one shallow pocket with a broad mouth containing a fecolith, so that one must admit the presence of a diverticulum. On the other hand, it was not the type of diverticulum that is apt to lead to diverticulitis. These very shallow broad-mouthed ones are quite common and do not ordinarily cause trouble. It is the deep, narrow-mouthed ones that usually result in symptoms. We were not able to demonstrate any of that sort. There was a quite diffuse inflammatory process involving three or four centimeters of the gut with a diffuse fibrosis, marked mononuclear reaction and a little ulceration in the mucosa but in the specimen which we received no very characteristic diverticulum.

DR HAMPTON Is that at all unusual?

DR MALLORY Yes. Ordinarily there is no particular trouble demonstrating diverticula, if they are there. It is possible he had a diverticulum which spontaneously cut itself off months ago so that we could no longer find it.

DR HAMPTON Is this diffuse, deep thickening

ing and hardening of the whole bowel common, that is, is not diverticulitis a unilateral lesion ordinarily instead of annular?

DR. MALLORY I think we have seen annular involvement but usually when it was annular it was due to fibrosis around the gut rather than actual scarring throughout all layers.

DR. HAMPTON The musculature is usually intact except at the site of the diseased diverticula?

DR. MALLORY Yes.

DR. JONES I think that there must have been a diverticulum in that hard mass because inflammatory tissue will not stay so hard unless there is something to keep it there. There must have been a foreign body or abscess to keep it as hard as it was. If it softens up it will be thickened but not such hard tissue.

CASE 2222

PRESENTATION OF CASE

A seventy-three year old white janitor was admitted complaining of jaundice.

About three weeks before coming to the hospital the patient began to have daily episodes of burning pain in the epigastrium with sour eructations. He produced relief by inserting a finger into his mouth to initiate emesis. The vomitus contained ingested food and watery fluid and was never yellow, green tarry or bloody. These attacks usually occurred at night and caused the patient to awaken. For about one week he took baking soda after vomiting which relieved his discomfort sufficiently so that he could sleep. There was lack of appetite and spontaneous curtailment of diet. Ten days before entry he first noted slight nontender swelling of his ankles. About the same time his urine became dark brown in color and a neighbor called his attention to the fact that he was jaundiced. He became progressively weaker and noticed that his weight had diminished from 165 to 152 pounds in eight months. There was no pruritus and the color of the stools was not noted. His bowel movements occurred at daily intervals but currently were lessened in amount.

The patient had taken small quantities of whiskey daily for about fifty years. He had always been well until three years prior to admission, when he noticed some loss of appetite and energy.

Physical examination showed a well developed and nourished icteric man in no discomfort. The left pupil was slightly irregular and there was marked sclerosis of the retinal arterioles. A small left epitrochlear node was palpated. The chest was kyphotic, barrel shaped and hyperresonance was elicited generally. The lungs were otherwise negative and the heart was nor-

mal. The blood pressure was 100/70. The abdomen was slightly distended but no shifting dullness was found. The liver edge extended three fingerbreadths beneath the costal margin. No areas of spasm or tenderness were noted. There was slight pitting edema of the ankles. The knee and ankle jerks were absent as was vibratory sense in the region of the ankles. Position sense was good.

The temperature, pulse and respirations were normal.

Examination of the urine showed a slight trace of albumin and a large amount of bile. The sediment was negative. The blood showed a red cell count of 4,270,000 with a hemoglobin of 75 per cent. The white cell count was 10,300, 80 per cent polymorphonuclears. A stool was brownish gray and gave a negative reaction to the guaiac test. A Hinton test was negative. The nonprotein nitrogen of the blood was 30 milligrams and the chlorides 101 cubic centimeters. The icteric index was 75 and the van den Bergh showed 33.3 milligrams bilirubin. A blood cholesterol was 297 milligrams. The vomitus occasionally gave a positive reaction to the guaiac test. The sedimentation rate was 16 millimeters per minute.

A flat x-ray film of the gallbladder region showed no stones. Examination of the gastrointestinal tract showed a normal esophagus. The stomach was dilated and contained considerable fluid. Peristalsis was unusually vigorous. The duodenal cap was dilated and there was a pressure defect with constriction at its apex. The cap filled readily but no barium passed beyond its apex. At the end of six hours the stomach still contained about 98 per cent of the barium and there was a minute amount present in the jejunum. There was no definite evidence of increase in the duodenal curve.

On the third day a plum sized rounded mass was felt in the right upper quadrant just above the umbilicus. Two days later constant gastric drainage was instituted and on the tenth day a laparotomy was performed.

DIFFERENTIAL DIAGNOSIS

DR. JOHN D. STEWART We are told that the burning pain in the epigastrium with sour eructations was relieved by vomiting. This fact is suggestive of interference with the normal emptying of the stomach; an inference further supported by the description of the vomitus as consisting of recently eaten food and watery fluid. Furthermore, the vomitus is reported as never containing bile, an important point in that it helps us in localizing the obstructive lesion we are beginning to suspect. Either bile is not gaining access to the duodenum, or else the duodenal lumen as far as the papilla of Vater is no longer in continuity with the stomach.

About ten days after the onset of the epigastric pain, swelling of the ankles and obstructive jaundice developed. Such evidence of retention of bile pigments as the presence of bile in the urine and jaundice helps to focus our attention more closely on the region of the proximal third of the duodenum and the extrahepatic biliary tract. The color of the stools was not noted unfortunately, for the presence or absence of bile in the stools in this case is an important point. The patient is recorded as having taken small quantities of whiskey daily for about fifty years, and as having noticed a rather indefinite loss of health three years before admission. Such a statement requires us to consider the possibility of cirrhosis of the liver of the portal type, and the not infrequent association of such cirrhosis with primary carcinoma of the liver.

The more significant points in the physical examination seem to be jaundice, distended abdomen in which shifting dullness was looked for but not found, liver edge palpable three fingerbreadths below the costal margin, slight edema of the ankles, and the neurological signs of absent knee jerks, ankle jerks and tibial vibration sense. Evidently if the patient has cirrhosis of the liver he has no considerable degree of obstruction to portal circulation, for there is no demonstrable ascites, only slight edema of the ankles, and no history of melena or hematemesis. The loss of vibration sense at the ankles and absent tendon reflexes, one sees in lesions of the spinal cord, such as combined system disease. There is nothing else in the record to suggest pernicious anemia.

Among the laboratory findings are noted bile in the urine, mild hypochromic anemia, a stool color suggestive of absent bile, markedly elevated icteric index and van den Bergh, moderately elevated blood cholesterol, vomitus giving a positive test for occult blood, and an increased sedimentation rate. These pieces of evidence help us only in confirming our suspicion of a lesion producing obstruction of the extrahepatic biliary tract and interfering with the continuity of the upper gastrointestinal canal.

The radiologist comes to our help by demonstrating a dilated hypertonic stomach and obstruction at the apex of the duodenal cap. There was marked gastric stasis despite the vigorous peristalsis.

On further abdominal palpation a small epigastric mass was felt and after reducing the size of the stomach and emptying it thoroughly by gastric drainage laparotomy was performed.

The differential diagnosis, as should always be the case, turns on the most indubitable, the objective evidence. The patient has a lesion which obstructs both the common bile duct and the second portion of the duodenum. In addition there is a palpable epigastric mass. In this

case we do not hesitate to postulate neoplasm as the most likely cause of such obstruction. Where is the growth primary, in the liver, the gallbladder, the common duct or ampulla of Vater, the duodenum, the head of the pancreas or the pylorus? Has the patient a lesion of retroperitoneal tissues, such as lymphosarcoma, invading the region in question? Carcinoma of the transverse colon manifesting itself in duodenal obstruction would be a bizarre lesion. To consider the possibilities—the likelihood of primary carcinoma of the liver is greatly reduced by lack of evidence for cirrhosis of the liver. Obviously those in charge of the cases were thinking of cirrhosis of the liver, but they seem to have found little evidence of portal stasis, and no esophageal varices were discovered by x-ray. The likelihood of primary carcinoma of the gallbladder is somewhat reduced by failure to show gallstones by x-ray and absence of historical indications of gallbladder disease, for carcinoma of this organ is commonly associated with gallstones and chronic cholecystitis. A lesion in the common duct itself is a possibility especially at its duodenal extremity. Such a lesion, however, should produce jaundice early and duodenal obstruction late. It seems to me that much must be made of the fact that the lesion in this case must have been silent for a considerable period, for when symptoms first appear it is extensive enough to obstruct both duodenum and common duct almost completely. We logically turn then to consideration of a lesion primary neither in common duct nor duodenum, and most likely under the circumstances is carcinoma of the head of the pancreas.

CLINICAL DIAGNOSES

Carcinoma of the pancreas
Arteriosclerosis
Emphysema
Coronary thrombosis?

DR JOHN STEWART'S DIAGNOSIS

Carcinoma of the head of the pancreas

ANATOMIC DIAGNOSES

Accessory annular process of the pancreas
Carcinoma of the head of the pancreas with obstruction to the duodenum and the common bile duct, and metastases to the retroperitoneal glands and the liver
Dilatation of the bile ducts
Operative wound. Posterior gastroenterostomy, cholecystgastrostomy
Hemoperitoneum, slight
Pleuritis, chronic fibrous, bilateral
Bronchopneumonia, bilateral, lower lobes
Pericarditis, chronic fibrous, slight
Arteriosclerosis, aortic and coronary, moderate

Hyperplasia of the prostate
Cystitis, acute, slight.
Pyelitis, acute, left
Icterus

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: This patient was transferred to the surgical service, where he was operated on by Dr. Allen. A carcinoma of the head of the pancreas was found which constricted both the duodenum and the lower end of the common bile duct. This left the surgeon only two alternatives, to back out without doing anything or to attempt the rather desperate maneuver of a double operation—a cholecystgastrostomy to drain the biliary system plus a gastroenterostomy to relieve the duodenal obstruction and to shunt the bile along into the intestinal tract. The latter procedure was, correctly in my opinion, decided upon and carried out. Many cancers of the pancreas in elderly individuals are slowly growing and palliative operations of this type will, if successful, often return the patient to excellent health for periods of two, three, occasionally as many as five years.

During the operation the patient's blood pressure fell alarmingly. A transfusion was given on the table and his condition improved enough to allow the operation to be finished and he did not appear in bad shape on his return to the ward. That evening about 9:00 p.m. he developed a peculiar attack of syncope with accompanying cyanosis but no venous distention.

At ten o'clock the blood pressure suddenly fell from 120/80 to 70/45 and shortly afterwards to 55/32. There was no sweating and the pulse though of poor quality did not rise above 100. Intravenous glucose and the usual stimulants failed to revive him and he died about five the next morning.

The postmortem examination showed a carcinoma arising in what appeared to be an accessory lobe of pancreatic tissue lying chiefly to the right and behind the duodenum with some invasion of the lower part of the head of the pancreas proper. This, I believe, explains the rather unusual picture of obstruction of the second portion of the duodenum by a cancer of the pancreas. The lower end of the common duct was involved and the biliary tract above the point of obstruction was markedly dilated. The liver was not enlarged (it had been pushed down by the low diaphragm resultant upon his barrel chest), but on section showed numerous metastases.

The cause of the final, rather dramatic collapse was not determined. There was some free blood in the peritoneal cavity but it was estimated at only a few hundred cubic centimeters. The coronary arteries showed no thrombosis, in fact very few atheromatous plaques considering his age. The pulmonary arteries were negative. We did not have permission to examine the head so a cerebral complication cannot be ruled out. My inclination, however, is to consider it a form of postoperative shock even though appropriate therapy proved unavailing.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

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than noon on Saturday. Orders for reprints must be sent to
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THE ANNUAL MEETING

For three days June 8, 9 and 10, Springfield opened its doors and generously entertained 909 Fellows of the Massachusetts Medical Society who were registered and about fifty ladies.

These figures do not show the exact attendance, for some members did not register and therefore are not recorded.

The pleasant weather together with the attractive programs and ample publicity by the Committees explains this large attendance.

Although the Auditorium, where the exhibits and scientific sessions were provided with space, had been the location of an active political convention up to within a few hours of the advertised program of the Society, there were only minor delays and everything was in working order early on the first day of the meeting.

All of the section meetings and hospital clinics were well attended and the scientific exhibits called forth enthusiastic commendations for the scope and quality of their demonstrations.

The *Journal* respectfully suggests that the custom of awarding prizes for especially worthy scientific exhibits would be appreciated.

The attendance at the Shattuck Lecture filled all available space in the ballroom of the Hotel Kimball. Dr. Blumer made the subject of Trichinosis of practical interest to physicians and covered the scientific aspects of the disease completely. His paper appears in this issue of the *Journal*.*

The Council Meeting was attended by a large and representative group and the routine business was dispatched promptly. The report of the Committee on Public Relations was of unusual importance and its presentation was given careful and sustained attention. Because of the advanced stand taken by the Committee relating to prepaid hospitalization and the economic features of other forms of practice, it was feared that differences of opinion would be expressed which might lead to controversy. Contrary to expectations the Council almost unanimously endorsed the recommendations submitted. This action is a well-merited tribute to the careful study given to questions before the profession by the Committee.

By vote of the Council these matters will continue to receive the careful attention of this Committee.

By reason of certain important matters before the Committee on Ethics and Discipline which were unsettled, Dr. David Cheever asked for an executive session, which was accorded, and he then submitted a detailed report of the arduous and perplexing work of the Committee. He asked for careful consideration of the important questions before the Society with the hope that constructive opinions would be forthcoming and thereby lead to sound conclusions and appropriate action.

Following the reports of the Standing Committees and discussion of the matters presented, the Chair called for the report of the Nominating Committee. The following names were presented: President, Dr. Charles E. Mongan, Vice President, Dr. Channing Frothingham, Secretary, Dr. Alexander S. Begg, Treasurer, Dr. Charles S. Butler, and Orator, Dr. J. W. O'Connor. By unanimous vote the Secretary was directed to cast one ballot for these severally designated persons. The unanimous and enthusiastic vote is a demonstration of approval of the Committee on Nominations.

To new members of the Society attention is called to the *Journal* of June 13, 1935 where may be found the portraits of the four re-elected officers. To the general membership, no introduction is necessary.

All of the details of the meeting of the Council

oil, except the matters dealt with in executive session will be published in the Secretary's record soon to appear.

The Annual Dinner was attended by over three hundred Fellows and guests. Seated at the head table President Mongan was in the center. On his right were Reverend Father Michael J. Ahern, Professor of Geology at Weston College, Vice President Dr. Channing Frothingham, Dr. W. R. Morrison, Chairman of the Committee of Arrangements, Dr. Allen G. Rice, Chairman of the Local Committee of Arrangements, Dr. Walter P. Bowers of *The New England Journal of Medicine*, Mrs. Emma Brigham, member of the Legislature from Springfield, Mr. Henry Martens, Mayor of Springfield, Dr. Royal Watkins, member of the State Board of Registration in Medicine, Dr. Frederick B. Sweet of Springfield and Dr. Henry Jackson Sr., of Boston.

On the left of the President were the Very Reverend Percy T. Elrop, Dean of Christ Cathedral of Springfield, Father O. Connor of Northampton, Dr. A. S. Berg, Secretary of the Massachusetts Medical Society, Dr. Charles S. Butler, Treasurer of the Massachusetts Medical Society, Dr. John M. Bunne, Ex-President, Dr. H. G. Stetson, Ex-President, Dr. Enos Bigelow, Ex-President, Dr. Roger I. Lee, Trustee of the *American Medical Association* and Dr. Walter A. Lane, Vice Chairman of the Committee on Public Relations.

The after-dinner speaking was opened by the introduction of his Honor the Mayor who cordially welcomed the Society to Springfield with assurances of the freedom and protection of the city for the members of the Society and an invitation to return to Springfield for future meetings.

Mrs. Emma Brigham demonstrated her interest in medicine by stating that she is a registered nurse, a graduate of the Massachusetts General Hospital Training School for Nurses and also that of the McLean Hospital and more particularly because she married a physician. She gave a very interesting account of her work in the legislature in association with others in the final passage of the bill relating to medical education which was passed in the present session.

Dr. Roger I. Lee gave a graphic account of the purposes and functions of the American Medical Association with the assurance that the relations of the State Society and the National organization were cordial and co-operative in serving the people of this country and promoting the best interest of the medical profession.

The Reverend Father Ahern gave a very interesting account of his participation in a ten thousand mile journey covering important cen-

ters of the United States in association with Rabbi Morris S. Lazarus and the Reverend R. Clinchy for the purpose of promoting the spirit of tolerance among the several religious denominations. Beginning with the conditions in those countries where there had been a union of church and state and the gradual separation of these organizations so far as control of one over the other is concerned, he defined the purpose of the early settlers of our country and fundamental principles which have given freedom to the individual to adopt that form of religious belief consonant with his own interpretation of his relation to God and the needs of his spiritual nature.

Father Ahern found a ready response to the teaching of this trio throughout the country and in an inspiring appeal urged us all to come to a realization of the necessity of unselfish love one for another in the human family which would overcome prejudices and promote the welfare of the country.

Those who were unable to attend this occasion missed an inspiring appeal to the better element in human nature presented by a distinguished public speaker.

The general meeting of the Society was the closing feature of the program.

The Secretary presented the usual statistical report showing a steady growth of membership. The report of a committee to which a matter for disciplinary action was referred at the last Annual Meeting required resort to an executive session. After emerging from this, the President read his address in which the condition of the Society and accounts of important actions carried on during the year were set forth.

The Annual Discourse delivered by Dr. Reginald Fitz followed and was the final exercise in the official program.

In addition to a well prepared historical account of the gradual evolution of the important contribution to progress in this country brought about by the adaptation and utilization of the great discoveries in science and art, he showed how medicine had profited by better transportation and the adoption of many forms of electricity in dealing with disease.

His address appeared on page 1178 of the *Journal* of June 11.

Before the close of the meeting Dr. Morrison, Chairman of the Committee of Arrangements, in behalf of the Society voiced the grateful appreciation of the convention for the hospitality extended by the City of Springfield, the courtesy of the hotels and the very essential and efficient co-operation of the several local committees.

In later issues of the *Journal* the papers and discussions submitted to the several sections will

be published The reports of the Proceedings of the Council and the Society will appear in our columns as soon as they are put into form by the Secretary, and should be given careful study

This Annual Meeting marks another milestone in the history of the Massachusetts Medical Society

THE BOSTON NURSERY FOR BLIND BABIES

CITIZENS of Massachusetts early recognized the responsibility of the community for the care and training of the blind, and for years our State has enjoyed an enviable reputation in this respect Years ago the Perkins School for the Blind was established, followed by the Kindergarten for the Blind in 1887 For ten years Isabel Greeley taught in the Kindergarten, during which time she came to realize that blind children and children with defective vision must receive intelligent care and training long before the kindergarten age, in order to prevent the development of mental and further physical handicaps

From her ideas and from her determination came, in 1901, a Nursery for Blind Babies in an old private residence on Fort Avenue in Roxbury To this, from homes of poverty and distress, came babies and young children with all degrees of blindness, from total, already incurable blindness, to partial and curable defects in vision About twenty-seven years ago the new Nursery, capable of caring for twenty-five children, was built on South Huntington Avenue Two years ago a Nursery School was organized in order that the preschool children might have the benefit of the same kind of Nursery School training that is available to children with normal vision

There were no precedents or methods of training available for the carrying on of this work It was again a pioneering task, but for two years Nursery School methods have been adapted to the capabilities of blind children—marching, singing, building, painting, gardening, indoor and outdoor games—so that at the average age of six years these children may move on to the Perkins Kindergarten

The history of this specialized educational effort, combined with the story of the importance and amazing results of early training of the blind is told in an engaging little pamphlet prepared as a guide to the care and training of the preschool blind child, and distributed by the Boston Nursery for Blind Babies Reading it awakens one's interest in the problem and one's admiration of the way it is being met

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

BLUMER, GEORGE M A, M D Cooper Medical College, San Francisco, 1891 David P Smith Clinical Professor of Medicine, Yale University Medical School Consulting Physician to the New Haven Hospital, St Raphael's Hospital, Grace Hospital, Meriden Hospital, and Middlesex Hospital, Middletown, Conn His subject is Trichinosis, with Special Reference to Changed Conceptions of the Pathology and Their Bearing on the Symptomatology Page 1229 Address 195 Church Street, New Haven, Conn

JEGHERS, HAROLD B S, M D Western Reserve University School of Medicine 1932 Resident in Medicine, Fifth Medical Service, Boston City Hospital Address Boston City Hospital, Boston, Mass Associated with him is

LERNER, HENRY H B S, M D Boston University School of Medicine 1934 Resident in Roentgenology, Massachusetts Memorial Hospitals Address Massachusetts Memorial Hospitals, Boston, Mass Then subject is The Syndrome of Alkalosis Complicating the Treatment of Peptic Ulcer Page 1236

BAEHR, FRANK H Ph B, M D University of Vermont College of Medicine 1922 Consulting Surgeon, Wesson Memorial Hospital and Springfield Health Department Hospitals Chairman, Springfield Public Health Council His subject is An Unusual Case of Nevus Vasculosis Page 1244 Address 20 Maple Street, Springfield, Mass

SHELDON, RUSSELL F A B, M D Harvard University Medical School 1911 Assistant Anesthetist, Massachusetts General Hospital and Massachusetts Eye and Ear Infirmary His subject is Progress in Anesthesia in 1935 Page 1246 Address 31 Pinckney Street, Boston, Mass

MISCELLANY

MAINE NEWS

WATERVILLE SENTINEL HEADLINE SAYS, "WAR ON CANCER STARTED IN MAINE"

Mrs William Holt of Portland has been appointed State Commander of the Woman's Field Army against Cancer for the State of Maine, by Dr C C Little, managing director of the American Society for Control of Cancer

A State Committee has been formed which will provide the free service of a pathologist, a radiologist, a roentgenologist and a surgeon

Clinics have been organized at Lewiston, Waterville and Portland

Vice-Commanders of the Maine Women's Field Army are Mrs. B. G. Cushman of Lewiston and Mrs. Magnus Riddon of Bangor.

The State Committee Chairman is Dr. Mangus Riddon of Bangor and the advisory and executive committee is composed of Dr. Joseph Scannell of Lewiston, Chairman; Dr. John Johnson of Bangor; Dr. Theodore Hill of Waterville; Dr. Edward H. Risley of Waterville; Dr. William Holt of Portland; Dr. George Coombs of Augusta; Frank Silliman of 3rd Bangor; Mrs. Riddon; Mrs. Cushman; Mrs. Holt; Clarence Crosby; Dexter Samuel; Stewart Lewiston; Dr. George Averill of Waterville; Bishop J. E. McCarthy of Portland; and Robert Braun of Portland.

GRADUATE TEACHING CLINICS

Central Maine General Hospital, Lewiston, Maine. On May 22, Dr. Otto Hermann of Boston conducted a clinic on the treatment of fractures.

The following addresses have also been scheduled: June 11, Dr. Joseph Pratt of Boston, Subject: "Neuroses".

Dr. J. Schloss on "Newer Methods in Diagnosis of Gastric Diseases".

June 12, Outing at Bethel Inn. Paper by Dr. S. J. Thannhauser in the evening. Subject: "Functional Tests in Dietary Treatment of Liver Disorders".

EDWARD H. RISLEY, M.D., Reporter

AN HONOR TO DR. LAHEY

At the meeting of the American Society for the Study of Gout in Chicago, June 10, 1936, Dr. Frank H. Lahey was elected to the position of President Elect.

AN HONORARY DEGREE AWARDED TO DR. JOHN H. WAITE

At the recent commencement exercises of Bucknell University, Lewisburg, Pennsylvania, the honorary degree of Doctor of Science was awarded to Dr. John Herbert Waite of Boston.

MORTALITY RATES

Telegraphic returns from 86 cities of the United States with a total population of thirty-seven millions for the week ending May 23 indicate a mortality rate of 11.7 as against a rate of 11.6 for the corresponding week of last year. The highest rate (21.5) appears for Hartford, Conn., and the lowest (5.5) for South Bend, Ind. The highest infant mortality rate (20.4) appears for San Antonio, Texas, and the lowest for Lynn, Mass. Miami, Fla., New Haven, Conn., Seattle, Wash., South Bend, Ind., and Wilmington, Del., which reported no infant mortality.

The annual rate for 86 cities is 13.4 for the twenty-one weeks of 1936 as against a rate of 12.5 for the corresponding period of the previous year. The rates for February, March, April, and most of May

account for the higher figures for these twenty-one weeks. The rate for the last week of May is almost as low as that of the corresponding date of last year.

SUMMARY OF DEATHS AND DEATH RATES (ANNUAL BASIS) FROM AUTOMOBILE ACCIDENTS PER 100,000 ESTIMATED POPULATION FOR 86 CITIES FOR CORRESPONDING PERIODS OF 1936 AND 1935

	Week ending		First 21 weeks	
	May 23 1936	May -5 1935	1936	1935
Total deaths	145	156	2,955	3,416
Death rate	20.3	21.7	19.7	22.7
Deaths due to accidents in city	103	119	2,238	2,769
Death rate	14.4	16.6	15.2	18.4

—Bulletin U. S. Bureau of the Census

INFORMATION RELATING TO PUBLIC RELIEF FOR ILLNESS

In the May Bulletin of the Boston Council of Social Agencies, there are records of medical service which have an important relation to all relief expenditures.

The four psychiatric and guidance clinics started to report monthly to the Council of Social Agencies in January, 1936. The figures in the chart below give the April report for the three clinics of the State Division of Mental Hygiene which are held in Boston. These clinics, which served 721 patients, were largely for children.

NUMBER OF ACTIVE CASES OF PSYCHIATRIC AND GUIDANCE CLINICS

APRIL, 1936

Clinics	Total	Services		
		Full	Special	Other
Totals	721	536	135	50*
Habit Clinic	141	121	0	0
Judge Baker Guidance Center	96	179	72	45
Massachusetts Division of Mental Hygiene	150	132	18	0
Massachusetts General Hospital Psychiatric Clinic	154	104	45	5

*Includes diagnosis of other cases

The details of hospital services are as follows:

HOSPITAL SERVICES

Twenty-one Boston hospitals and dispensaries supported by private funds reported to the Hospital Council that 19,591 patients were given 250,485 days care during the first three months of 1936. During the same period 213,637 visits were made to the

out patient clinics According to the information which was available for 228,469 days' care, the figures show that 77,837 days or 34.1 per cent were free and 150,632 days or 65.9 per cent were paid for. It is interesting to note that in the case of six hospitals, over half the days' care given was free, while for

two others the figure was just under fifty per cent. However, since it is highly probable that different methods were used by the individual institutions in computing these figures, they should only be accepted as an estimate of the amount of free service which is being rendered.

PATIENTS CARED FOR BY TWENTY ONE VOLUNTARY BOSTON HOSPITALS
AND DISPENSARIES

JANUARY FEBRUARY, MARCH, 1936

Hospitals and Dispensaries	Number of Patients Treated	House Patients				Out Patients Number of Visits
		Total	Free	Pay	No Report	
Totals	19,591	250,498	77,837	150,632	22,029	213,537
Beth Israel Hospital	1,427	14,267	3,706	10,561	—	14,159
Boston Dispensary	195	1,273	727	546	—	41,139
Boston Floating Hospital	340	3,491	3,491	0	—	†
Boston Lying in Hospital	1,684	20,243	1,814	18,429	—	7,787
Carney Hospital	1,006	12,318	411	11,907	—	7,644
Children's Hospital	1,386	17,796	9,720	8,076	—	14,662
C. P. Huntington Hospital	158	1,403	569	834	—	1,748
Evangeline Booth Hospital	337	3,500	653	2,847	—	351
Faulkner Hospital	939	7,141	1,005	6,136	—	†
House of the Good Samaritan	106	6,785	6,222	563	—	139
Massachusetts Eye and Ear Infirmary	1,649	13,528	2,703	6,167	4,658	23,448
Massachusetts General Hospital	2,224	34,844	19,576	15,268	—	51,896
Massachusetts Memorial Hospitals	1,761	22,792	10,906	11,886	—	14,406
Massachusetts Women's Hospital	226	3,274	191	3,083	—	†
Maverick Dispensary	*	*	*	*	*	8,751
N. E. Deaconess Hospital	1,917	30,861	1,761	29,100	—	623
N. E. Hospital for Women and Children	1,150	14,187	1,844	12,343	—	3,918
Peter Bent Brigham Hospital	1,343	17,151	8,049	9,102	—	17,977
Robert Breck Brigham Hospital	280	7,124	4,305	2,819	—	723
Roxbury Hospital and Clinic	138	1,149	184	965	—	1,648
St. Elizabeth's Hospital	1,285	17,371	†	†	17,371	2,518

*Out Patient Department only
†No Out-Patient Department
‡Information not available

CORRESPONDENCE

RELIEF OF IRRITATION CAUSED BY MERCURIN
SUPPOSITORIES

June 11, 1936
Editor, *New England Journal of Medicine*,

The article, "Mercurin Suppositories as a Diuretic in the Treatment of Edema," by Dr. Marshall N. Fulton, in the *Journal* of May 28, 1936, prompts me to add the following simple, yet practical and effective suggestion:

My observations on the use of mercurin suppositories during the past three months correspond with those of Dr. Fulton except that my patients complained bitterly of severe burning, irritation and tenesmus of the rectum, until I coated the suppositories with nupercainal ointment, an anesthetic salve. There was practically complete elimination

of the local discomfort, and no perceptible loss in diuretic action. Sincerely yours,
390 Main Street, EDWARD BUDNITZ, M.D.
Worcester, Mass.

RECENT DEATHS

RICE—ROBERT ASTLEY RICE, M.D., aged sixty-one years, residing at 21 Mechanic Street, Fitchburg, died Saturday, June 13, following a long illness which had incapacitated him since October, 1934. At the time of his death he was acting city physician and school physician.

Dr. Rice was born in Fitchburg, August 13, 1875, the son of the late Dr. Charles H. Rice and Della (Estabrook) Rice. He graduated from the Fitchburg high school in 1894, from Amherst College in 1898 and the Harvard Medical School in 1902. He immediately began the practice of his profession in

this city and joined the Massachusetts Medical Society in 1903. He was elected president of the Worcester North District Medical Society in 1933.

Dr. Rice assumed the practice of his father who died in 1917 after having practiced medicine in Fitchburg for more than fifty years. The young man inherited the quiet personality of his father and soon acquired a large clientele which he retained until his final illness. He was a World War veteran receiving his commission in October 1918 serving at Camp Greenleaf and at Staten Island, N. Y. and was honorably discharged November 19, 1919. He then affiliated himself with the National Guard retiring in January 1935 with the rank of lieutenant-colonel.

Dr. Rice was very prominent in the organization of the Northern Worcester County Public Health Association. A camp was established for the care of undernourished children and the good work originated by Dr. Rice is still being continued. He was for a time associated with the Burbank Hospital on both the medical and surgical services. These positions he resigned in order to devote more time to his private practice.

Dr. Rice is survived by his widow Mrs. Mary E. Rice and five children: Mark F., Murray A., Helen Joan, Robert A. and T. W. Peter, the eldest eighteen and the youngest ten years of age. A sister Mrs. Holland W. Wemple of New York City is also a survivor. The funeral was held from the Rollstone Congregational Church in Fitchburg on Tuesday, June 16.

HURLEY—EDWARD DANIEL HURLEY, M.D., of 17 Willow Street, Belmont, died at the Carney Hospital, South Boston, June 8, 1936.

Dr. Hurley was born in 1881 and graduated from the Harvard University Medical School in 1904.

He was a Fellow of the Massachusetts Medical Society, the American Medical Association and belonged to the American College of Surgeons and other national medical organizations.

Dr. Hurley practiced medicine many years before becoming an eye specialist; he was a member of the staff of the Carney Hospital.

His widow Mrs. Isabelle Walsh Hurley, a daughter Miss Dorothy Hurley and three sons, Edward Jr., a student at Harvard, Paul and Vincent Hurley survive him.

BUMP—LEWIS NIX BUMP, M.D., of 124 Sycamore Street, Somerville, Massachusetts, died June 8, 1936. Dr. Bump was born in 1868 and graduated from the Albany Medical College in 1893.

His widow Mrs. Rosina (Holloway) Bump and two daughters survive him.

NOTICE

REMOVAL

HENRY ARTHUR KOVOTY, M.D., announces the removal of his office to 479 Beacon Street, Boston. Telephone Kenmore 8000.

REPORTS OF MEETINGS

HARVARD MEDICAL SOCIETY

The Harvard Medical Society met March 10, 1936 at the Peter Bent Brigham Hospital, with Dr. Walter B. Cannon presiding. The medical case was presented by Dr. Charles B. Kimmel. A forty-two year old woman entered the hospital eighteen days previously complaining of pain in her right thigh of five days duration. The pain was of sudden onset, and had been "sharp" at first but had gradually become of a dull aching character. Physical examination was negative except for the findings of bilateral varicose veins, varicose eczema over both thighs and a hot reddened swelling over the course of the right long saphenous vein. Her past history was irrelevant, except for the vague story of recurrent attacks of bloody diarrhea which had once been diagnosed as ulcerative colitis. Laboratory studies showed a red cell count of 3,600,000, a hemoglobin of 70 per cent, a white cell count of 11,000 and a slight trace of albumin in the urine. Dr. Elliott C. Cutler in commenting on the case remarked that in this patient the right instead of the left leg was involved which was contrary to what might be expected from an anatomical knowledge of the venous drainage of the lower extremities. The question as to whether thrombophlebitis might better be treated by ligation of the long saphenous vein was raised. The fact that emboli almost invariably arise from the deep venous system and not from the varicose superficial veins, shows that ligation is not indicated in such cases. Dr. John Homans stated that many cases of thrombophlebitis could be successfully treated by bandaging the leg and allowing patients to continue their usual activities. Patients so treated often recover from their illness in one-third the time required by those who are treated with bed rest. If the process is very acute with marked elevation of temperature, ambulatory treatment cannot be employed.

Dr. Richard L. Peterson presented the surgical case. A twenty-one year old Italian male entered the hospital twelve days previously with the complaint of a swelling of the left leg of two years duration. This swelling began on the lateral aspect of the thigh but soon spread to involve the whole leg from toe to groin. There was no history of epidermophytosis or lymphangitis. His past history was essentially negative. Three months before his entry to the Brigham Hospital a hemothorax operation had been performed on his left leg at another hospital, without relief of his symptoms. Physical examination was negative except for the swelling of the left leg which was one-third larger than the right and a thickening and pitting edema of the skin of the whole leg. There was slight keloid formation in the scars of the previous operation. Four days previously he had been submitted to a retroperitoneal exploration of the pelvis. In an attempt to determine the presence of lymphatic occlusion the lymphatics draining the left leg were found to be

Attempts to carry out the rigid rest treatment in the patient's home were abandoned after a few failures. The patient must be quiet in mind as well as body. Most of the patients were treated in the New England Baptist Hospital. There they spent much time on the balcony where they could watch the sky and the changing scene. The rest was made as absolute as possible during the first part of the treatment. The Karell diet consisting of 200 cc of milk four times a day without other food or fluid, has been used as a part of the treatment for about twenty years. It is given for four or five days and then other articles of food slowly added. Every effort was made to prevent depression or rebellion against the treatment. Especial care was taken to select cheerful efficient nurses. The removal from home to hospital, the strict rest, and the limited diet make adequate mental adjustment difficult. As an aid, by reducing sensibility to discomfort, morphine, panopon or codeine are given for several days. Under this régime, improvement was prompt. Attacks at rest rapidly diminished. One patient had an attack requiring nitroglycerine nearly every hour for the first twenty-four hours in the hospital. At the end of two weeks he was having only one or two attacks daily. In the five years that have passed since leaving the hospital he has never had an attack at rest. A patient with severe angina treated by nearly three months' bed rest in 1913 was seen in 1930. He stated that he had had no angina for years. Proger has shown by physiological studies that the Karell diet reduces the work of the heart. Recently in a patient the effect of a rapid reduction in weight was tried without restricting exercise. It was found that the attacks of angina became less frequent and less severe.

The final paper of the evening was by Dr S H Proger on "Some Effects of Dietary Restriction on the Circulation With Preliminary Observations on the Role of Water Metabolism." Rigid dietary restriction such as to effect a loss of about 10 per cent of body weight, exclusive of edema fluid, over a period of two to four weeks has been shown to have beneficial effects on the state of the circulation in patients with heart failure. Some of the more important of these effects are slowing of the heart rate, lowering of the blood pressure and cardiac output, diminution in the size of the heart, lowering of the basal metabolic rate, increase of the vital capacity and decrease of the respiratory minute volume. The beneficial effects have been shown to persist so long as the lower weight level is maintained. There is a disappearance of the effects with a regaining of weight. However, when heart failure has been overcome and circulatory balance is re-established, extreme restrictive measures seem no longer necessary.

The beneficial effects above enumerated appear to develop to a more striking degree when weight loss occurs from a normal level than when the reduction is from an obese to a normal level.

In an attempt to determine the factors involved in the production of the changes described, a study is being made of the electrolyte balance during food restriction. Incidental to this study it was found that most of the changes hitherto associated with food restriction (notably a lowering of the basal metabolic rate) did not develop when care was taken to maintain the fluid intake during the period of food restriction at the same level as during the period of normal food intake. If, however, while food restriction was continued, the fluid intake was considerably reduced, the basal metabolic rate was distinctly lowered. The diet remaining unchanged this effect could be reversed simply by forcing fluid. It was then found that even on a diet of normal caloric content by "dry" so that the total fluid intake (including the fluid of the food) was only 900 cc, a lowering of 10 to 15 per cent of the basal metabolic rate could be obtained. This has led to further observations on the relationship of water to oxygen metabolism in patients who have abnormally low basal metabolic rates without clinical signs of hypothyroidism. In one such patient in whom the fluid intake and urine output were extremely low, forcing fluid produced a distinct elevation in basal metabolic rate (with however some clinical changes suggesting water intoxication despite the administration of normal saline solution). Further studies in this direction are in progress. The findings thus far indicate a definite and important relationship from the clinical standpoint between energy and water exchange in the manner above described.

OFFICERS OF THE NEW ENGLAND PHYSICAL THERAPY SOCIETY

At the recent annual meeting of the New England Physical Therapy Society the following named officers were elected. President, Dr Claude L Payzant, Vice Presidents, Dr George B Carr and Dr Chester S Leach, Secretary, Dr William D McFee, Treasurer, Dr Franklin P Lowry, Councilors, Dr John L O Toole and Dr Charles W McClure.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JUNE 22, 1936

Wednesday, June 24—

112 M Clinico-Pathological Conference Children's Hospital

Thursday, June 25—

*8 30-9 30 A M Clinic, Surgical Staff of the Peter Bent Brigham Hospital, at the Peter Bent Brigham Hospital

Saturday, June 27—

*10 A M - 12 M Staff Rounds at the Peter Bent Brigham Hospital Conducted by Dr Henry A Christian

*Open to the medical profession
†Open to Fellows of the Massachusetts Medical Society

June 21-23—Maine Medical Association at Bangor, Maine

June 22 and 23—The Medical Library Association. See page 1076 issue of May 21

June 29 July 11—Hospital Administration See page 957 issue of May 7

August 24 29—Harvard University Tercentenary Celebration See page 1166 issue of June 4

September 1936—First International Congress of Sanatoria and Private Nursing Homes See page 803 issue of April 16

September 7 10—International Union against Tuberculosis. See page 854 issue of March 1

September 14 and 15—Tercentenary Session of the Harvard Medical School See page 1166 issue of June 4

September 29 October 3—First International Conference on Fever Therapy See page 1343 issue of December 26 1935 and page 1076 issue of May 21.

October 12 18—Third International Congress on Malaria See page 1076 issue of May 1

October 19 23—Clinical Congress of the American College of Surgeons. See page 180 issue of January 3

October 19 31—1936 Graduate Fortnight of the New York Academy of Medicine See page 11 issue of June 11

October 20 23—The American Public Health Association See page 126 issue of June 11.

April 21 24, 1927—American Society for Experimental Pathology See page 1076 issue of May 1

BOOK REVIEWS

Surgery Queen of the Arts, and Other Papers and Addresses. William D Haggard 389 pp Philadelphia and London W B Saunders Company \$5.50

The Medical World old and young would have been deprived of a scientific and intellectual treat had not Dr Haggard been persuaded by his many medical friends to gather together and publish in one volume this fascinating collection of medical addresses and essays. Dr Haggard has the rare gift of writing and speaking delightfully. Whether he is presenting a biographical sketch of some worthy medico conducting a clinic or reporting a series of surgical cases we read with pleasure and learn with ease.

In this volume we are not confounded by a wealth of statistics nor are we burdened by prolonged discussions. The light, charming literary touch is ever present to carry us along and add to our pleasure whether we choose to read the "Romance of Medicine" for pure delight or "Sarcoma of the Stomach" to improve our surgical minds.

The book is a collection of selected reprints written by a master surgeon and a charming personality. It is full of wisdom and experience on many surgical problems and in addition contains many delightful essays and biographies on fundamental medical practice and personalities of the Great who have passed on. The volume will appeal especially to the young surgeon and can well be an inspiration to him to broaden his future life and learn from a great master the too seldom acquired art of presenting surgical problems in a clear delightful and readable literary style. As Dr William J Mayo says in his Foreword, "There is an inspirational value in these notable addresses threads of the spiritual and the humanities gleam through their fabric."

Child Psychiatry Leo Kanner Associate Professor of Psychiatry The Johns Hopkins University 577 pp Springfield and Baltimore Charles C Thomas \$6.00

As Professor Edwards A. Park of Baltimore writes in his preface to *Child Psychiatry* "This book of Dr Kanner's points out to the pediatrician the personal difficulties of children. It gives him the knowledge of their structure and intrinsic and extrinsic relationships and shows him how to investigate and analyze them. It supplies a point of view a method a way of thinking. It also furnishes the principles of treatment and therefore a way of acting."

No book, however comprehensive however logical and however lucid in construction can give to the untrained physician the ability or the time to practice psychiatry. The pediatrician may however gain a knowledge of personality development and the problems of behavior which will lead him to a better understanding of the psychobiological reactions of his patients and the ability to treat them in some instances, in his office.

A classification in the light of our present knowledge of children's personality disorders is a huge task and Kanner with the wealth of material of the Phipps Clinic to draw on is eminently fitted to undertake it. If the vocabulary frequently makes slow going for the nonpsychiatric reader it is because psychiatry has a terminology of its own with which the less enlightened student has relatively little familiarity. If treatment at times seems inadequately stressed it is because the treatment itself is inadequate. We must remember that a new field is being opened up one in which great advances have been made but in which greater progress still is to be expected.

It is no discredit to the book that the invisible hand of Adolf Meyer occasionally guides the pen of the writer for who in psychiatry could have a better guide or a greater teacher? There is by no means any hint at plagiarism in this statement, for all sources of material are scrupulously acknowledged. Particularly in the early sections of the work, its excellence is somewhat marred by poor proof reading. It improves steadily both in style and in interest as it progresses.

Great Doctors of the Nineteenth Century Sir William Hale-White 332 pp London Edward Arnold & Co 1935

The author a distinguished retired physician long connected with Guy's Hospital in London has taken advantage of his leisure to pass many pleasant hours in associating with the great doctors who have preceded him during the nineteenth century. He has moreover seen fit to put into print a series of delightful essays on seventeen physicians already outstanding in their time. Much of the material will be found in previously published books and yet Sir William has been able to give a new reading in a most delightful manner to the biographies of these men. The reviewer has again lived through the epoch of Edward Jenner Sir Astley Cooper Richard Bright Sir James Paget Lord Lister and the other noted Englishmen who have left their

mark on medicine around the world. Although there are many books of this type available to students and physicians, the reviewer knows of none so worthy as this one.

Traité de Thérapeutique A. Théohari. Tomes I and II. 1307 pp. Paris: Masson et Cie. 125 fr.

A detracting feature of many of our texts on pharmacology and therapeutics is that they are, as a rule, a treatise on pharmacology only. So far as therapeutics is concerned, they contain relatively little of any value. The more recently accepted forms of therapy, arrived at through clinical experimentation and experience, must be sought elsewhere in works on internal medicine, the various specialties and therapeutics per se. The present work is an excellent example of the last. It conveys in a concise and comprehensive manner Professor Théohari's accomplishments and teachings in this particular field. For example, each system of the body is considered in logical sequence, the diseases peculiar or attributable to it are treated in accordance with their particular etiology and symptomatology. Their therapeutics is described in minute detail. The pharmacology and action of the various medicaments employed, are elaborated upon. The text is excellently printed and very readable, which with the features described, make the volumes a ready source of reference. They are highly recommended to the internist, the general practitioner and the medical student.

Clinical Miscellany. The Mary Imogene Bassett Hospital, Cooperstown, New York. Francis F. Harrison, Charles C. McCoy, et al. Volume II. 1935. 218 pp. Springfield and Baltimore: Charles C. Thomas. \$3.00.

This volume consists of a collection of studies by the group of physicians of the Mary Imogene Bassett Hospital. Its objective is the correlation of the scientific medicine of the laboratory with the clinical medicine of the bedside. In total effect it is much like a volume of the Clinics of North America but includes both surgical and medical topics, the majority being medical. The subjects are of diversified practical interest and are ably discussed.

Fundamentals of Biochemistry in Relation to Human Physiology. T. R. Parsons. Fifth Edition. 453 pp. Baltimore: William Wood & Company. \$3.00.

For over a decade this small volume has been known to premedical students as one of the best-arranged introductions to biochemistry. Despite the incorporation of much information that was unknown when the first edition appeared, it still remains a handy textbook of basic facts. Indeed, the small size of the book—it goes readily into an overcoat pocket—betrays its usefulness. There are over four hundred pages of clear type, with many excellent diagrams and formulae. At the end of each chapter

there is an up-to-date bibliography. Its thirty-page index is surprisingly complete.

Progress in biochemistry has made such rapid strides since the World War that the practitioner's chemical training of those days is in many respects antiquated. This small book is written in clear and concise style. In it are many quite recent discoveries—among them the chemistry of the sex hormones. There is a chapter on "the human machine: its fuel requirements and energy output," which discusses metabolic requirements in relation to various foodstuffs. The chemical background of diabetes mellitus is summarized in another chapter. Still another discusses the pigments of the body, especially hemoglobin and its derivatives. In short, this book would make a very useful addition to the busy practitioner's library, because (as the caption heading the chapter on enzymes and oxidation catalysts says) "a little leaven leaveneth the whole lump."

Behavior Development in Infants: A Survey of the Literature on Prenatal and Postnatal Activity 1920-1934. Evelyn Dewey. 321 pp. New York: Columbia University Press. \$3.50.

Behavior Development in Infants by Evelyn Dewey is a very complete and well-organized summary of the experiments and observations on the first year of life. It presents the information now available in clear concise form. These data can be readily supplemented through the carefully selected bibliography. The book should be useful to the pediatrician as well as the psychologist and is a valuable addition to any reference library on child development.

Reports on Chronic Rheumatic Diseases: Annual Report of the British Committee on Chronic Rheumatic Diseases. Number One. Edited by C. W. Buckley. 159 pp. New York: The Macmillan Company. \$4.00.

This is the annual report of the British Committee on Chronic Rheumatic Disease, and represents primarily the British point of view of arthritis or rheumatism. It corresponds to the American report published in the *Annals of Internal Medicine*, April, May and June 1935, by Hench and his associates, entitled *The Present Status of the Problem of "Rheumatism"*. A Review of Recent American and English Literature on "Rheumatism" and Arthritis. It is a book that the man interested in arthritic studies may find valuable to have on his bookshelves to be used as an Index Medicus. As a research symposium and compilation of a year's work on arthritis it leaves one rather confused, as all such compilations must do. The book explains the origin and development of the committee sponsoring its publication, and reports at length on classification and nomenclature. It includes original articles on allergy, hepatic efficiency, biochemical investigations, focal sepsis and the place of histamine in relation to chronic rheumatic diseases, on "ankylosing spon-

dylitis and chronic arthritis in children and critical commentaries on pathological orthopedic and surgical aspects on the trend of research in 1934 on nervous manifestations in chronic vertebral rheumatism, and on the possible relation between chronic arthritis and the function of the thyroid and parathyroid glands. Finally it includes a very incomplete list of the literature of the year. In comparison with the American report it seems to the reviewer definitely less comprehensive and less valuable to the general practitioner. There appears to be a tendency toward acceptance but not proof of bacteriological factors in arthritis. Both American and British reports show that there is weakness in the lines of research to date as demonstrated by the bibliographies published. To the reviewer's mind there are two flagrant omissions in such research programs. First, there is no mention made of the importance, in fact of the necessity of clinical follow up study of the same group of arthritic patients over a long period of time. If accurate data along any line of study are to be secured. Conclusions based on figures culled from groups of patients shifting each year cannot actually be of great value. Few publications cite follow up of more than two or three years. Most of them deal in months rather than years when speaking of improvement derived from one or another form of treatment. Secondly in neither report is there mention of psychotherapy or of the possibility of psychogenic etiology of non specific chronic arthritis. Until these two fields are covered by students of the arthritic problem as thoroughly as are some of the others especially bacteriology the reviewer prophesies a stalemate in its solution.

Das Ventrikulogramm I Teil Röntgentechnik Erik Lysholm 74 pp Stockholm P. A. Norstedt & Söner Swed. cr 10—net.

This book is a very careful account of the technique used in taking ventriculograms at the Röntgen Institute in Stockholm. The type of machinery used the normal and pathological appearance of the ventricles and the various positions in which the patient is placed are clearly illustrated both by a series of fine pictures and adequate descriptions in the text. There is appended a brief review of the literature on ventriculograms. This is the first part of a study of the whole subject and deals practically entirely with the technique. It is presumed that a later volume will deal with interpretation. The work already presented is of the highest calibre and one looks forward to future contributions from this Institute with pleasant anticipation.

Short Wave Therapy and General Electro-Therapy Heinrich F. Wolf. 96 pp New York Modern Medical Press \$2.50

This is a treatise devoted chiefly to short wave therapy but also including some technique on diathermy. Brief mention is made of low voltage

frequency currents electrodiagnosis static electricity ultraviolet radiation minor electrosurgery electrodecoagulation and electrocoagulation. The book is profusely illustrated with seventy nine sketches showing the method and technique of applying electrodes to various parts of the body. The indications and contraindications for therapy are given as well as the average doses. There is a chapter on electrophysiology in otolaryngology by Farrel Jourd, M.D., and a chapter on electrotherapeutic procedures in gynecology by Edward Horowitz, M.D. The text is restricted to a minimum consistent with clarity. The book has been written especially for the general practitioner and the technician.

The Diagnosis and Treatment of Variations in Blood Pressure and Nephritis. Herman O. Mosenthal 616 pp New York Oxford University Press \$9.00

Dr Mosenthal's book takes up two distinct subjects namely blood pressure and that part of renal disease which is loosely spoken of as Bright's disease. In general the volume explains both subjects clearly and in detail. There is perhaps a tendency to repetition but if this may be considered a fault it nevertheless adds to the clearness of the presentation. He takes up in detail the various methods of measuring blood pressure and after discussing what should be considered normal describes the variations from normal. He emphasizes the importance of considering the pressure in capillaries and veins. One of the most instructive chapters is that one which shatters some of the theories about the effects of certain habits food and drinks upon blood pressure. In that part of the book upon Bright's disease it is especially pleasing to find so much attention paid to the pathology of the kidneys. In recent years the tendency has been to discuss nephritis chiefly from the point of view of symptoms and physical signs and ignore the lesions in the kidneys. Mosenthal has revived interest in the pathological anatomy and might have gone even farther in including the physical signs with the structural changes in the kidney. It seems unfortunate that the term *nephrosclerosis* which the pathologists use extensively and which is used in this book is omitted from the index. A closer cooperation between pathologists and clinicians is important in Bright's disease. This book discusses the problems of diet in Bright's disease in a clear and simple manner. At the end of each chapter is a comprehensive bibliography.

The Parathyroids in Health and in Disease David H. Shelling. 336 pp St. Louis The C. V. Mosby Company \$5.00

In this book the author presents in review form the vast literature together with his own experiments on the physiology of the parathyroid glands. It represents an able summary by a man who has spent considerable time thinking over the problems of this field who has himself made contribu-

tions in the laboratory. It is to be regretted that the author's limited clinical experience with the disease of hyperparathyroidism should make the clinical part of the book of little value. There are such obvious omissions and errors in his discussion of the clinical picture of overactivity of the parathyroid glands that this book cannot be recommended to the practitioner seeking knowledge to guide him with clinical problems. The book, however, will be read with interest by physicians and laboratory workers who are already conversant with this field of medicine. By them his extensive chapter bibliographies will be found most useful.

The Human Foot, Its Evolution, Physiology and Functional Disorders Dudley J Morton 244 pp
New York Columbia University Press \$3 00

Dr Morton, Associate Professor of Anatomy at Columbia University College of Physicians and Surgeons, has written a very complete, interesting, and entertaining monograph on the human foot, which ably reflects his long standing interest and careful research on the foot and its problems.

He devotes the first part of his book to a discussion of the evolution of the foot, tracing its development from the amphibian to man. Particularly interesting are the chapters on proanthropoid and anthropoid changes, and the terrestrial modifications of gorilla and early prehuman feet. These comparative anatomical studies are the result of much investigation and a wealth of anthropological material. Finally, the human foot itself is considered, and the bony and muscular factors in its development discussed.

The second part of the book is devoted to the physiology of the human foot. The importance of the relation between the centre of body weight and foot function is stressed, and the relative importance between structural and postural stability discussed. Contrary to general orthopedic teaching, Dr Morton minimized the importance of muscle balance. The mechanics of the foot in walking and running are taken up, and the gaits of apes, African savages, and civilized peoples compared.

The third and final section of the book considers functional disorders of the human foot. Details of physical examination are discussed with particular emphasis on x-ray examination and interpretation. The graphic method used by Dr Morton in recording and studying gait is extremely ingenious and appears to be a great advance over the clumsy and complicated methods used heretofore. Dr Morton concludes that the chief primary factors in producing functional disturbances in the foot are the following: shortness of the first metatarsal or, what amounts to the same thing, posteriorly placed sesamoids; hypermobility of the first metatarsal segment; short calf muscles. Methods of treating these clinical factors are given which are new and logical, and it is to be hoped that at some later date Dr Morton will supplement his excellent

book with a clinical end result study of cases diagnosed and treated according to the principles he has formulated.

Agents of Disease and Host Resistance Including the Principles of Immunology, Bacteriology, Mycology, Protozoology, Parasitology and Virus Diseases. Frederick P Gay 1581 pp Springfield and Baltimore Charles C Thomas \$10 00

This volume contains 1581 pages. It presents by the different associates of Frederick P Gay practically all of the present day branches of medicine relating to disease agents, whether inanimate or animate. The reviewer has turned to this book as a reference work fifteen times since he received it for review, each time finding successfully, and in brief, concise form, the information he was seeking. It is more than a textbook presentation, it is a reference book for the average man of medicine. The data given are accurate, complete, and well presented. An outline of the parts into which the book is divided will indicate the material included.

Part I General Aspects of the Causation, Classification and Nature of Disease

Part II Inanimate Disease Agents and Tolerance.

Part III Living Disease Agents, particularly Bacteria, Their Morphology and Physiology

Part IV Infection and Epidemiology

Part V Resistance and Immunity

Part VI Pathogenic Bacteria and Diseases Produced by Them

Part VII Pathogenic Spirochetes and Spirochetoses

Part VIII Pathogenic Fungi and Fungus Diseases

Part IX Indeterminate Pathogenic Forms and Diseases Produced by Them

Part X Animal Pathogens

Part XI Diseases of Obscure Etiology

Part XII Practical Results in the Diagnosis, Prevention and Cure of Infectious Diseases

This book is recommended to the medical profession as a book which will be used constantly, in order to obtain information necessary in the daily demands of a general practice.

Laboratory Methods of the United States Army Fourth Edition Edited by James Stevens Simmons and Cleon J Gentzkow 1091 pp Philadelphia Lea & Febiger \$6 50

The fourth edition of this most useful laboratory manual, edited by Dr James S Simmons with Dr Cleon J Gentzkow as Associate Editor, shows a number of important additions. Recognition is made of the increasing importance of statistics in medical work by including an excellent, though brief, section on statistical methods. A brief outline of the method of testing various foods and beverages is given. A useful summary of various toxicological procedures is also presented. The manual, comprehensive in ground covered, simply yet adequately written, will be of great service to any practitioner.

er doing a moderate amount of laboratory work or called upon to do an occasional test. This outgrowth of Medical War Manual No. 6 has kept pace with the development of medical knowledge since the World War and yet has avoided reaching a cumbersome size.

Le Thymus Anatomie — Histologie — Physiologie Clinique et Therapeutique G. Worms et H. Pierre Klotz. 152 pp. Paris: Masson et Cie. 30 fr.

This monograph covering the anatomy, pathology and physiology of the thymus represents a clear and concise presentation of the French attitude toward this organ. The material from the French literature is adequately covered. The volume however will be chiefly of supplemental interest to American readers, omitting as it does discussions of the more recent hormone work particularly that centering about Hansson's extract. The consideration of status thymico-lymphaticus is very sane and practical and should serve to weight down more heavily the tombstone of this discredited but all too frequently resurrected hypothesis. The illustrations are well chosen and technically satisfactory.

You Must Eat Meat. Fables, Follies and Facts About Meat. Max Ernest Jutte. 164 pp. New York: G. P. Putnam's Sons. \$2.00.

This small book describes the digestive and circulatory systems and indigestion with special reference to auto-intoxication and the development of chronic diseases, in simple terms. It also gives an account of the "New Dietetics," the follies and facts of meat consumption, and the effects of meat as compared with carbohydrate ingestion in the human body. And it ends with favorable comments on the use of the Salisbury Diet in health and in the treatment of chronic diseases. The book is written largely for lay readers.

The Diseases of the Endocrine Glands Hermann Zondek. Third Edition. Translated by Carl Prausnitz. 492 pp. Baltimore: William Wood & Company. \$11.00.

One is constantly asked where it is possible to find a good résumé of the present status of the endocrine glands with special emphasis on the clinical aspects. The answer is that such a résumé does not and probably cannot exist. Any such attempt in rapidly advancing a field where so much is being written must by the nature of things suffer almost on publication from the criticism of being out of date and inaccurate. Furthermore, since many of the problems are still controversial any exposition which attempts to be didactic and complete is bound to meet with the disapproval of those readers who have their own viewpoints on these questions.

And yet in spite of these objections such works do fill a need in one's reference library and are

better than nothing. The three German textbooks on Clinical Endocrinology (Zondek, Bauer, Falta) all very much alike contain a lot of valuable information and this new translation of Zondek's with revisions by Carl Prausnitz is a welcome addition. The chapters on the physiology of the glands cover many of the more recent advances.

The Special Procedures in Diagnosis and Treatment. An Outline for Their Understanding and Performance Don Carlos Hines. 66 pp. Stanford University: Stanford University Press. \$1.00.

This sixty-six page outline presents the salient points about such familiar hospital procedures as gastric lavage, oxygen therapy and blood transfusion. In addition to describing the apparatus and technique of its use it summarizes the indications, contraindications and complications. At the end of each chapter is a list of references for more complete study. This book will find its greatest usefulness in the hands of the medical student or nurse who is about to commence work with hospital patients for the first time.

The Modern Treatment of Burns and Scalds Philip H. Mitchner. 64 pp. Baltimore: William Wood & Company. \$2.00.

Nearly three-quarters of this booklet of sixty pages is devoted to a consideration of the tannic acid treatment of burns both by the spray and compress methods. The applicability of the latter method seems overemphasized. It is the opinion of many surgeons that the method is efficient and convenient for ambulatory burns but that either immersion or the spray method with drying and exposure to the air is preferable for extensive burns. The preservation of tannic acid in solution, powder and tablet form is discussed. The rest of the volume is devoted to a terse presentation of the treatment of special burns.

As a ready reference book, the volume may fill a need in the first-aid room of industrial plants.

The Diagnosis and Treatment of Disorders of Metabolism James S. McLester. 3.5 pp. New York: Oxford University Press. \$5.00.

With the rapidly accumulating knowledge the disorders of metabolism are assuming a unitary position in the field of medicine. The author proceeds from a discussion of normal metabolism to that of intermediary metabolism, water balance, acid base equilibrium, gout, obesity and diabetes mellitus. Although valuable as bringing together in a single volume a discussion of these conditions, most of what appears in this book can be found in modern textbooks on clinical medicine and applied physiology. Furthermore, in a volume designed chiefly for the practicing physician, the many pages devoted to complicated laboratory technique such as the Van Slyke plasma bicarbonate determinations (fifteen pages) as a single example certainly run counter

to its purpose. The pages allocated to these laboratory procedures could be more profitably utilized. The recently developed subject of the metabolic disorders resulting from the parathyroids is omitted.

The reviewer feels that there is a place for such a volume but extensive revision is necessary.

The Patient and the Weather William F Petersen
Volume I Part I 127 pp Ann Arbor Edwards
Brothers, Inc \$3 75

This is one of a series of monographs on the same subject. Some of the later volumes, such as the one on nervous and mental conditions in relation to the weather, have preceded this introductory section and have been reviewed, as they appeared, in *The New England Journal of Medicine*. With this volume, a certain confusion about the nature of the project is now cleared up and the author's purpose made more evident.

The main thesis concerns the effect of the environment on the patient, chiefly the immediate environment, namely, the weather and the season. While admitting that there are many other environmental factors influencing the individual, such as emotions, diet, intoxications, infections and fatigue, these are difficult to evaluate. The weather, however, can be measured with considerable accuracy, is an important factor and, moreover, has been thoroughly ignored in modern medical teaching and medical practice.

The field covered is a wide one. Both the normal person and the patients are considered as influenced by meteorological conditions. Maps and pictures are freely used in an endeavor to show why some people are able and some dull, "why Vermont produces more genius but also more insanity, why individuals die of tabes and paresis in a clear cut track right across the country, while to the north and to the south the death rate falls," and similar topics. Many of the figures are based on the statistics supplied by the United States Draft material and the Census of 1930. Various diseases are noted with maps showing their frequency in various states.

How much can be added to our knowledge by investigations of this kind is an open question. Because of the author's obscure style, his easy assumption of premises not held by all scientific workers, and his tendency to moralize, the work is difficult to evaluate. If the value is there, it is obscured by a mist of indistinctness.

The Stomach and Duodenum George B Eusterman, Donald C Balfour, and others 958 pp
Philadelphia and London W B Saunders Company \$10 00

This book, from one of the most famous clinics in America by two well known men, covers from the medical as well as the surgical side the diagnosis and treatment of diseases of the stomach and duodenum. Each phase of a patient's disease from

its beginning to the follow up treatment is carefully given. Case histories are detailed, methods of examination explained, laboratory findings discussed, all admirably. Diagnoses, preoperative care, detailed operative or medical treatment are interestingly covered.

From the surgical standpoint, every operation is given in full with the step by step technical drawings. The photographs and drawings are so fine that they make the procedures clear.

From a medical standpoint, treatment is fully discussed and exact details are given. Even diets as compiled by the St. Mary's Hospital dietitian can be found fully stated in the appendix.

Chapter 59 with its discussion of late sequelae of surgical treatment is particularly unique.

This book cannot fail to appeal to both internists and surgeons, for it is the most complete, detailed and up-to-date single volume yet published on the diseases of the stomach and duodenum. It should be of permanent interest to the general surgeon and general practitioner and invaluable to the specialist in gastroenterology.

A Practical Handbook of Midwifery and Gynaecology for Students and Practitioners W F T Haultain and Clifford Kennedy Second Edition 356 pp
Baltimore William Wood & Company \$5 25

This book is written in the manner of a quiz compend, and it attempts to cover the field of obstetrics and a part of gynecology. Some of the subjects are summarized satisfactorily, others are not. Its only value would be to students making a hurried review of a subject, but it is so at variance with teaching in this country that it would be of little or no value here in America.

Tumors of the Urinary Bladder Edwin Beer 166 pp
Baltimore William Wood & Company \$3 50

From the experience gained in his clinic at the Mt Sinai Hospital in the past twenty five years, Beer has reached the sound and clear-cut conclusions expressed in his book. Some six hundred and fifty cases of bladder neoplasm form the basis for his observations. In presenting his facts and the conclusions arrived at from a study thereof, the author has shown the best of judgment in that he gives us all the important points and does not make his text top-heavy with statistics and minor details. By reading this book of one hundred and thirty pages one can get a clear idea, in good perspective, of the pathology, symptomatology and treatment of bladder tumors.

Beer, who was the first to suggest the use of the high frequency current for the transurethral destruction of vesical papillomas, limits this method to tumors which appear to be benign or at most are in the class of papillary carcinoma of low malignancy. He sometimes implants a few seeds of radon about the bases of these tumors provided there is no evidence of infiltration of the base.

For more extensive growths his experience leads him to prefer resection of the entire thickness of the bladder wall even if this involves reimplantation of the ureter to radium. Incidentally the results which he obtained by reimplantation of the ureter in forty-three cases were satisfactory enough to teach us that this is a feasible procedure.

Beer has been an advocate of total cystectomy in selected cases. ureterostomy has been his method of diverting the urinary stream. While his results with this method have been distinctly better than the results of most surgeons employing ureteroenterostomy it is not at all certain that this solution will be the final one. Improvements in the technique of ureteroenterostomy may so reduce the mortality from this operation that even with its added risk and multiple operations it will prove to be the more satisfactory procedure.

In Beer's experience deep x-ray therapy has accomplished little except the control of hemorrhage but he suggests that further developments in this method may increase its efficiency. He believes that some patients with multiple rapidly recurring tumors of low malignancy have been benefited by x-ray treatment.

This monograph can be recommended as a clear and sane statement of the present status of the management of a disease which is too often treated in an illogical half-hearted way. Beer's attitude is one of radicalism tempered with sound judgment.

The Diagnosis and Treatment of Diseases of the Heart. Henry A. Christian. 373 pp. New York: Oxford University Press. \$6.00

This book is a reprint of the volume originally issued in loose-leaf form in 1928 as one of the monographs of the Oxford System of Medicine. It has been brought up-to-date as can be seen by its inclusion of such subjects as the use of mercupurin and a discussion of the merits of total thyroidectomy for heart disease. It is divided into sixteen chapters describing the diagnosis and treatment of acute endocarditis, myocarditis and pericarditis and of chronic diseases of this nature: syphilis of the aorta, angina pectoris, cardiac infarction, thyroid heart disease, arrhythmias, cardiac neuroses, congenital heart disease and the pharmacological action of digitalis.

While it is not a highly detailed discussion of the subject of cardiac disease it has been a standard text for some years and written "primarily for practitioners of some considerable clinical experience. It can readily be seen to be the product of a very wise physician. Dr. Christian's views on some disputed points are well known such as the value of digitalis as a daily ration in all adults in whom cardiac hypertrophy can be demonstrated, the belief that the higher degrees of the so-called myxedema heart are due to myxedematous pericardial effusion and not to dilatation of the heart, and his conservative attitude toward focal infection as a factor in cardiac disease.

A few minor omissions might be mentioned such as the recent work on the relief of attacks of auricular paroxysmal tachycardia by acetylcholine derivatives, the much larger series of patients with angina pectoris treated by paravertebral alcohol injection than is included and the rather striking evidence that congenital idiopathic hypertrophy of the heart is at least sometimes associated with abnormal deposits of glycogen in the muscle. It would seem unwise to recommend intravenous quinidine to the general practitioner without an added word of warning as to its danger and not all would agree with the author's feeling that alcoholic beverages are inimical to patients with angina pectoris. The use of the metric system is theoretically advisable in the prescription of drugs but it must be admitted that the practitioner will probably continue to figure digitalis doses in grains and not milligrams and perhaps both systems should be used throughout a book like this. For the sake of accuracy it should be noted that the titles of figures 15 and 16 have been partially transposed, the first figure actually showing the position of the mitral valves and the second the aortic.

All physicians in general practice are forced to have an interest in heart disease and this volume is an excellent one on which to rely. It is to be recommended not only to them but to those whose primary work is concerned with cardiac problems.

Modern Treatment in General Practice. Volume II. Edited by Cecil P. G. Wakeley. 352 pp. Baltimore: William Wood & Company. \$4.00

The second volume of this series which evidently has met with cordial reception in England is a broad survey of recent trends of medicine covering a large number of subjects in a concise and practical manner. The names of the authors can but demand respect, and they have reduced their material to useful and accessible form. Forty miscellaneous topics from gastric ulcer to fracture of the femur are discussed in the three hundred pages. The aim of the writers has been to make this a work to which a busy man could turn and find specific information that would be immediately helpful. This is by no means the first book designed for this purpose but it differs in that the authors have filled the prescription. The sections are plithy full of facts with out theory and at the same time can be read with pleasure. The best articles are those dealing with fractures particularly the Thomas splint and its wide field of application.

Essentials of Psychopathology. George W. Henry. 312 pp. Baltimore: William Wood & Company. \$4.00

This is a book based upon personal experience. As Professor Adolf Meyer says in the preface the author "takes the reader into his workshop and study with an opportunity to share the facts as found and the methods as used." The material is

strictly up-to-date and conforms to the best in the practice of psychiatry as now carried out in the leading clinics of the world. Due emphasis is laid upon the work of Freud, but the subject is handled in a manner much broader than a strictly Freudian point of view. A few case histories are added to the record, but most of the book consists in describing the way investigations are made of psychiatric problems, plus a summary of what justifiable conclusions can be drawn about the most complicated part of medicine. In modern psychiatry there is a wealth of existing material with almost endless interpenetrations. To cull from this mass an important contribution to the subject limited to three hundred pages is the task set by the author. He has succeeded perhaps better than anyone before him and this book should find a place in the library of all interested in mental disease.

Über die Rhythmik der Leberfunktion, des Stoffwechsels und des Schlafes Erik Forsgren 56 pp
Göteborg N J Gumperts Bokhandel

This protocol contains the results of studies of the daily changes in the liver, gallbladder the secretion of urine, the body temperature and metabolism. The investigations were carried out during sleep in addition to during the waking hours. As a result of twenty-four hour examinations both histological and biochemical, of the liver cells, their glycogen content, the amounts of bile secretion, the variations in the size, color, consistency and taste of the liver itself, the author believes that its function is rhythmic in character.

He also states that the metabolic changes constantly occurring in the body are rhythmic, even during sleep. This study should be of interest primarily to the physiologist and the student of physiology.

A Treatise on Medical Jurisprudence Benton S Oppenheimer 290 pp Baltimore William Wood & Company \$4.00

This handbook is not to be confused with a treatise on legal medicine concerning itself with the various conditions where medical science is invoked to solve problems coming before a court of law,—but is designed primarily “to assist members of the medical profession in determining what legal rights and obligations arise out of the relation of physician and patient.” The author is a lawyer of wide experience in these matters, and writes in a style both lucid and as free as possible from technical verbiage. The ground covered includes a review of the laws regulating licensure, the legal aspects of the relation of physician and patient, malpractice and actions brought in its name, the nature of rules of evidence, dying declarations, a physician's right to compensation, compulsory medical or surgical treatment, and the right to perform autopsies. The sections on expert testimony, with the author's critical

but friendly comments on the physician as an expert witness, and on privileged communications, should be read and gratefully apprehended by the physician before he goes on the witness stand. The book as a whole is warmly recommended to all physicians, as well as to lawyers who presumably will find its numerous citations invaluable.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles Edited by Louis Hamman Volume 4 forty-fifth series 1935 331 pp Philadelphia, Montreal and London J B Lippincott Company

In this volume we find a group of articles of diverse nature. There is an excellent balance between the practical and theoretical aspects and because of the thoroughness of the reviews, we are offered the quintessence of recent advances in knowledge.

Regional Anatomy Adapted to Dissection J C Hayner 687 pp Baltimore William Wood & Company \$6.00

This volume presents the unfamiliar aspect of a textbook of anatomy without illustrations. It does not aim to be a general, systematic anatomy, a surgical anatomy, a dissection manual, or an atlas, but rather to present the subject matter of regional anatomy in brief but inclusive and strictly descriptive form. The BNA terminology is employed throughout with occasional bracketed references to vernacular or traditional nomenclature. Fifty-one selected regions are thus described in 635 pages, avoiding on the one hand the brevity of the compendium and on the other the diffuseness of the larger standard treatises. As a means of review in preparation for examination or for a proposed surgical operation, the book deserves much praise. It is obviously not a textbook for the beginner, but should fill a definite place in the library of the surgical practitioner.

Pathologie Digestive P Harvier 162 pp Paris Masson et Cie 22 fr

This is a short volume published under the direction of Dr A Sezary. Professor Harvier has stressed the physiology and pathologic anatomy associated with digestive disorders. It is well written. Although not complete in any sense of the word, it amply covers the salient points of intestinal and gastric diseases.

Gynecological and Obstetrical Tuberculosis. Edwin M Jameson 256 pp Philadelphia Lea & Febiger \$3.50

This is an accurately titled, scholarly textbook for reference and study, not for leisurely reading. Under each of over a hundred headings the literature of the world is reviewed and appraised. For this a list of over a thousand references is appended.

Though written by a young man who has been in practice less than ten years it gives just consideration to conflicting views and sound conclusions from his own cases almost all of which were apparently complicated by severe pulmonary lesions.

There is a particularly thorough discussion of routes of infection with concise description of experimental work done apparently in Saranac. The author shows commendable skepticism about any possible diagnostic link between menstrual deviations and pelvic tuberculosis. He shows brave frankness in recognizing the poor prognosis in conservatively treated tuberculous salpingitis and oophoritis but appreciates also the rare justification for such treatment. He evinces encouraging optimism regarding small doses of x ray (five more or less each of 50 R units more or less) for special cases of intrapelvic genital tuberculosis in which radical surgery is inadvisable for instance for the very young who want to remain intact and those with severe complicating pulmonary lesions. The use of radium he deprecates.

The discussion of pregnancy and tuberculosis is fulsome and wholesome. With enviable insight he has derogated what he calls "polemic" literature but considers wisely the many reports of the dependable experience of good clinicians. Again and again he emphasizes the necessity for adequate care of tuberculosis during pregnancy and the puerperium which he insists is almost impossible to obtain with the present setup of sanatoria and maternities. Regarding prevention or interruption of pregnancy this well informed discreet obstetrician and phthisiologist takes no absolute stand. He states in detail all the conflicting attitudes but shows clearly that each case is to be considered on its own manifold conditions.

So "meaty" and digestible is this book, the reviewer is tempted to abstract it rather than criticize it. It is well worth the careful study of all who practice medicine for tuberculosis in women is common. It will prove invaluable to all who specialize in obstetrics or gynecology or phthisiology.

This young author has written an excellent book. He should go far for he will be of great value to medicine. The publishers too have presented his work in excellent style. It is a tidy little volume with pleasing paper and good print.

High Blood Pressure and Its Common Sequelae
Hugh O. Gunewardene 123 pp. Baltimore: William Wood & Company \$3.00

This book written in Ceylon has very little to recommend it to the American reader. Most of the information contained in its pages was common knowledge in this country ten years or more ago. Many of its chapters are very loosely written and references are frequently given without regard to whether the accepted standards. Case reports with insufficient data to make them interesting are

sprinkled throughout the pages with far too little comment.

One chapter however has considerable human and some scientific interest to the American reader. This deals with the blood pressure in three groups of sedentary individuals: the Buddhist priests, the Moslems and the Chetties and one group—the rickshamen whose occupation involves extraordinary physical exertion. By contrast to the ricksha runners whose pressures tend toward low normal the pressures in the other groups whose activities are chiefly mental range slightly above normal.

For and Against Doctors. Robert Hutchison and G. M. Wauchope. 168 pp. Baltimore: William Wood & Company \$2.00

Charles L. Dana was evidently right in his remark that "all the real solid elemental jests against doctors were uttered some one or two thousand years ago." Hutchison and Wauchope have collected a small volume of medical satire, extravagant praise and dispraise from the literature of the ages. A source of useful quotations for occasional use. It makes a delightful addition to that class of books for both doctors and patients that can be picked up on the run and opened to any page.

Appareil Circulatoire. Ch. Laubry. 186 pp. Paris: Masson et Cie. 22 fr.

This short compendium on the circulatory system is one of a series published under the direction of Dr. A. Sézary. It is a small volume of 186 pages and envisages the recent methods employed in the diagnosis of cardiac disease.

The book is intended for students and is not a comprehensive work on the subject.

Röntgenology. The Borderlands of the Normal and Early Pathological in the Skiagram. Alban Köhler. Second English Edition revised by the Author. 681 pp. Baltimore: William Wood & Company \$14.00

This is the second edition of the English translation of Köhler's work which has long been known as the Roentgenologists' Bible. To roentgenologists it is probably the most valuable single book in the English language.

The present edition has several improvements over the first. It is better printed, contains over one hundred additional pages and the illustrations have been supplemented with captions which add definitely to its value as a book of reference.

As the title suggests the field covered is the borderland between the normal and pathological—a field which offers many puzzling problems. It is a book which every roentgenologist should have and use.

The True Physician The Modern "Doctor of the Old School" Wingate M Johnson 157 pp New York The Macmillan Company \$1 75

A Modern Doctor of the Old School is the appropriate subtitle of this sane and realistic presentation of the art of medicine. A book that should be on the shelf of every recent medical graduate, it will be a safe guide and friendly counselor for many years. The author is obviously a man of thoughtful experience, a man who has seen life with clear vision, who, while sufficiently idealistic, never soars into the clouds of saccharine platitudes that characterize most works of this kind. In the hundred and fifty pages he covers the rights, ideals, duties, compensation and conduct of the physician, under practically all conditions, his reading, social life and many-sided relations to a fickle and demanding public. In easy simple language a valuable message is conveyed.

One cannot escape the certainty that Wingate M Johnson, the author, has loved his work, that he is a man one would be proud to call "my doctor."

Synopsis of Clinical Laboratory Methods W E Bray 324 pp St Louis The C V Mosby Company \$3 75

In contrast to many laboratory manuals, this little book is not only relatively brief but proves to be a mine of information. Written in the form of a synopsis rather than as a textbook, and containing a minimum number of illustrations, it will prove to be a handy and valuable reference compendium for the laboratory. As far as the illustrations are concerned, the line drawings and colored illustrations are reproduced well, but the photomicrographs often lack clearness. The author has restrained himself to technique and has not attempted to make an interpretation of laboratory tests, but on page 103 he states "It is not within the scope of this synopsis of clinical laboratory methods to discuss the differential diagnosis of the various blood diseases. Brief mention, however, will be made of them," and then follow three pages of clinical notes on the various blood dyscrasias, many of which are inaccurate and often misinforming. It is suggested that in future editions, clinical discussion be omitted. Aside from this minor fault, this little volume cannot be too highly recommended.

The Diagnosis and Treatment of Diseases of the Peripheral Arteries Saul S Samuels 260 pp New York Oxford University Press \$3 50

This rather nice looking, small volume on a subject of such live interest is somewhat of a disappointment. The reviewer feels that the author does not do himself justice. He obviously knows thromboangiitis obliterans to which subject he has devoted 190 of 254 pages. It is difficult, however, to understand the paragraph in the preface, reading as follows:

"This study is based on the examination and treatment of over 350 cases of thromboangiitis obliterans and of a larger number of cases of peripheral arteriosclerosis, during the past ten years. These cases were seen both in private practice and in my clinics for peripheral arterial diseases at Bellevue Hospital and the Stuyvesant Polyclinic. Of the 350 cases of thromboangiitis obliterans, only one required amputation because of complete destruction of the foot by the gangrenous process, due to superimposed arteriosclerosis."

It is incredible to men who have studied this disease with considerable care and detail that 350 consecutive cases of thromboangiitis obliterans could possibly have been followed through to the termination of their disease with only one major amputation.

The rather sarcastic vein which the author takes as regards the opinion of other authors on the subject and the types of treatment that have been helpful in other clinics, but of which he does not approve, makes for an unfortunate impression. The treatment that the author seems to feel most effective is that of repeated intravenous injections of hypertonic salt solution, which has not been found to be a specific by other investigators.

The author deserves a great deal of credit for his conservative ideas and rarely can such ideas be carried to an extreme when dealing with this disease.

A Synopsis of Physiology A Rendie Short and C I Ham Second Edition Edited by C L G Pratt 312 pp Baltimore William Wood & Company \$3 50

In the second edition of this work Dr Pratt has kept the structure of the original and has brought the outlines of general physiology up-to-date. The new additions include the latest work on vitamins, sexual physiology and endocrinology.

One is truly amazed at the amount of knowledge that has been packed into this small volume, and yet despite its condensed nature the material is unusually interesting and cohesive because of the excellent sequential arrangement. Enough of anatomy is included for understanding of the text and whenever a point has clinical bearing it is mentioned. A third of the space is devoted to the physiology of the nervous system and special senses. There is an excellent index but no bibliography.

The authors do not intend this work to serve as a textbook in physiology but rather as a summary to be used by the student in his review and by the clinician in bringing his knowledge up to date. For both of these purposes it is admirably suited.

Thérapeutique Hydro-Climatologique des Maladies du Foie et des Voies Biliaires. Paul Carnot, Maurice Villaret, et René Cachera 152 pp Paris Masson et Cie 20 fr

This short volume is of no value, and offers no new material in the treatment of liver and biliary diseases.

The New England Journal of Medicine

VOLUME 214

JUNE 25, 1936

NUMBER 26

THROMBO ANGIITIS OBLITERANS WITH SPECIAL REFERENCE TO ITS ABDOMINAL MANIFESTATIONS*

BY SIDNEY SLATER COHEN, M.D.† AND MAURICE E. BARRON, M.D.†

SINCE the establishment of thrombo-angitis obliterans as a clinical and pathological entity in 1908¹ the disease has been regarded until recent years as one involving only the vessels of the extremities and more especially the lower. That such a restriction is artificial and erroneous has become the growing impression of many observers who have been of the opinion that the disease is widespread in its distribution. It is our aim to help to clarify and establish this impression as fact and particularly to define the abdominal manifestations of the disease as a surgical entity.

Buerger was the first to discuss the possible general aspects of the disease, stating that little was known regarding the participation of arteries other than those of the extremities in the characteristic process. He quoted four cases of the disease involving systems distant from the original proved thrombo-angitis of the extremities, and found coronary arteriosclerosis in one, thrombo-angitis of the coronaries in another, and central arteriosclerosis with bland thrombosis in two, to account for the clinical picture. Barron and Lantenthal² in 1929 called attention to 'the more general distribution of the disease in contradistinction to what has previously been believed concerning it—that it is a disease involving the blood vessels of the extremities exclusively. They believed that it attacked the walls of the vessels throughout the entire vascular system—giving signs and symptoms characteristic of the regional vessels and organs involved. A study of thirty-four cases was made (twenty-seven of their own, seven in the literature) in which, with thrombo-angitis of the extremities (only a few proved histologically, the rest typical clinically) episodes suggesting involvement of cerebral, coronary, and other vessels occurred. In view of the young age group in these cases, with years of disease prior to definite nutritional disturbance, it was felt that thrombo-angitis was here a general disease with involvement in these distant loci and that arteriosclerosis, when present, was superimposed. However, in this group only four autopsies are

quoted these showing changes suggestive of the disease. This is a very small proportion.

Brown and Henderson,³ LeMann,⁴ Lewis,⁵ Taube,¹⁰ Allen and Willius,¹¹ Riesman,¹² and McGregor and Simson¹³ all quote cases of thrombo-angitis obliterans with cerebral, coronary and other episodes suggestive of extension of the primary process but again with no post mortem material. Livingston¹⁴ quotes such a case and remarks on the frequency with which patients, who have had a "stroke" or coronary attack, complain of intermittent claudication and night cramps of the legs. He states "I feel that the clinical entity we have been calling Buerger's disease is not an entity at all, that there probably are a variety of causes functional and pathological, for an obliterating arterial disease process which may attack the terminal arborizations of arteries anywhere in the body."

Jäger¹⁵ in an extremely thorough and diligent treatise on the subject, has detailed the histopathology of the disease in its various stages and concludes similarly.

It would seem however as though histopathological proof of the widespread nature of the disease were sadly lacking in the literature, that more autopsy material was highly essential for enlightenment. Buerger has stressed this, and the preponderance of purely presumptive case reports has borne out the contention.

This paucity of autopsies is probably due to a number of factors: first to the chronic nature of the disease lending itself to numerous hospital admissions with eventual self restriction to home care and exitus away from the hospital, secondly, to the temporary arrest of the disease often by amputation leading to eventual exitus from cause other than thrombo-angitis obliterans—again outside of hospital thence to the orthodox Jew's aversion to postmortem examination.

LeMann quotes but six autopsies on thrombo-angitis obliterans in the literature through 1928 four of them Buerger's (as above) one Perl's one LeMann's. Sprunt¹⁶ in a recent article on 'generalized thrombo-angitis obliterans,' found eighteen cases the above included in the literature with autopsy. All of these showed some lesions of the visceral arteries in many cases simply arteriosclerosis in others a

From the Department of Surgery, Beth Israel Hospital, Boston, Mass.

*Cohen, Sidney Slater—Junior Assistant Surgeon at the Beth Israel Hospital and Member of the Vascular Clinic. Barron, Maurice E.—Assistant Professor of Surgery, Tufts College Medical School. For record and address of authors see "This Week's Issue," page 122.

smaller group, purely thrombo-angitic, and in a third group, mixed types. Sprunt presents a careful analysis of the site of involvement, age, duration of symptoms with other vital statistics, revealing as a whole that there exists in these cases a general vascular disease, terminating in most cases with the usual vascular accidents one associates with arteriosclerosis and hypertension.

Aveibuck and Silbert,²⁹ in a very thorough treatise on the cause of death in thrombo-angitis obliterans, were able to detail the histopathological background in a large series of cases. Of forty-five cases of proved thrombo-angitis obliterans of the extremities who died, twelve or 21 per cent died of intercurrent non-vascular disease, twenty-two or 41 per cent succumbed to visceral vascular accidents, the remainder of asthenia and operative intervention. Of these forty-five, nineteen came to autopsy, three of them Buerger's cases. Of these, only one case presented distant lesions typical of thrombo-angitis obliterans as in the extremities, while eleven or 58 per cent had occlusive, non-typical visceral processes. The association between thrombo-angitis obliterans in the extremities and visceral accidents as manifested in this and other series certainly cannot be an accidental one. Undoubtedly the incidence is much greater than in a group of normal individuals. One cannot help but define in thrombo-angitis obliterans, as Silbert points out so aptly, a "constitutional inferiority of the entire vascular system with abnormal thrombotic tendencies and early degenerative vascular changes with local variations, making for a variable clinical and histopathological picture."

Search of the entire literature to date reveals that there are to be but a handful of autopsy reports on thrombo-angitis obliterans. Those, with our own, we detail in the accompanying chart—unfolding and correlating the clinical and histopathological aspects of the disease. In the records of the Beth Israel Hospital, we have had from August, 1928 to May, 1934 seventy-seven admissions of thrombo-angitis obliterans. Of this number, four died and all came to autopsy. These we include in Chart 1.

It will be seen then that, of thirty-nine available autopsy reports there were vascular lesions distant from the original disease in the extremities in thirty-seven, of which group, seven showed histopathologic change characteristic of thrombo-angitis obliterans, and four showed questionably pathognomonic lesions—while in the majority the pathologic process was not characteristic of thrombo-angitis obliterans, but in most cases, of arteriosclerosis.

Buerger likewise noted that such material as had been collected had failed to define changes entirely characteristic of the disease in these

distant places. He felt that great care was necessary in interpreting the significance of the endarterial lesions found at necropsy, especially in the distant place, since intercurrent affections, atherosclerosis and secondary thromboses, with such changes as healing might induce, could play a rôle in producing the final histopathological picture, not at all typical of the disease. He points out that arterial channels affected by thrombo-angitis are inherently disposed to atherosclerotic changes as well as proved by study of autopsy material and amputated limbs. Study of the latter, especially at secondary or re-amputations, may disclose, only a few months after the first operation, marked atherosclerotic change not present earlier, and displacing the typical lesions of thrombo-angitis obliterans found previously.

Graves, in a concise account of the histopathology of the disease, points out that in thrombo-angitis, when the lesion has existed for many years, a secondary thickening of the intima takes place with corresponding proliferation of elastic fibres that must not be confused with the arteriosclerotic process. The latter, however, he states, is often associated with thrombo-angitis and one finds atherosclerotic plaques in which the elastic fibres are arranged more or less parallel with the internal elastic lamina, encroaching on the lumen. Evidently, in these cases, a predisposition to vascular disease manifests itself both in a susceptibility to thrombotic lesions as well as to degenerative ones.

Autopsy findings—according to Graves and others—also show that in thrombo-angitis obliterans the more centrally situated arteries develop a tendency to arteriosclerotic lesions even though the arteries of the extremities show but little sclerosis. One may thus find arteriosclerosis, thrombo-angitis, or both in these centrally located vessels. The histopathologic differentiation of thrombo-angitis obliterans and arteriosclerosis in the extremities rests on the involvement of nerves and veins and the relatively spared internal elastic layers in the artery, typical of the former process. In the other organs of the body one usually encounters the non-specific thrombosis typical of many types of occlusive vascular disease.

Thus one is left with the impression that even with definite thrombo-angitis of centrally located vessels, the usual chronic course with recurrent inflammation and superimposed arteriosclerosis leads to a histological picture at eventual examination uncharacteristic of thrombo-angitis obliterans. One is forced therefore to define these distant areas of thrombo-angitic involvement purely on an empirical basis, the clinical story, the concomitant process elsewhere comparative youth for arteriosclerosis and the localization of the process, rather than the histopathological picture.

CHART 2

LITERATURE ON "ABDOMINAL BULGER'S"

Biopsy	Abdominal Complications	Course	Autopsy	al pain tion and rly age body of sence of known feel that TAO described dominal ns with vessels of cases of involved presump that to additions, ical and Changesie more of abdo: vessels. thigh sp ours to though "ognized in stom: abdominal found Author interest other th:ve case n Jewish These tsuary 10 sumptive pain in of twen nd instep ide worse Case of physical suggeth the right vessels, especially A presumptions bials and Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric
Typically TAO	Postoperative surgical abdom- en	Operation for question of mesenteric thrombosis gangrenous gut exitus	Arteriosclerotic thrombo- sis of celiac axis superior mesenteric, left external iliac arteries	Definite
No report in history	Intermittent epi- sodes of abdominal pain and vomiting 4 1/2 years to entry	Operation dilatation and hypertrophy without gan- grene of terminal ileum and right colon. Died 45 hours postoperative	None at operation pulse- less sclerotic superior mesenteric artery and branches	Author
Typically TAO at later opera- tion	Perforated ulcer at gastroduodenal junction like cord like mass left com- plicated	3 months later left mid thigh amputation	None	Changesie more of abdo: vessels. thigh sp ours to though "ognized in stom: abdominal found
None	Asymptomatic su- perior mesenteric artery aneurysm	Gastroenterostomy and then resection of iliac each leg finding typical TAO	None vessels in specimen atypical for TAO	Author interest other th:ve case
None	Postoperative abdom- inal recovery 12 1/2 years later recur- rent	Operation gangrene bowel mesenteric throm- bosis exitus	None	Author interest other th:ve case
Typically TAO	Intermittent attacks 1 1/2 years later of ab- dominal pain, disten- sion, vomiting	Attacks to date of re- port	None	n Jewish These tsuary 10 sumptive pain in of twen nd instep ide worse Case of physical suggeth the right vessels, especially A presumptions bials and Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric
None	Intermittent attacks of abdominal pain and vomiting for 3 years	Attacks to date of report	None	n Jewish These tsuary 10 sumptive pain in of twen nd instep ide worse Case of physical suggeth the right vessels, especially A presumptions bials and Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric
None	Intermittent attacks of abdominal pain and vomiting	Progressive invalidism cerebral occlusion ex- itrus	Lesions characteristic of TAO widespread through- out vascular tree	Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric
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See autopsy	Intermittent attacks of abdominal pain and vomiting	Cerebral symptoms occlu- sion of extremities ex- itrus	Widespread inflammatory occlusive endarteritis sug- gestive of TAO	Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric
Typically TAO	Intermittent attacks of abdominal pain and vomiting	Exitus	Thrombosis of left exter- nal iliac, aorta and left coronary arteries consist- ent with TAO	Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric
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Typically TAO	Intermittent attacks of abdominal pain and vomiting	Expectant treatment, ex- haustion shock exitus	Typical TAO of all major branches of aorta and right coronary artery	Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric
Typically TAO	Intermittent attacks of abdominal pain and vomiting	Downhill course dying at 56 hours involved cere- bral symptoms	TAO of both thighs and superior mesenteric ar- tery AS of aorta and cor- onary	Widespr cardiac, operation t in his Compar: teal vein transmitte: The latter dominal diagnosis n Febru phenous While acute and this caso-angitis also abdication of A prove:traviolet of arteri: all tried pment of umbilical A prove:ttling ob- of arteri: ourly he strated in f low ab- A presu:ttling and sels by 7 ended an by AS 7e scaphi- basia" ation ex tire right Proved:osit the intestine: rectally itus 000 Ex examina with the appendi Progres:oo-angitis dominal here was flature of es of the mesenteric

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With these thoughts in mind the clinician should be better able to interpret vascular phenomena complicating any type of peripheral vascular disease and particularly thrombo-angitis obliterans. Coronary and cerebral episodes we understand as such. Occlusion of vessels in other viscera often goes unnoticed or is left un-related to a generalized arterial disease process. Spasm, inflammation, vessel wall change, collateral circulation all play a role in the interpretation of the clinical syndrome of thrombo-angitis obliterans and must be so emphasized.

Led to unusual interest in the subject of generalized thrombo-angitis obliterans by reason of previous work on the subject by one of us—and because of the extraordinary case we will present—it became our task to investigate the abdominal manifestations of the disease. As the literature was investigated it became evident that there are extremely few cases of proved involvement by thrombo-angitis of intra-abdominal vessels and only a few suggestive cases. We were also led to realize that there was a new entity to be considered in the differential diagnosis of the acute surgical abdomen.

The cases in Chart 2 as detailed constitute all those found in the literature indicating proved or presumptive involvement by the disease of intra-abdominal vessels.

Investigation of the literature thus disclosed only fifteen cases suggesting involvement by thrombo-angitis obliterans of blood vessels to the alimentary tract, a remarkably small group. Of these, only four are proved, two others doubtfully proved and the remainder (nine) presumptive. There are doubtless encountered clinically hundreds of cases of thrombo-angitis obliterans of the extremities in which temporary fleeting abdominal episodes occur—probably due to either acute thrombo-angitis of the vessels or spasm, or both. This Lewis Corner² recently stressed, suggesting that our knowledge of the events following thrombosis of coronary or cerebral vessels be applied to the problem of recognizing visceral vascular occlusion.

The prognosis in these cases depends upon the delicate balance between gross occlusion, collateral circulation and spasm. Failure to maintain this balance manifests itself by the ischemic pain seen in occlusive involvement of coronary, extremity or visceral arteries. Failure to recognize this possibility and the deplorable lack of autopsy findings have helped to keep uncertain and obscure our understanding of the general nature of the disease. We feel that these cases, as well as ours, constitute a definite indication that thrombo-angitis obliterans of the intra-abdominal vessels is a well-established step in the progress of the disease, and must be taken into consideration in the differential diagnosis of the acute surgical abdomen.

The clinical picture is usually one of partial

intestinal obstruction, colicky abdominal pain, vomiting, obstipation or diarrhea, distention and fever. Similarly, the comparatively early age group the presence elsewhere in the body of thrombo-angitis obliterans and the absence of arteriosclerosis elsewhere lead one to feel that the basis for all these cases may best be ascribed to generalized thrombo-angitis obliterans with abdominal manifestations. Why the vessels of the extremities are more frequently involved than others is not known. It is possible that to greater vascular demands, to static conditions and to exposure of the vessels to mechanical and thermal irritations we may ascribe the more frequent involvement of the peripheral vessels. It is our hope that the above cases and ours to follow, may bear out the contention that, though less commonly occurring and less recognized, thrombo-angitis obliterans of intra-abdominal vessels is a definite clinical entity.

The following case is offered as an interesting, but unfortunately only presumptive case of abdominal Buerger's disease—

S. A., thirty-four year old single Russian Jewish tailor entered Beth Israel Hospital February 10, 1931 with coldness, blueness and crampy pain in the arch, sole and big toe of the right foot of twenty-nine months duration and in the sole and instep of left foot, of fourteen months duration made worse on walking and with cold. At that time, physical examination revealed phlebitis migrans of the right leg and thigh and left foot both feet especially the right, were cold and blue. Femoral pulsations were both good but popliteal posterior tibials and dorsalis pedis bilaterally absent.

Posterior tibial nerve block with skin temperature readings revealed no vasospastic element in his disease. On March 26, 1931 right popliteal vein ligation with biopsy of artery was done. The latter found completely fibrosed. Pathologic diagnosis: arterial thrombosis with canalization. On February 6, 1933 for migrating phlebitis a left saphenous vein ligation was done. Biopsy revealed acute and subacute inflammation typical of thrombo-angitis obliterans; this was confirmed by re-examination of earlier biopsy specimens (Figs. 1 and 2).

Typhoid vaccine intravenous saline ultra-violet light exercises restricted activity were all tried but made little impression on the development of subsequent events.

Admitted May 23, 1934 with colicky periumbilical pain of thirty-six hours duration with vomiting, obstipation, prostration. Two months previously he had had his only previous attack, being prostrated in bed for one week with recurrent attacks of low abdominal midline cramping pain with vomiting and diarrhea. Physical examination now revealed an undernourished man toxic, with dry tongue, scaphoid abdomen with slight motion on respiration, extreme tenderness and spasticity of the entire right side of the abdomen—most marked opposite the umbilicus. The temperature was 100.8° F. rectally pulse 114, respiration 28 and WBC 26,000. Examinations showed findings as at previous examinations. Immediate laparotomy was done with the preoperative diagnosis of probable acute appendicitis and a secondary diagnosis of thrombo-angitis obliterans of the mesenteric vessels. There was disclosed patchy gangrene of the hepatic flexure of the colon involving one and a half inches of the length of the bowel mostly on the antimesenteric

border. Spots of necrosis were thin and varied in size from $\frac{1}{2}$ to 2 centimeters in diameter with normal bowel in between. No thickening of bowel or of mesentery was noted. The pulsations of the mesenteric vessels were definite up to an inch from the bowel margin, where in this particular locality

of the lesion and the abdomen closed. The convalescence was stormy. On the eighth day there developed a frank fecal fistula which gradually diminished in size until his discharge on the twenty-third postoperative day.

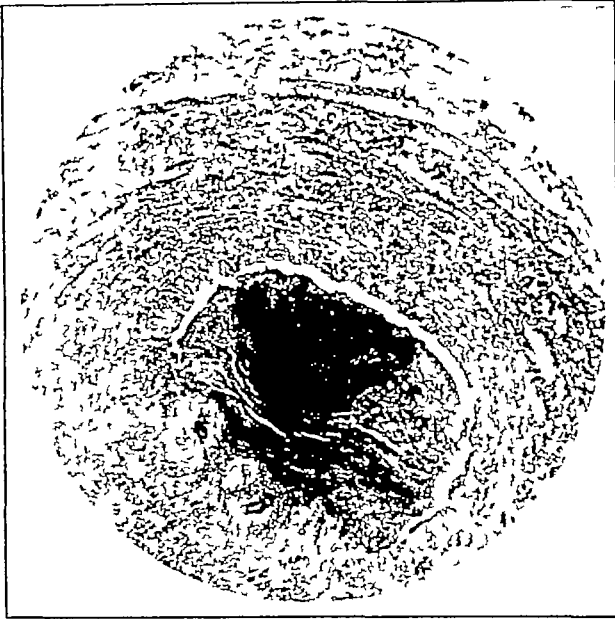


FIG 1

Acute Stage of Thrombo-Angitis Obliterans. Note the infiltration of all layers of the vessel by leukocytes, the lumen filled with clot in the periphery of which there are millary giant cell foci.

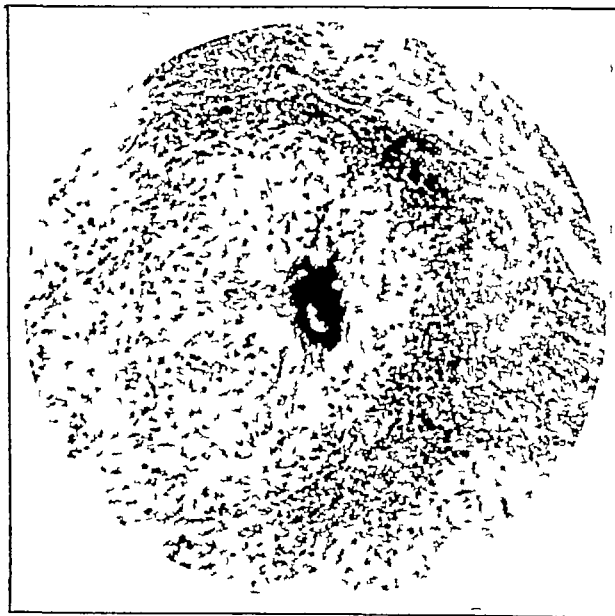


FIG 2

High Power View of One of Giant Cell Foci Noted at Rim of Thrombus in Previous Slide. Note typical leukocytic infiltration of all vessel layers.

they were not palpable. There was fibrin over the serosa of the colon and small bowel, thereby tying them together. Disrupted to expose the pathology. It was felt that there was a good chance of regression of the process and, accordingly, nothing further was done. Drains were placed to either side



FIG 3

X-ray taken after the First Operation. Note inflammatory hepatic stricture with dilatation of cecum and ascending colon proximal to presumptive thrombo angitic involvement of bowel vessels.



FIG 4

X-ray taken after the Second Operation. Note stricture and ileo transverse-colostomy. Note dilatation of cecum and ascending colon.

On July 9 1934 barium enema revealed a marked constriction at the hepatic flexure (operative site) 35 centimeters long and 25 centimeter in diameter (Fig. 3) There was no delay or obstruction and clinically no pain or distention Defecation occurred twice daily and the stools were soft, semi formed guaiac negative The possibility of neoplasm of hepatic colon was considered though inflammatory stricture was felt to be the probable underlying pathology

There ensued gradual distention some cramps which with the x ray picture led on August 21 1934 to ileo-transverse-colostomy for inflammatory stricture and partial intestinal obstruction At this time the surgeon found the left common iliac artery to be thickened fibrosed with faint pulsations and several areas of calcified plaques At the same time all the sensory nerves to the right foot were crushed except for the sural nerve that his toe might tolerate more vigorous local treatment

The convalescence was uneventful except for some abdominal distention with parumbilical cramps A checkup on Sept. 14 1934 revealed marked distention of the proximal half of the colon which was regular in outline except for the previously noted defect at the hepatic flexure The ileo-transverse colostomy stoma was one half inch in width and barium flowed through this stoma into the ileum and also by the stoma into the proximal colon. (Fig. 4)

We have thus a thirty-five year old man with a six year background of proved thrombo-angitis obliterans of the extremities who six months and again four months previously had had an acute gastro-intestinal episode At operation spotty gangrene of hepatic flexure was found with poor pulsations in the vessels near the bowel margin and thickening and fibrosis of the left common iliac artery but no other palpable changes Drainage of the abdomen was followed in turn by fecal fistula inflammatory stricture and ileo-transverse-colostomy for progressing obstruction There then loomed the possibility of the development of blind loop pathology that might have necessitated resection of the right colon and terminal ileum

It is the presumption that thrombo-angitis obliterans of the mesenteric vessels was the fundamental basis for the intra-abdominal process. Proof of this may be forthcoming at resection of his vessels at some future date In light of our knowledge of pathological changes in chronic thrombo-angitis obliterans we realize that we may find no typical lesions This man may go on to further similar attacks he may manifest cerebral or coronary changes attributable to his thrombo-angitis obliterans. His prognosis is questionable

SUMMARY AND CONCLUSIONS

- 1 The literature on the autopsy material of thrombo-angitis obliterans is reviewed Thirty nine available autopsy reports are abstracted
- 2 Thrombo-angitis obliterans is a generalized disease process which may affect vessels anywhere in the body, giving a clinical syndrome dependent upon the vessels and organs affected
- 3 In the chronic stage of the disease arteriosclerosis often accompanies, and may displace, the typical thrombo-angitic changes in the vessels involved In such cases a presumptive diagnosis of thrombo-angitis obliterans can be based only on clinical evidence
- 4 Suggestive abdominal signs and symptoms,

in a patient with thrombo-angitis obliterans of the extremities, may be due to involvement of the intra-abdominal vessels by the disease process. Recognition of this fact may modify the therapeutic approach and prognosis

5 The literature on abdominal Buerger's disease" is reviewed Fifteen available case reports are abstracted

6 A presumptive case of "abdominal Buerger's disease" is presented

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NEW HAMPSHIRE MEDICAL SOCIETY

PROCEEDINGS OF THE
ONE HUNDRED AND FORTY-FIFTH ANNIVERSARYHouse of Delegates, Manchester, N H
May 25, 26 and 27, 1936

THE House of Delegates convened at the Hotel Carpenter Manchester, New Hampshire, on Monday evening May 25, 1936, at seven-thirty o'clock

Speaker James B Woodman presided

The Secretary called the roll and the following members responded

The President, ex officio
The Vice President, ex officio
The Secretary-Treasurer, ex-officio
Richard W Robinson, Laconia
Raymond J Turley, Meredith
William J Paul Dye, Wolfeboro
Francis J C Dube Center Ossipee
Osmon H Hubbard Keene
Frank M Dinsmoor, Keene
Richard E Wilder, Whitefield
Robert M Deming, Glenciff
Roland J Joyce, Nashua
Deering G Smith, Nashua
Clarence E Dunbar, Manchester
Charles H Cutler, Peterborough
Henry H Amsden, Concord
Warren H Butterfield, Concord
James B Woodman, Franklin Falls
Lawrence R Hazzard, Portsmouth
Harry O Chesley, Dover
Jeremiah J Morin, Rochester
Henry C Sanders, Jr, Claremont

PRESIDENT ABBOTT I appoint Dr Keeley to take Dr Moriarty's place, Dr George C Wilkins to take Dr Laiochelle's place, and Dr Frederic P Lord to take the place of Dr Sycamore

SPEAKER WOODMAN I appoint the following Committee on Credentials Dr Dinsmoor, Dr Deming and Dr Cutler

DR DINSMOOR There are nineteen delegates present with credentials

SPEAKER WOODMAN For the Committee on Communications and Memorials, I appoint Dr H H Amsden, Dr L R Hazzard and Dr R. W Robinson

For the Committee on Nominations, I appoint Dr Clarence E Dunbar, Dr Richard W Robinson and Dr Osmon H Hubbard, Dr Richard E Wilder and Dr Frederic P Lord

The next item of business is the report of our President, Dr Clifton S Abbott

Report of the President

It seems almost superfluous for me to address you at this time. The President usually says all he cares to say in his address before the So-

ciety. The reports of the Secretary and various committees will doubtless cover the ground thoroughly

I would recommend that the second session of the House of Delegates be held in the evening of the first day, as will be suggested by our Secretary

I would recommend that we hold our meetings on advanced time, if a majority of our cities have adopted it

We are confronted with the necessity of deciding whether we will accept Federal Aid as offered under the Social Securities Act for crippled children, connoting the broadest interpretation of the term, and for others that might be eligible under the Act. The people back of the movement are working through the State Board of Health. I am informed that they have a list of about two hundred children requiring some medical aid. If their plans do not meet our approval, we should have a program of our own to care for these people. My address of tomorrow is on this subject

One of the best accomplishments this year was the securing of the Postgraduate Fellowships offered by the Commonwealth Fund. This makes real postgraduate instruction possible to a limited number of members of this Society, offered in a very attractive form, the details of which are covered in the report of the Committee on Medical Education and Hospitals

The Committee on Cancer has been very active, and deserves commendation for its booklet on the early diagnosis and treatment of cancer. One member of your Committee is a member of the State Cancer Commission, which has established diagnostic clinics throughout the State, and conducted campaigns of cancer education last winter

The Committee on Maternity and Infancy has sent out literature that should be valuable to those doing this work

The Committee on Public Relations has had an easy year, but next year, the situation will be far different, with the legislature in session

We should elect one or two members from each county society to the State legislature in either branch. I have urged this at every county meeting that I have attended. I believe that it will be difficult to do this, for a man in active practice would have to make quite a financial sacrifice. If a doctor could be assured of not too great a financial loss, there would be no

difficulty in getting good men to run. As a constructive measure, I would suggest that the Society devise some means of caring for the physician's practice during his absence.

There is almost sure to be legislation pertaining to sickness insurance at the next session of the Legislature. There should be key men placed about the State who would make it their business to know the character and education of the candidates for public office. The Editor of the *Illinois Medical Journal* says, "Do a little research on these men doctor, before election."

There are too many suits for malpractice in the State. There will probably be a continuance of these suits. It would seem that the average doctor is an optimist never believing that he may be sued until trouble strikes him. The gospel of the Golden Rule and the power of organized co-operation should be preached.

There should be some measures devised to limit the number of men admitted to practice in the State for in this way only can the quality of medical practice be improved. The ratio of doctors in New Hampshire is one to seven hundred, which taking into consideration the wealth of the people is the saturation point.

The Society's weakness lies in infrequent meetings. The House of Delegates meets but once a year. I believe that there should be a session of the House with the various committees in the early winter each year that the General Court convenes.

SPEAKER WOODMAN: This report is referred to the Committee on Officers Reports.

The next item of business is the report of the Secretary Treasurer.

Report of Secretary Treasurer

To the Members of the House of Delegates of the New Hampshire Medical Society

The following report for the year 1935 is herewith submitted

Total Membership December 31 1935

PAID MEMBERSHIP

Belknap County	28
Carroll County	14
Cheshire County	27
Cook County	31
Grafton County	50
Hillsborough County	175
Merrimack County	62
Rockingham County	44
Strafford County	33
Sullivan County	0
Not in County Societies	6
	410

UNPAID MEMBERSHIP

Affiliate Members	24
Honorary Members	15
Not in good standing	11
	50

Total membership 460

The total membership on December 31 1934—458

FINANCIAL STATEMENT

Receipts

January 1 1935 Balance forward	\$463 88
Cancer Committee refund	4 53
Committee, Medical Liability refund	6 56
Transactions Mrs Tappan	1 00
Net receipts 1935 annual meeting	551.47
Grafton County	289.00
Carroll County	90.00
Rockingham County	270.00
Strafford County	204.00
Cheshire County	156.00
Cook County	186.00
Belknap County	174.00
Sullivan County	114.00
Merrimack County	398.00
Hillsborough County	775.00
Benevolence Fund (Women's Auxillary)	119.00
Members not in County Societies	36.00
	\$3,847.44

Expenditures

Bank Tax	\$0.14
V E Journal of Medicine (Reprints)	36.77
N E Journal of Medicine (Journals and Transactions)	978.02
Eagle Phoenix Hotel Company (Committee Lunches)	57.60
Dr Frederic P Lord (Expenses to Atlantic City)	32.60
Dr Frederic P Lord (Telephone and Postage)	14.25
Dr Wendell P Clare (County Dues Three Doctors)	3.00
Dr Frederick P Scribner (Telephone and Postage)	12.00
Dr Robert O Blood Treas (Telephone and Telegrams)	25.33
St. Paul's School (Telephone and Telegrams)	5.05
O E Colby (Express A M A Circulars)	4.08
Dr Harlan F Curtis (Refund)	1.25
Lena Tabor (Stenography)	35.00
Lena Tabor (Envelopes)	1.70
Lena Tabor (Stenography)	2.00
Madeline May (Stenography Annual Meeting)	189.84
Dr Thomas W Luce (Committee Jurisprudence)	4.00
Edson C Eastman (Envelopes)	5.00
Brown & Saltmarsh (Stationery)	4.55
Postmaster (Postage)	62.38
Bridge & Byron (Printing)	195.04
Evans Printing Company (Cards)	.80
A. E. Russ (Clerical Work)	35.00
Carleton R Metcalf (Postage)	1.45
Carleton R. Metcalf (Stenographer Hotel)	6.00
Carleton R Metcalf (Salary)	400.00
Robbins Company (Medals)	15.19
Dr Deering G Smith (Dues Collected at Annual Meeting)	42.00
Dr Warren Butterfield (Dues Collected at Annual Meeting)	2.00
Dr Leslie H. Sycamore (Dues Collected at Annual Meeting)	1.00
Dr Nathan Van Fthen (Annual Meeting Travelling Expenses)	2.25
Dr Edward MacMahon (Annual Meeting Travelling Expenses)	5.00

Dr George Wilkins (Committee on Cancer)	75 00
Dr Grover C Penberthy (Expenses—Annual Meeting)	78 00
Dr Harry Mock (Expenses—Annual Meeting)	132 00
Union Leader (Radio Advertising)	15 12
E S King (Transporting Books)	7 00
F J Sulloway (Expenses to Lancaster)	35 00
Newspapers	12 25
Benevolence Fund	271 00
	\$2,835 76
January 1, 1936 Balance in check book	1,011 68
	\$3,847 44

The Society has increased its membership slightly and is in sound financial condition. During 1935 the customary \$500 was not added to the Trust Funds but since the beginning of the present year, the Treasurer has turned over to the Trustees \$1,000. The Benevolence Fund now amounts to \$1,174 95. This fund has been increased during the past year not only by the routine allotment of fifty cents from the annual dues of each member but also by generous gifts from the Women's Auxiliary of several county societies.

One of our Councilors died during 1935. Abram W Mitchell of Epping, a distinguished and widely known physician.

On Tuesday afternoon President Abbott will present a gold medal to a Manchester doctor who has been a member of this Society for fifty consecutive years. In one respect this presentation will be unusual because the doctor is a woman,—Ellen A Wallace. At the same time two physicians who have been in practice for fifty years will be duly honored. They are Frederick L Hawkins of Meredith and John F Robinson of Manchester. Dr Robinson cannot attend our meeting. He has been a helpless invalid for two years, his wife writes that Dr Robinson has spoken many times of this being the year he would receive special recognition from the Society for his long years of service. I would suggest that the House of Delegates write him an appropriate letter.

For the two appointive offices which he with in the province of your President, Dr Abbott has made the following choices. For Anniversary Chairman, Richard W Robinson of Laconia and for a member of the New England Medical Council, Robert H Brooks of Claremont.

Recommendations which the House of Delegates made a year ago have, I believe, been carried out in their entirety. An edition of the booklet containing the revised Constitution and By-Laws has been printed and distributed. A notice has been sent to each member urging him to consider seriously becoming a candidate for

the General Court. To the joy of your President and Secretary, the Vice-President has undertaken some of the necessary and desirable visits to County Societies, he has also been enrolled as a member of the Committee on Public Relations.

To a certain extent the Council has ceased to hibernate. The members have elected a Chairman, this year they are having the annual get-together which the By-Laws prescribe. Two or three times during the year a local Councilor has served judicially and expeditiously in straightening out some question of ethics or department pertaining to his particular county.

The Committee on Liability Insurance, which was disbanded a year ago, has been replaced by a new subcommittee of three selected from the membership of the Advisory Committee on Jurisprudence. Henry C Sanders, Jr of Claremont is Chairman of this new subcommittee on Liability Insurance and the other two members are David W Parker of Manchester and Arthur T Downing of Littleton.

The Committee on Medical Education and Hospitals has carried out the two tasks which were entrusted to it: the formation of a Speakers' Bureau and the establishment of Postgraduate Education.

For the Speakers' Bureau a most impressive group of New Hampshire doctors have signified their willingness to address any county society at any time. Their topics cover a wide range. It is to be hoped that harassed county secretaries who have difficulty in arranging their programs will patronize our new bureau liberally.

For members of this Society who desire postgraduate study, the Committee on Medical Education and Hospitals has arranged, through the Commonwealth Fund, for fellowships in medicine, pediatrics, obstetrics and office surgery at the Harvard Medical School. I need not dilate upon the generous offer from the Commonwealth Fund, you have all received a circular letter from the Committee describing the fellowships in detail.

Your Committee on Publication has attempted again during the past year, as you recommended, to brighten its particular corner in *The New England Journal of Medicine*. To this end, the Committee subscribed to one newspaper in each of the ten Counties in the State and clipped from these papers interesting items concerning doctors, hospitals and nurses. These items formed a column of miscellany which was published from time to time, as an appendage to the more serious medical and surgical papers inherited from the most recent annual meeting.

And speaking of the *Journal*, may I quote a paragraph from a letter which I recently received from its Editor:

"Several years ago the Massachusetts Medical Society arranged to publish the proceedings of your state society in monthly serial issues of *The New England Journal of Medicine* for which your society pays the *Journal* one dollar per year per member. It was agreed at that time to furnish all of the remaining forty issues for three additional dollars to be paid by those members who would like the complete volumes. Several of your fellow members have taken advantage of this arrangement but it has come to our attention that many do not know that, by paying three dollars this six-dollar *Journal* will be supplied for the full year."

How many members of our Society read any medical journal?

How many read *The New England Journal of Medicine*?

How many would be interested in this liberal offer? And, if there are any who would be interested how may the offer best be called to their attention?

And now for a few scattered facts about other committee work. The Advisory Committee on Jurisprudence met in Concord two or three times during 1935. On one occasion your President, your Secretary accompanied by your legal adviser, went to Lancaster to straighten out a tangle in the north country. In one case which the Committee considered—that against one of the hospitals in Nashua—a large verdict was awarded to the plaintiff. Otherwise from a medicolegal point of view we had little serious difficulty during the year.

The Committee on Scientific Work has made bold to eliminate tentatively from the program of the annual meeting for 1936 the address of welcome by the Mayor and the report by the Chairman of the Committee on Arrangements. The Committee on Scientific Work felt that the periods allotted to these two time honored speeches might better be spent in medical discussion, if the Committee is wrong in this supposition or if anyone's feelings are hurt it will be entirely feasible to revert another year to the "horse and buggy" formula.

This Committee would emphasize once more that it is badly in need of good papers which are read at county meetings by our own members or by visitors from other states. Some of the papers that you will hear tomorrow and on the following day have already been read at county meetings. Please keep this thought in the back of your heads and let the Secretary know when a good county paper comes along that is suitable for the wider audience of our annual gathering. Dr. Harris E. Powers of Manchester has agreed to serve as a liaison officer between the General Chairman of the local Committee on Arrangements and the Committee on Scientific Work in planning the annual meeting. The General Chairman changes every year and Dr. Powers, because his service is continuous, will be of great value in checking the innumerable details of our sessions.

Since our last meeting the Committee on Public Relations has had a vacation, due to the fact that our General Court has not met. A relative holiday also has been the lot of the Advisory Committee on Medical Relief. The rules and regulations which were formulated a year ago by this committee apparently met with fair success for several months but more recently because of lack of State funds these rules and regulations have been less effective. The situation is explained in a recent letter from the Acting Director of Relief which I quote:

Since November 1 the state has not been reimbursing the counties, cities and towns for fifty per cent of their relief expenditures and the local subdivisions have been carrying the entire load.

"We are unable to answer your question as to whether the doctors throughout the state are getting paid for operations and medical calls by their respective county commissioners. We do know however that under the law payment of surgical and medical bills is a matter which will have to be decided by the respective boards of county commissioners."

"Under the present law the administration of relief rests wholly with the county city and town relief officials and all decisions as to its administration must be made by them."

The efforts of the Committee on Maternity and Infancy are epitomized in two or three circular letters which have been sent to all members of the Society. This Committee is disturbed because some of the maternal deaths seemed to them to be unnecessary. They will probably ask you, in their report, to advise them as to what action can or should be taken to remedy this dilemma. If they do not make this request, I make it herewith because the matter seems to me to be important.

Incidentally I have wondered why the Committee on Maternity and Infancy and the Advisory Committee on Medical Relief together with two other committees should be listed as Special Committees. I am at a loss also, to understand why the New England Medical Council and the newly appointed Committee on Medical Economics are Rotating Committees. Why should not these two Committees be formed on the same permanent bases as are their brethren?

To each County Society your Secretary has recently sent a letter which reads in part as follows:

I have recently conferred with representatives of the leading Accident Insurance Companies in New Hampshire regarding medical fees in compensation cases.

"These representatives tell me that the compensation law does not include any official fee table and that the charges made by doctors in different parts of the State vary a great deal. The Accident Companies would like to have a gentlemen's agreement with the members of the New Hampshire Medical Society whereby save in exceptional cases which require prolonged or unusual treatment the fees would be standardized."

There is, I understand, nothing binding in such an agreement. The agreement provides merely a working basis for the doctors and for the Insurance Companies.

"Please note particularly that this schedule applies only to WORKMEN'S COMPENSATION cases. It has nothing to do with automobile injuries and similar accidents to private individuals."

One fee table provides a lump sum for major surgery, the other provides a fee for initial treatment with regular charges for aftercare. Do you wish to take any definite action in this matter?

Your Secretary has conducted two investigations by postal card during the past year. The first postal card read "Do you wish the New Hampshire Legislature to appropriate funds to carry out the medical provisions of the Social Security Act which are outlined in the enclosed circular?"

The first postal card questions what action, if any, this Society should take concerning the medical features of the Social Security Act. The Federal Government will provide a certain amount of money if New Hampshire will provide a similar amount. Heretofore, New Hampshire has covered most of the suggested medical care on its own initiative without financial assistance from the Federal Government and the question arises whether it is desirable and necessary for the State at this time to undertake a much more elaborate service, under Federal supervision which would, of course, involve a considerable appropriation at the next Session of the General Court.

About one third of the members of the Medical Society returned the postal cards and this group voted four to one against the proposition. The medical features of this act are apparently constitutional. The matter has been turned over to the Committee on Medical Economics and they have been asked to report their conclusions to you at this meeting.

The second postal card read "Have you any suggestions for improving the scope of the details of the annual meeting which is to be held next May?" From the second postal card concerning the conduct of the annual meetings the following thoughts were born:

- 1 Start the sessions promptly
- 2 Have a marshal with a small megaphone to announce the beginning of the meetings and start the crowd in from the lobby
- 3 Have the microphone in order
- 4 Take better care of visiting delegates
- 5 Use the films shown by the College of Surgeons
- 6 Give the final speaker a larger audience
- 7 Emphasize the need of Liability Insurance
- 8 Have more New Hampshire papers
- 9 Have symposia on chronic arthritis, diabetes and endocrinology
- 10 Demonstrations of electrocardiography, obstetric operations (manikin), laboratory procedures
- 11 Have movies
- 12 Show photomicrographs on the screen

- 13 Have the Society purchase a lantern and a screen
- 14 Have a clinic at a local hospital
- 15 Have a skin clinic
- 16 Have no music at the banquet, in order that there may be an opportunity for fellowship and conversation
- 17 Have speakers at the banquet limited in number and also in time

The Committee on Scientific Work will be glad to have your advice on these questions. Which of them are wheat and which are chaff?

Your Secretary has his own suggestions for improving the annual meeting, namely, the adoption of the plan which, for the past three or four years, has been so effective in our neighboring state of Maine.

Among the minor details that prevail in Maine I would call your attention to the following:

1 The second meeting of the House of Delegates is held at five o'clock on the afternoon of the first day.

2 The introduction of visiting delegates and the presentation of fifty-year medals occur at the banquet. Incidentally visiting delegates attend the banquet without cost to themselves.

3 The presentation of the President-Elect is similarly deferred until the banquet.

More important than these details, however, is the arrangement of the Scientific Sessions. Each morning is utilized for a series of round-table conferences on a multiplicity of subjects conducted by the members of the Maine Medical Association. General sessions in the afternoon are devoted to papers by out-of-state guests.

In Maine, the morning conferences have become very elaborate. If our Society could procure suitable accommodations it seems to me that we might have a smaller number of conferences of this type which would yet be adequate to serve each member of the Society in attendance. It might be wise to repeat, at eleven o'clock in the morning, for a new group of members, the same conferences that had previously been given at nine-thirty o'clock. Each member would be expected to sign in advance for the particular conferences which he wished to attend and a definite limit would be set in each case on the number of men that could be accommodated.

CARLETON R. METCALF,
Secretary-Treasurer

SPEAKER WOODMAN: We will now hear from the Committee on Officers' Reports relative to the report of the Secretary-Treasurer.

DR. D. G. SMITH: On the report of the Secretary-Treasurer, we note particularly the strong financial position of the Society. We wish to commend him for the manner in which he has brought before the doctors of the Society, either

directly through circular letters or through the county societies, many of the problems that are confronting us.

We recommend that the Secretary write an appropriate letter to John F. Robinson of Manchester, who has been in the practice of medicine for fifty years, but who because of illness is unable to attend this annual meeting.

I move the adoption of that portion of the report.

This motion was duly seconded and carried.

DR. D. G. SMITH. We believe that many of the members of the Society are unaware of the liberal offer that the Massachusetts Medical Society has made and that the Secretary in his next communication to the members should remind them that they can purchase for \$3.00 a year the remaining numbers of *The New England Journal of Medicine*.

I move the adoption of that part of the report.

This motion was duly seconded and carried.

DR. D. G. SMITH. We believe that the establishment of even an unofficial fee schedule for workmen's compensation cases is inadvisable. We believe that the state fee schedule and the various county fee schedules should prevail. If, at some future time it would seem that such a fee schedule for workmen's compensation cases would be advisable, we recommend that this matter be investigated by the Committee on Medical Economics, which committee would report to the House of Delegates.

I move the adoption of that part of the report.

This motion was duly seconded.

SECRETARY METCALF. This schedule is the one in effect in Vermont passed two or three years ago by the Vermont Legislature.

SPEAKER WOODMAN. Dr. Abbott, what is your reaction to this subject?

DR. ABBOTT. I thought it wasn't a bad proposition.

DR. D. G. SMITH. I should like to read part of a letter received from Dr. Leland of the American Medical Association.

He says, "You will note that there is a wide variation among the different States in these schedules."

"In most of the States these fee schedules have been prepared in co-operation with the medical societies and often with the participation of the Compensation Commissions and some of the employers, especially such of the latter as are self-insurers. Developments in a number of states within

recent years would seem to indicate that insurance companies are beginning to realize the value of good medical service and the necessity for control of such service by the medical societies."

DR. GEORGE C. WILKINS. I believe that it would be very much wiser to take some co-operative action with the insurance companies on this matter. This applies only to workmen's compensation and it seems to me this compensation to the medical profession as a whole is not a very large proportion of their compensation. I think that some sort of a conference ought to be arranged.

DR. R. W. ROBINSON. I cannot see in glancing over the fee schedule as presented that it differs very much from our own state fee schedule at the present time.

DR. FRANK KITTREDGE. This subject was brought up before the Hillsborough County Medical Society at a recent meeting, and they voted unanimously to turn it down. I do not believe that it is anything that should be settled tonight. A Committee should be appointed to study the subject and to take the matter up with the insurance companies. I do not believe it is anything that we should act upon hastily.

DR. CUTLER. I was present at the meeting about which Dr. Kittredge has spoken. The sentiment was very strongly against it but, like him, I feel that it should be given very careful consideration and I think that some members of our profession should meet with the insurance people and come to an adjustment of this matter.

DR. HAZZARD. If we have a State fee table I would suggest that that table be sent to every member of the Society, and then also sent to the insurance companies, as a basis for fees in compensation cases.

DR. D. G. SMITH. As to the fee schedule of the New Hampshire Medical Society, the only one I was able to find was one adopted in 1924 which is for general practice only, and which takes up only the fundamentals of practice.

PRESIDENT ABBOTT. Wouldn't it be well to have a fee schedule prepared for the State? I know there is a great deal of difference in the fees charged in the different sections of the State.

DR. D. G. SMITH. I withdraw my original motion.

I move that the matter of an unofficial schedule for workmen's compensation cases be investigated by the Committee on Medical Economics, which Committee shall report to the

House of Delegates of the New Hampshire Medical Society

This motion was seconded and carried

DR D G SMITH We have consulted with the Committee on Amendments to the Constitution and By-Laws, and we agree that the Advisory Committee on Medical Relief, on Child Health and on Maternity and Infancy should be special committees. There is no special committee on medical liability, as this is a subcommittee of the Advisory Committee on Jurisprudence. In order to secure a certain continuity in membership, the terms of the office of the delegates to the New England Medical Council, and of the members of the Committees on Medical Economics and on Medical Education and Hospitals were purposely arranged to expire in different years.

We approve of Dr Metcalf's ideas, relative to the changes in our annual meeting. We recommend that the introduction of the visiting delegates, the presentation of the fifty year medals and the presentation of the newly elected President be made at the banquet.

I move the adoption of that part of the report

The motion was carried

DR D G SMITH We also recommend that one morning session be devoted to the proposed round-table discussions. If, after one or two years' trial, the members approve of the round-table discussions, it may be well to have that type of meeting at both morning sessions.

I move the adoption of that part of the report

This motion was duly seconded and carried

DR D G SMITH We do not believe that a meeting of the House of Delegates at five o'clock on Tuesday, or during the evening of Tuesday, would be better attended than the present meeting held on Tuesday morning.

I move the adoption of that part of the report

This motion was duly seconded and carried

SPEAKER WOODMAN Dr Lord, may I call upon you at this time to give your report of the Committee on Medical Economics

Report of Committee on Medical Economics

In the creation of this new committee a year ago there was no exact definition of its functions. The committee seemed to be an offshoot of the Committee on Public Relations, intended to carry a part of the load of that often overburdened group. Following the implication in the name, and certain statements made before the House of Delegates as to its duties, we have attempted to select certain matters which we believe to fall within the intended scope of our work. It may be advisable in the future that this

committee shall keep in close touch with that on Public Relations in order to avoid overlapping of functions and to prevent the omission of other matters which might fall in between the work of the two committees.

Like the American Medical Association itself in reference to medical economics during the past year, this committee has not tended toward positive action or recommendation. It has seemed that in the preceding period enough action was taken so that this past year was a good time to observe how matters were working out without initiating further activity. Matters as vitally important as the fundamental principles underlying social changes as great as now being undertaken, cannot be adopted too rapidly. It is also necessary to have the majority of our members informed and in sympathy with any possible steps that may be deemed advisable. In a small and rural state like our own, conservative in temper and deliberate in its action, any changes are necessarily gradual.

The question of group hospitalization was referred to the Hospital Superintendents' Club a year ago for its consideration. In advance of a formal statement from that body we have learned that this club has instituted a special committee, composed of some of its own members, doctors, religious leaders and others, has met a half dozen times and is considering the big question of the advisability of such group insurance in New Hampshire, and the possible means by which it might be introduced. Special considerations, such as our small size, lack of large industrial groups, and so forth, have caused this committee to look very carefully into this question and it is not yet prepared to render a final decision. It looks with interest, and probably with favor, upon some step in this direction, but will require further time before reaching a conclusion.

The other special matter considered by our committee has to do with the Social Security Act. Some of our county units have already discussed this question and have apparently reached no unanimous conclusion. Many of the states are not yet in position to make use of the federal funds allotted in this act, although our state has already enacted the necessary legislation. Your committee feels that regardless of the advisability of going ahead with this scheme, it would be practically impossible at present under our financial situation in New Hampshire, to secure the funds needed to match the federal allotment and that it would have been a waste of time to ask the legislature this Spring to make any appropriation for this purpose. This practical situation leaves us free to carry on further investigation of this whole question up to the time of the next meeting of the legislature in January, 1937, or even for a longer period if this seems best.

Your committee is inclined to feel that the recommendations of certain committees of the Michigan State Medical Society in relation to the Social Security Act are well conceived and should be seriously considered if this Society is looking forward to the possibility of following the purposes of the Act.

We feel that our task is a difficult one and the questions we are asked to consider are of such paramount importance to our Society that we welcome all suggestions, criticisms and help which any of our members would be willing to give us.

DR D G SMITH The Committee on Officers' Reports recommends that this Committee on Medical Economics and the Committee on Public Relations keep in close touch with each other and divide the various problems to be studied

so that there will be no overlapping or omissions in their work.

I move the adoption of that portion of the report

This motion was duly seconded and carried

DR. D. G. SMITH We urge the continued co-operation with the Hospital Superintendents' Club, in the study of group hospitalization

I recommend the adoption of that portion of the report.

This motion was duly seconded and carried

DR. D. G. SMITH The investigation of New Hampshire's position relative to the Social Security Act should be continued by this Committee

Mr. Speaker, I move the adoption of that portion of the report

This motion was duly seconded and carried

SPEAKER WOODMAN Dr. Stewart may we have your report of the Committee on Child Health at this time

Report of the Committee on Child Health

The Committee on Child Health has studied in some detail the provisions of the Social Security Act bearing on child health (Title V parts 1 and 2). It is not our function to make general recommendations concerning this act, which involves the whole question of an increased participation by the State in the practice of medicine. However if the State is to broaden its child health work our Society is vitally interested in how this is to be done.

Let us examine the situation which this act was designed to correct. There is a growing trend toward provision by lay organizations of preventive medical services when they are not supplied by the State or not otherwise obtainable. The lay interest in crippled children with the establishment of a special society for their care is one example. Children's clinics have been established, the directors of which have not discriminated too carefully between those who could and those who could not afford private care. The right of every child to full health protection during his growing years has been set forth in the 'Children's Charter' of the White House Conference. I think we all agree to this. The desirability of the end sought is apparent but the means of attaining the end are open to question.

We agree with the Massachusetts State Committee of the American Academy of Pediatrics that supervision of normal children should be carried out in the offices of private practitioners in so far as is possible but that organized group conferences may be desirable in communities and for the use of individuals who are unable for economic or other reasons to secure adequate service otherwise. The number for whom preventive care can be secured only in this way can be reduced by a more active interest on the part of the doctors in providing it in their offices at moderate cost. We must recognize that a certain economic class of parents may reasonably feel unable to pay for the less urgent preventive care when the same people can pay moderate sickness costs. Provision by the State of free diphtheria toxoid and so forth would help some-

what. Further in view of the ease with which this type of practice can be grouped and fitted in at the doctor's convenience it might be possible to offer health service at less than sickness rates. Your Committee feels that in so far as individual effort does not take care of the situation and community conferences prove necessary to reach a group of children these should be administered at public expense under the State Department of Health with the full approval and co-operation of our Society.

Thus a federal grant enabling our State Department of Health to broaden its activities can result in a great deal of good. We believe the federal funds should not be sacrificed because of a failure to develop a satisfactory program in New Hampshire. Our Committee jointly with the Committee on Maternity and Infancy has had one meeting with Doctor Duncan at which Dr. Franklin Rogers, the New Hampshire chairman of the American Academy of Pediatrics and Dr. Ezra Jones because of his interest in the services for crippled children were also present. Doctor Duncan outlined what had been done and we offered to help in any way possible, having in mind that in some states there has been considerable co-operation among the several interested special societies and the departments of health in organizing this work.

Your Committee recommends that the Society further in all possible ways the extension of preventive care for the children of New Hampshire. By this we understand not only periodic health examinations with the correction of defects when they are found but also immunization against contagious diseases in so far as that is possible. This work is inextricably bound up with similar care during the prenatal and early postnatal weeks which does not come under this Committee.

We recommend that the Society urge the adoption by the State Department of Health of a plan which will enable New Hampshire to benefit from the funds available or which may become available under the Social Security Act for improvement in child health. This plan should provide for the addition to the department of a full-time physician. As much as possible of the child and maternal health work of the State should be under his direction.

A difficulty arises in that the health work for the school children is under the Department of Education and no funds are to be available except through departments of health but we are hopeful that this difficulty can be avoided by some administrative adjustment. Such a physician should have had special training in pediatrics. A knowledge of public health administration is also certainly desirable but may be obtained by a short course which we understand could be financed through a provision of the act after his appointment.

We recommend that the Society shall encourage the extension of preventive pediatric supervision of normal children by their private physicians. This can be aided by the preparation and distribution of literature covering very practically the subjects dealt with in health service by bringing these subjects more frequently before the local medical authorities and possibly by encouraging visits of physicians to health conferences if any are held in their neighborhoods. We also raise the question whether it might not be desirable for the State to provide free diphtheria toxoid and smallpox vaccine.

We also urge the Society to recommend to the State Department of Health the adoption of an up-to-date communicable disease code such as the United States Public Health Code to reduce somewhat the confusion resulting from conflicting instructions to school physicians and local health officers.

We recommend the appointment for next year of a committee on child health, which should be requested to prepare and distribute literature and obtain speakers on this subject for local medical meetings.

SPEAKER WOODMAN The report on Child Health will be referred to the Committee on Officers' Reports. Dr. Burroughs has some information on this matter.

DR BURROUGHS A Medical Director of Maternal and Child Health in the State Department of Health is practically accomplished as a fact.

The Federal authorities have allocated the funds, the State Department has made an official plan, the man has been selected and presumably will accept, if he is offered the position. He is a member of this Society, in good standing.

This man's position, among other things, will be to clear matters of child health and maternal policies of the State Department of Health, with the medical profession. Of course, he will be a state officer. He is not going to be a federal officer, and he will not be brought in here from the outside. He will be appointed by the Governor and the Council, and be a subordinate of the State Board of Health, working as a member of the State Board of Health.

The federal people, in laying out the funds for this, had to ask some special things because the Social Security Act itself requires specifically that there should be co-operation between the State agency and medical, nursing and welfare groups and organizations throughout the State.

In order to comply with that portion of the Social Security Act, there is to be set up a committee to be called the State Advisory Committee on Maternal and Child Health. That Committee is to have medical members to represent the New Hampshire Medical Society. It is also to have members to represent these other organizations of which we spoke. Its function will be to advise with the State Board of Health and particularly with this new Director of Maternal and Child Health, on the establishment of policies in the Division of Maternal and Child Health.

In addition to that, they are asked to set up a technical advisory committee on maternal and child health, and it is requested that the State Medical Society appoint the members of the technical advisory committee on maternal and child health.

The function of this committee is to assist the director in his professional relations. For instance it is intended that if any difference of opinion should arise between the director of maternal and child health with the State Board of Health and any physician or group of phy-

sicians or any society of physicians in the state, this technical committee shall come into the picture, investigate and immediately make recommendations. It is fully expected that the director of the maternal and child health program of the State Board of Health shall follow these recommendations of the technical advisory committee.

Apparently, there is to be a new officer in the State Board of Health, who is to have the title of Director of Local Health Administration. He is to be a full-time man, a physician. The funds for this service are also allocated by the Federal people, and arrangements are practically completed. The intention, I believe, is to strengthen the local health administration, and to arrange for full-time medical health officers over larger health departments than we have at present. That is, instead of having town health officers, the idea is that we shall have either county or district health officers, and the federal people suggest that they be County Health Officers.

SPEAKER WOODMAN Dr. Wilkins, have you anything to say on this matter?

DR WILKINS It does seem to me that the committee appointed by this Society should be the same committee that is functioning now in regard to Child Welfare and Maternity and Infancy. In that way, they can co-operate with the Board of Health in the new functions.

SPEAKER WOODMAN We have a subcommittee of dentists, and I would like to hear from Dr. Littlefield.

DR LITTLEFIELD It is gratifying to us to know that there will be co-operation of the Board of Health and the State Dental Society. Heretofore, the dentistry done in New Hampshire has been carried on by the Department of Education and the Department of Health. There has been no policy developed that would give an adequate dental program.

I would suggest that two members would not be enough on such committees. We have a Public Health Committee consisting of three members. Dr. Cross from Nashua, who was a pioneer in the establishment of the dental program in Massachusetts, is Chairman of our Committee.

The New Hampshire Dental Society will co-operate with everything that the Medical Society cares to have it do along the lines of the medical profession.

SPEAKER WOODMAN Before taking any action on this matter, we should give our Committee on Officers' Reports time to examine the report.

Is there any other Committee ready to report here at this time? Dr. Blood will you kindly

give your report of the Committee on Maternity and Infancy?

Report of Committee on Maternity and Infancy

During the past fiscal year the Committee held five meetings. The full membership was present at the majority of the meetings.

At the beginning of the year a review was made of the previous years work and a vote taken that this be continued. The work of the committee has been done in co-operation with the Maternity Division of the State Board of Health.

Bulletins

During the year bulletins were sent to physicians explanatory of public health laws relating to eye prophylactics, treatment of impetigo of the new born, conclusions from the 1934 report relating to obstetrical care in hospitals, the reporting of still births, and the activities and purposes of the committee's work.

The committee recommends that

This committee (under the present name) be continued.

The present work and studies of the committee be continued.

A copy of the committee report shall be presented to the whole assembly and also that the report be mimeographed and a copy sent to each member of the society.

The committee approved.

The rules and regulations of the State Board of Health relating to licensing maternity hospitals and homes.

The new form of *minimum standards of prenatal care* issued by the Maternity Division of the State Board of Health.

The survey of crippled children which was made in preparation for crippled children's services under the Social Security Act.

The state plan for the extension of maternal and child health services under the Social Security Act.

Moved that

The child health work of the committee be confined to the neonatal age.

Licensed Maternity Hospitals and Homes

The committee advised and promoted an Act of the New Hampshire Legislature of 1935 transferring the licensing of Maternity Hospitals and Homes from the State Department of Public Welfare to the State Board of Health.

A questionnaire recently sent to licensed maternity hospitals shows an improvement in methods and technique which were suggested co-operatively by the State Board of Health and this committee in last year's report.

The 1936 report shows that

There are thirty-two licensed maternity hospitals in New Hampshire.

Every licensed hospital now has a special delivery room.

Masks are worn in thirty-one of these hospitals. (In one hospital masks are worn by some physicians only.)

Gloves are now worn during delivery in all New Hampshire Hospitals. (Last year gloves were not worn in five hospitals.)

In twenty-six hospitals someone remains with the patient for one hour after delivery. (Three hospitals do it indicated only.) In the other hospitals this practice is not followed.

In eleven hospitals new patients are segregated. (In two hospitals only if cases are suspicious in one hospital when indicated.) Average length of segregation—until after delivery.

There are two hospitals in which nose and throat cultures are taken of all maternity cases. (In one hospital just from throat, one hospital only when physician advises, one hospital only if indicated.)

In six hospitals nose and throat cultures are taken of nurses before being sent to the maternity ward. (In two hospitals if indicated only, one hospital at times.)

Stillbirth Study

The committee co-operated with the State Board of Health in preparing a new questionnaire for the study of stillbirths. There were 271 reported and 271 questionnaires were sent to physicians reporting these stillbirths. One hundred and fifteen of these questionnaires were returned, completed, no returns were made on the other 156.

Maternity

The committee recommends a continuation of the committee's study of maternal deaths and also a study of each death through a personal interview with the physician reporting the death. All of these cases are reported to the committee by number and after study and discussion deductions are made which in the judgment of the committee seem correct. The study included the number of deaths reported by individual physicians. This past year these ranged from zero by many physicians, to one by many and not more than two by any one physician.

The committee urges that the cause of death be given correctly as this changes the picture of maternal mortality due to pregnancy and childbirth.

Maternal deaths in 1935 due to pregnancy and childbirth 45

Note: Three of these deaths were mothers who had come from border states to New Hampshire hospitals.

Causes of these deaths as given on certificate

Septicemia	12
Toxemia	9
Embolism	6
Hemorrhage	7
Ectopic Gestation	1
Cesarean	4
Other Causes	6

Note: Highest single cause of death was Septicemia

Deaths studied by Committee 40

Toxemias	10
Puerperal Sepsis	8
Hemorrhage	7
Embolism	5
Peritonitis	2
Pneumonia	1
Heart	3
Respiratory Causes	2
Postpartum Shock	1
Surgical Shock	1

In seven cases the diagnosis was confirmed by autopsies

The committee decided that in their judgment the diagnoses of five cases were incorrect. They were as follows:

Diagnoses as Given	In Judgment of Committee
Postpartum Shock	Ruptured Uterus
Hyperemesis Gravidarum	Puerperal Septicemia
Intestinal Influenza	Septicemia
Cerebral Hemorrhage	Eclampsia
Pulmonary Embolism	Massive Ectopic Gestation

Month of Pregnancy at Which These Cases Were First Seen by Physician

At 1 month— 2 cases	At 6 months— 2 cases
' 2 months—10 "	' 7 " — 1 "
' 3 " — 7 "	' 8 " — 4 "
' 4 " — 1 "	' Term — 8 "
' 5 " — 2 "	

3 deaths—self induced abortion, seen by physician day of death

Stage of Pregnancy at which these deaths occurred

At 2 months— 1	At 6½ months— 2
" 2½ " — 1	" 7 " — 1
' 3 " — 4	" 8 " — 2
" 5 " — 1	" Term — 27
" 6 " — 1	

These figures are approximately correct.

The responsibility for these deaths in the judgment of the Committee was placed as follows

Mother or Family	8
Probably Physician	10
Obscure	11
Unavoidable Deaths	11

In two of the studied cases the deaths, in the judgment of the reporting physician, were not due to childbirth

Three of the deaths were due to self induced abortions

Four of the deaths were cesarean deliveries

The Conclusions of the Committee were as Follows

It is advisable that cultures be taken periodically from the nose and throat of the personnel of the maternity wards, kitchen help, and all new maternity cases on admission to hospitals

Note Recently three streptococcus carriers in one hospital were found this way

That prenatal care is an important part of obstetrics—as is shown by the number of deaths due to toxemias

That the physician should seriously consider the signals during pregnancy which indicate danger and abnormalities

That there should be proper co-operation of the physicians and nursing personnel of public health agencies in the care of women during pregnancy and childbirth

The committee believes that in the changing social order the future of our profession depends largely on the study, and correction of imperfections in our practices with the good results which are sure to follow

The committee wishes to call your attention to the 1935 mortality rates of licensed New Hampshire hospitals, a copy of which has been sent to your hospitals and is there available for your information. It is interesting to note from this study that the maternity rates range from zero in the hospital having the second highest birth rate in the state to the hospital having a maternal rate of 22.2 per 1000 births. The infant mortality ranged from zero to 100.4 per 1000 living births. The stillbirth rate ranged from zero to 88.2 per 1000 births. The committee believes more than ever before that the possibilities of saving life in this field are tremendous and that every hospital should be equipped with facilities, personnel and practices to insure safety for the mother and baby within its doors.

It is the conclusion of the committee that the goal to be hoped for is that all men wishing to practice obstetrics be especially qualified for this branch of medical practice. The committee believes that obstetrics has not kept pace with surgery, that the

same general and individual ideals now applied to surgery, in so far that a surgeon will not take a classical major operation, uncomplicated, unless he is able to cope with the complicated surgical case, will in time apply to obstetrics. The public is careful to choose a man trained in surgical procedure for surgery, but for childbirth any doctor will do. Education should be directed to a correction of this attitude on the part of the public.

DR D G SMITH The Committee on Officers' Reports wishes to compliment this Committee on Maternity and Infancy for the excellent work that it has been doing in an effort to reduce the maternal and infant death rates in New Hampshire.

We do not approve of the recommendation that a copy of the report be sent to each member of the Society, but we do recommend that a summary of the report, together with the conclusions, be so distributed.

I move the adoption of that part of the report

This motion was duly seconded and carried.

DR D G SMITH We approve of the other recommendations of the Committee, namely, that it be continued under its present name, that its present work and studies be continued, and that the child health work of the committee be confined to the neonatal age.

We urge every member of the Society to co-operate with the Committee in the studies that they will make, and believe that a special effort should be made to reduce the number of avoidable maternal deaths from the 1935 total of twenty-nine.

I move the adoption of that part of the report

This motion was duly seconded and carried.

SPEAKER WOODMAN Dr Wilkins, are you ready to give us your report of the Committee on the Control of Cancer?

Report of Committee on Control of Cancer

Your committee has interpreted its functions as those which would aid the members of the society in acquiring knowledge regarding cancer control and treatment, and to co-operate with other national or state organizations or departments concerned with cancer control or cancer education.

In carrying out the first of these functions we report the following activities:

1 At the 1935 meeting of the society there was displayed, through the courtesy of the American Society for the Control of Cancer, an exhibit of cancer educational material and cancer literature.

2 In the fall of 1935 there was published and distributed to all physicians in New Hampshire a "Handbook of the Early Signs and Symptoms of Cancer" giving brief descriptions of the salient clinical and diagnostic features of cancer in various locations in the body. Under each heading general suggestions regarding approved treatment were given.

The Editors of The New England Journal of Medicine have honored the "Handbook" by considering

it meritorious enough to publish in the issue of May 14 1936

3 One letter was sent to the members by the committee last month with a reminder of the importance of early diagnosis with special reference to laryngeal cancer

4 Several of the county societies have followed the request of the committee to devote at least part of one session to a discussion of some phase of the cancer problem The committee would greatly appreciate definite information from county secretaries regarding such activities

Your committee recognizes the necessity of a more active realization by many of the physicians in the state of the importance of early recognition of cancer This is demonstrated by unnecessary delays in taking biopsies and in failing to take advantage of diagnostic facilities which are available The laity are accepting and even asking for cancer education so it behooves the physician, not only to keep fairly well informed about cancer diagnosis and treatment, but to be able to do his part in disseminating reliable cancer facts to the public. Much good can be accomplished by reiterating the warning against fraudulent cancer "cures" and by advising patients that surgery x ray and radium are the only proved means of cure

In furthering the second function of your committee we have co-operated with the American Society for the Control of Cancer in helping to formulate plans for a state-wide educational program to be accomplished with the aid of the various women's organizations throughout the state. Your president, with four other members, together with five prominent, interested lay people including the governor of the state have accepted positions on an advisory committee which will assist in this work.

Co-operation with the New Hampshire Cancer Commission has been constant, and throughout the year there has been an average of sixty-two members of this society taking part in the activities of the various diagnostic clinics in the state. It can not fail to be of interest to the members of this society that it has been stated by several well known leaders in the cancer field that the system established in New Hampshire by the Cancer Commission is probably superior to that of any other state in the Union. A number of physicians co-operated with the commission by giving thirteen broadcasts on various phases of the cancer problem during the past winter. That these broadcasts were productive of good was evidenced by many requests for copies of the talks and by the statements of patients to physicians that they appeared for examination on account of the talks.

DR. D. G. SMITH The Committee on Officers' Reports wishes to commend this committee for the excellent work that it has been doing, and congratulate it on its publication, "Handbook on the Early Signs and Symptoms of Cancer." We recommend the appropriation of Fifty Dollars (\$50.00) for the use of this Committee during the coming year.

I move the adoption of this report

This motion was duly seconded and carried

SPEAKER WOODMAN Dr. Henry O. Smith, have you a report of the Committee on Amendments to the Constitution and By Laws?

DR. HENRY O. SMITH A year ago there were

submitted to the House of Delegates five amendments to the constitution, which according to the constitution had to be over for one year. These are not controversial in their nature, they are simply a matter of phraseology.

We were so confident that these amendments would be passed this year that the Secretary was authorized and instructed to incorporate them in the Constitution and By Laws as printed.

Therefore, it is needless for me to say that this Committee recommends the acceptance of these five amendments, and I offer that as a motion.

This motion was duly seconded and carried.

SPEAKER WOODMAN Are there any further reports at this time? Dr. Smith, are you ready to report as Delegate to the American Medical Association?

Report of the Delegate to the American Medical Association for 1935

The largest medical meeting ever held in the world was at Atlantic City on June 10-14 1935. It was a joint meeting of the American Medical Association with the Canadian Medical Association and had a registration of 8,469. The scientific and technical exhibits were outstanding and many excellent papers were read. Your delegate served as a member of the reference committee on credentials.

The House of Delegates asked the Board of Trustees to promote the enactment of federal legislation better to regulate radio broadcasting so far as the health of the public is concerned.

The Board of Trustees was asked to appoint a committee to study the contraception problem and to report at the 1936 meeting.

The Association is co-operating with the American Legion and the Veterans Bureau in respect to their medical problems and as a result the demand for free medical and hospital care by veterans able to pay for these services has been curtailed.

Resolutions were passed favoring the restoration or continuance of R. O. T. C. units in medical schools and also the teaching of medical economics in all medical schools.

It was reported that no state has passed the Epstein or any similar health insurance bill and that the federal Social Security Board does not have as one of its duties as was first supposed the studying and making of recommendations with respect to health insurance.

The Bureau of Medical Economics submitted a lengthy report giving an analysis of two hundred different experiments now being conducted in an attempt to distribute medical service more equitably. The general principles to be followed in the establishment of such a plan were given in detail.

The by laws were amended so that a man must be a member of a component society in order to be a member of the American Medical Association. The seven New Hampshire doctors affected by this change are accordingly urged to join their respective county societies.

DR. D. G. SMITH The Committee on Officers' Reports moves the acceptance of this report.

This motion was duly seconded and carried

Report of Delegate to the American Medical Association for 1936

The recent meeting that was held in Kansas City, Mo., on May 11-13, 1936 was notable for the emphasis that was placed on the county and state medical societies. The state societies were urged to watch carefully all social security legislation, and to study its possible effect on the future practice of medicine. It was voted that all medical contracts and social security plans should be approved by the county and state societies.

It is very difficult for many physicians located near state lines to attend the meetings of the county medical society in the state in which they reside. It was accordingly urged that the state medical associations of adjoining states enter into agreements whereby physicians residing near state lines may be given the privilege of affiliating themselves with the component societies of immediately adjacent counties in other states.

It was reported that men who are serving prison terms are in some instances members of the American Medical Association. It was accordingly proposed to amend the by-laws so that these men would not be allowed to continue as members of the American Medical Association until at least twelve months had elapsed from the time that they had finished their sentences. The county and state medical societies were urged to amend their by-laws in a similar manner.

Attention was again called to the uniform narcotic act which is now in force, either in its original, or somewhat modified form, in twenty-nine states. This act was drafted by the National Conference of Commissioners on Uniform State Laws with the co-operation of the Bureau of Legal Medicine and Legislation of the American Medical Association. I believe this act should be adopted in this state. There was considerable discussion over the situation where a man who has been convicted of a violation of the Harrison Narcotic Act is allowed to continue to practice medicine. It was believed that his license should be revoked by the Board of Registration in Medicine, which may be done in this state after he has been given a hearing.

Dr. West, Secretary of the American Medical Association, urged that either the presidents of the state societies, or the delegates to the American Medical Association be sent to the secretaries' meeting held yearly at Chicago. He also urged the delegates to report to the county societies the business that the House of Delegates transacts at its meetings.

The various boards of registration in medicine were urged to raise the requirements for the graduates of foreign medical schools who seek to practice in this country. It has been suggested that all of our states should require applicants whose professional training was received outside of the United States or Canada to pass the examinations of the National Board of Medical Examiners.

It was voted that it was unethical for physicians to allow their names to be included in the various commercial directories of physicians.

It was voted to make a study of air conditioning, and its possible effect on the health of the people.

The special committee appointed to study contraception rendered an excellent report which was accepted, and it was voted that the study be continued for another year. It was voted that blood tests for paternity are not reliable. There was considerable discussion about the members of hospital staffs not being members of the county and state medical societies and it was voted that the members of staffs of hospitals approved by the American Medical As-

sociation for interne training must be members of their respective county and state medical societies. It was decided that all medical care must be separate from the group hospitalization plans, this to include medical care in a broad sense as the services of a radiologist, pathologist, etc.

The traditional stand against the professional association of physicians with the members of the healing cults was again reaffirmed. It was voted that physicians should not consult with them and should not allow them to treat patients in our hospitals.

All medical schools were asked to instruct their students on the activities, services and benefits of organized medicine.

The trustees were asked to do what they could to make the advertisements of drugs and drug products conform to the present requirements for the labels and packages of these drugs and drug products.

The very serious illness of the president-elect, Dr. J. Tate Mason, cast a shadow over the meeting. Dr. Mason, in absentia, was installed as president of the A. M. A. At this open meeting we were honored by having Governor Park of Missouri and Governor Alfred M. Landon of Kansas address us. Governor Landon said in part: "But medicine will not willingly be made the servile instrument of politicians or the instrument of domineering bureaucracy. I predict that the typical American physician and organized medicine as a whole will at no time be ready for any scheme of regimentation, for any system of impersonalized medicine which is totally alien to the best traditions of the American practitioner and of the profession as a whole." John H. Upham, who was chosen president-elect, told me that his people came from Concord, N. H., and that he will be very glad to visit us during his term of office, either as president-elect or as president of the association.

The 1937 session will be held at Atlantic City which is relatively near New Hampshire. I believe that more of our physicians should attend these meetings, which are most interesting, most instructive and very valuable not only to the general practitioner, but also to the specialist. The number of New Hampshire doctors who are Fellows of the American Medical Association, and accordingly receive the journal of that organization, is small. I wish to urge the members of this society to become Fellows of the American Medical Association which allows them to attend all the meetings of the Association and to receive the *Journal*.

Dr. D. G. Smith. The Committee on Officers' Reports believes that all medical contracts and social security plans should be approved by the state and county societies.

I move the adoption of the first part of this report.

This motion was duly seconded and carried.

Dr. D. G. Smith. The practice of allowing physicians located near state lines in a bordering state to join county societies in this State, has been allowed for some time in New Hampshire. We approve of this, and instruct our secretary to enter into agreements with our adjoining state societies whereby this practice may be continued. It will, of course, be necessary for the county medical society of the county in which the physician resides to waive its juris-

duction, as a physician can be a member of only one state association

I move the adoption of the second part of this report

This motion was duly seconded and carried

DR D G SMITH We agree that men serving prison terms should not be allowed to continue their membership in the county and state societies We recommend that this matter be referred to our Committee on Amendments to the Constitution and By Laws for its consideration and that this Committee be instructed to draft a suitable amendment if it believes this action to be advisable

I move the adoption of that portion of the report.

This motion was duly seconded and carried

DR D G SMITH We believe that the uniform narcotic act should be introduced into the next session of our General Court and that the Committee on Public Relations should endeavor to secure the co-operation of the New Hampshire Bar Association and do all in its power to secure the passage of this act

I move the adoption of this portion of the report

This motion was duly seconded

SECRETARY METCALF The Act to which he refers was introduced at the most recent session of the Legislature, and the Committee on Public Relations voted not to support it

DR. SMITH I withdraw the motion

DR DUNBAR I move that this matter of narcotic legislation be referred to the Committee on Public Relations without recommendation for study

DR. D G SMITH I would like to amend that motion, and add "that this Committee be asked to co-operate with the New Hampshire Bar Association in this matter"

DR DUNBAR I accept the amendment

The motion with the amendment, was duly seconded and carried

DR D G SMITH The attention of the New Hampshire Board of Registration in Medicine should be called to the suggestions about raising the requirements for the graduates of foreign medical schools, and this board should be informed that our society approves of these suggestions

I move the adoption of that part of the report

The reason for that motion and statement was because of the low standard for graduation

in some of the foreign medical schools, by "foreign" I mean medical schools outside of the United States and Canada I have a letter here from Dr Cutler replying to a request for further information in which he states that the spread between the best and the poorest graduates of European Universities is much wider than would be tolerated in the United States In Europe, a student is left pretty much to his own devices. It is true that certain final examinations must be passed, but the student may take as much time as he pleases to prepare for them and, if unsuccessful may try again until he is lucky enough to pass As a result of this situation, there are a great many graduates of foreign medical schools coming to this country, to engage in practice who are not properly equipped, nor properly examined by the various licensing boards in this country

That briefly gives you the background for that motion

This motion was seconded and carried

DR D G SMITH It is recommended that sometime prior to the annual meeting of the American Medical Association at Atlantic City, the Secretary should send to the members a circular letter calling attention to the meeting enumerating the benefits to be obtained by attending it and urging the members to spend that week in Atlantic City

I move the adoption of that part of the report

This motion was duly seconded and carried

SPEAKER WOODMAN Are there further reports ready tonight?

SECRETARY METCALF I have Dr Bowler's Report of the Committee on Medical Education and Hospitals

Report of Committee on Medical Education and Hospitals

At the meeting of the New Hampshire Medical Society in May 1935 the following items were turned over to the Committee on Medical Education and Hospitals by the House of Delegates

1 The inauguration of postgraduate study in some form

2 The inauguration of the speakers bureau to provide upon request speakers for meetings of the county societies

3 The utilization of teaching facilities of the State Hospital for the Insane which were offered to the Society by the Committee on Mental and Social Hygiene

4 Co-operation with the State Board of Education in its supervision of hospital training schools. We were informed that this supervision is carried out by a committee of five graduate nurses working under the State Board of Education

On these items our Committee reports progress as follows

1 The inauguration of postgraduate study in some form In the summer and fall of 1935 Presi

dent Clifton S. Abbott of the State Society contacted the Commonwealth Fund relative to post graduate fellowships and the matter was then turned over to this Committee. The Commonwealth Fund offered the Society through Dr. Clarence L. Scamman, Director of the Division of Public Health, eight postgraduate fellowships at the Harvard Medical School, each for a period of one month. The stipend offered was \$250 plus tuition, traveling expenses from place of residence to Boston and return. This information was sent to all members of the Society by a circular letter under date of January 14. To those men making inquiry a form was sent to be filled out by each and forwarded to the Commonwealth Fund. The qualifications for these fellowships were the following: that the applicant must be a graduate of a grade A medical school and a member of the New Hampshire Medical Society in good standing, must have been in practice at least five years, should preferably be under forty five years of age, and must be a resident of a community of less than ten thousand in population.

It is interesting to note that, in spite of the usual auspices and financial assistance with which these fellowships were offered, but nine members of the Society requested and filed application blanks. Although somewhat confirmatory of a lack of interest in postgraduate work among practitioners in general, the particularly small number of applicants prompted the Committee to make a brief analysis of the number of men eligible under the requirements of the Fund. We found in the *American Medical Association Directory*, 1934, that there were 130 towns in New Hampshire with a population under 10,000 in which there were registered 304 practitioners. Of these 304 but forty six were not over forty five years of age and had practiced at least five years. In other words, there were forty six men in the State of New Hampshire who under these stipulations could qualify as applicants. We have had an interesting correspondence in this connection with Dr. Scamman of the Commonwealth Fund, and hope that if the system is continued some modifications will be made in these stipulations relative to applicants from the New Hampshire Medical Society.

The fellowships for this year have not yet been granted. We expected that some time in May the applicants were to be interviewed by representatives of the Fund, following which the appointments were to have been made. We feel that it is a good start in the direction of postgraduate study in which this Committee is interested and that the interest and co-operation of the Commonwealth Fund in this field should be fostered.

2 The inauguration of the speakers' bureau. On November 14 the members of the State Medical Society were circularized by a letter, seeking the enlistment of those members willing to serve on the speakers' bureau for county meetings. With this letter was enclosed a card to be filled out by the member stating the field within which he would be willing to speak. Four hundred and fifty cards were sent out and approximately fifty replies were received. On January 30 this list was sent to each county society with a letter. No attempt was made to enlist men from outside the State, due to the obvious difficulty of making some limitation to the number to be asked and also because most out-of-state speakers for county meetings are secured through personal contact of an officer of a county society.

3 The utilization of teaching facilities of the State Hospital for the Insane. At the present time no scheme has been completed for the utilization of

the teaching facilities of the State Hospital for the Insane as offered to the Society by the Committee on Mental and Social Hygiene. We have considered it advisable to defer this matter until more direct contact could be made with the officials of the State Hospital and the Committee on Mental and Social Hygiene to learn more definitely as to the plan of the latter committee and as to whether this project should be organized by that committee.

4 Co-operation with the State Board of Education in its supervision of hospital training schools. At the suggestion of the Secretary of the Society it was deemed wise for this committee to await an invitation to meet with the committee or board operating in this connection under the State Board of Education. A letter was sent by the Secretary of the Society on September 26, 1935 to the Secretary of this committee of the State Board of Education offering the interest and co-operation of the committee in this connection.

DR D. G. SMITH. The Committee on Officers' Reports submits the following: Full credit should be given to this Committee for the inauguration of postgraduate study through the fellowships offered by the Commonwealth Fund. We most heartily approve of the attempt being made to modify the stipulations for the fellowships, so that more members of our Society will be eligible.

I move the adoption of that part of the report.

This motion was duly seconded and carried.

DR D. G. SMITH. The Speakers' Bureau should be of value, not only to the county society secretaries, but also to the men who are asked to prepare and read papers at the county meetings. We believe that the study of the utilization of the teaching facilities of the state hospital for the insane should be continued as outlined in the report of this committee.

I move the adoption of that part of the report.

This motion was duly seconded and carried.

DR D. G. SMITH. We approve the position that the Committee has taken relative to co-operation with the State Board of Education in its supervision of hospital training schools.

I move the adoption of that part of the report.

This motion was duly seconded and carried.

SPEAKER WOODMAN. May we now have the report of the Committee on Mental and Social Hygiene?

Report of Committee on Mental and Social Hygiene

The Committee has nothing essentially new to report for the past year. Considerable agitation has taken place over the matter of child delinquency, and a serious effort was made to put a law on the statute books to deal with the subject more efficiently, but the approach thus far seems to be in other directions than psychiatry.

It avails little to talk about mental and social hygiene unless means are provided adequately to deal with the problems presented and while there seems to be plenty of money for some things there does not appear to be enough in sight for the care of the feeble-minded epileptic and insane. Millions can be spent for dams, canals, better roads and new sidewalks while our State School suffers for the want of suitable provision for the care of its sick and disabled children. The institutions are expected to maintain extramural activities such as mental hygiene clinics and educational programs among the public in spite of being understaffed and without the means to increase our numbers.

During the past year an attempt has been made to cut down the population of the State Hospital by restricting the admissions to those in most acute need but little success has attended this effort as the requests for acceptance have been so urgent as to indicate that every case is in most acute need.

DR D. G. SMITH. The Committee on Officers' Reports submits the following:

We note with alarm the statement that 'Our State School suffers for the want of suitable provision for the care of its sick and disabled children,' and that our state hospital is still crowded. We accordingly recommend that this Society go on record as approving the appropriation of sufficient money by the State Legislature to care for our feeble-minded epileptic and insane children and adults adequately; this action to be brought to the attention of the Governor and the other proper authorities. We further recommend that our Committee on Public Relations be instructed to do all in its power to secure this necessary appropriation.

I move the adoption of these recommendations.

This motion was duly seconded and carried.

SPEAKER WOODMAN. Dr Dunbar have you the report of the Neurologist?

Report of Neurologist

The following deaths of members or former members of the New Hampshire Medical Society have been reported since May 1, 1935:

Brown Dr David Russell Concord N. H. Died May 5, 1935.
Remick Dr Edwin Tamworth N. H. Died June 2, 1935.
Garland Dr William R., Plymouth N. H. Died June 5, 1935.
Mitchell Dr Abram W. Epping N. H. Died July 21, 1935.
Spear Dr Franklin E., Woodsville N. H. Died September 5, 1935.
Snow Dr Samuel D., North Conway N. H. Died September 19, 1935.
Towle Dr George H., Newmarket N. H. Died October 29, 1935.
Thompson Dr Edward H. Hampton N. H. Died November 30, 1935.
Souter Dr William Norwood New Castle N. H. Died November 4, 1935.
Stark Dr Maurice A., Newington Conn. Died December 29, 1935.

Cogswell Dr Samuel J., Derry N. H. Died January 18, 1936.
Jarvis Dr Leonard M., Claremont, N. H. Died January 23, 1936.
Connor Dr Harold J., Concord N. H. Died April 8, 1936.
Brooks Dr Harlow New York City. Died April 13, 1936.
Taft Dr Albert H., Hillsboro N. H. Died April 21, 1936.
Anderson Dr Harry E. Milton Mills N. H. Died April 22, 1936.

SPEAKER WOODMAN. I believe the Secretary has the report of the Tuberculosis Committee, which I shall ask him to read to you at this time.

Report of the Committee on Tuberculosis

The data relative to the mortality from tuberculosis in New Hampshire in 1935 are not as yet available. However basing our conclusions upon the general downward trend throughout the country we have reason to hope that the 1935 tuberculosis mortality figures will present evidence of a continuance of the phenomenal decline recorded in the State during the past fifteen years. We have reason to hope that the figures when tabulated will indicate that the mortality rate has continued to decline at a rate comparable with that of the preceding depression years.

The inference is inescapable that the medical machinery for the control of tuberculosis throughout the State has become increasingly effective in the prevention of the spread of the disease from the tuberculous sick to the well and the afflicted have been aided to recovery in an increasing number of cases.

In an address before the New York Tuberculosis and Health Association on February 25 of this year Dr Thomas Parran Jr. now Surgeon General of the U. S. Public Health Service and President Elect of the American Health Association submitted a list of what in his opinion are the nine paramount subjects and problems on public health now calling for concentration of public attention, effort, and support.

"The greatest need for health action is where the greatest saving of life can be made" said Dr Parran. "First I would place tuberculosis. The tremendous decline in tuberculosis should not obscure the fact that it is still the leading cause of death in the twenty to forty age group. Our slogan used to read 'Tuberculosis is preventable, tuberculosis is curable.' I maintain that it may now be amended to read 'Tuberculosis can be wiped out in the State and Nation.'

Your tuberculosis committee wishes to present all the encouraging data which are available relative to the campaign for the prevention and cure of the disease, feeling that the gains already secured in the control of tuberculosis should act as a stimulant to our energy and an urge toward a more aggressive and intensive campaign.

Meanwhile we have real anxieties. Tuberculosis is the most widespread of human infections and 165 men, women and children died from this preventable disease in 1931 in New Hampshire. While there appears to be no increase in new cases of tuberculosis yet the demands for sanatorium treatment during the past year have taxed the capacity of our two sanatoria and the waiting lists have been a cause for much concern. On May 1 the waiting list for admission to the Glenciff Sanatorium comprised a total of thirteen men and women and for the term

broke Sanatorium a total of eighteen men, women and children

The infirmaries facilities at the Glenciff Sanatorium have been utilized to the limit. Additional infirmary beds are needed. Artificial pneumothorax and thoracoplasty have been carried out in carefully selected cases with encouraging results. Several lipiodol examinations of the chest have been made as well as a number of bronchoscopic examinations.

Your committee is keenly appreciative of the confidence and sympathetic co-operation which have been accorded to us by members of the New Hampshire Medical Society. This splendid spirit of helpfulness has been a large factor in the success which has attended the program for the control of tuberculosis, both in connection with the work of the sanatoria and throughout the State in the case finding and clinic and nursing service.

Dr D G SMITH The Committee on Officers' Reports submits the following

We are glad to learn that the tuberculosis situation in this State is well in hand.

The long waiting list of thirty one individuals who desire admission to our two sanatoria is indeed a serious condition. We, accordingly, recommend that the New Hampshire Medical Society approve the appropriation of sufficient funds by the Legislature to provide additional beds at our State Sanatoria.

We further recommend that this action be transmitted to the Governor and the other proper authorities in the State, and that our Committee on Public Relations and the Committee on Tuberculosis be instructed to make a study of the situation and endeavor to obtain the necessary appropriation.

I move the adoption of that portion of the report

This motion was duly seconded and carried.

SPEAKER WOODMAN The next report is that of the Advisory Committee on Medical Relief.

Report of the Advisory Committee on Medical Relief

Under the new set up of a State Commission in place of the operation of House Bill No 417, there has been very little concerning which the Committee has been consulted. A meeting was held last spring with the Commission and representatives of the County Commissioners but the plans then evolved have never been put into effect and so far as the Committee is officially aware its services have not been in demand either by the members of the Commission or by our membership.

Early in the year a few cases of gross over charging were adjusted but since then we have no knowledge of how relief has been functioning, although it is our belief that the present set up is far from satisfactory.

Dr D G SMITH The Committee on Officers' Reports recommends the acceptance of this report of the Advisory Committee on Medical Relief.

This motion was duly seconded and carried.

SECRETARY METCALF I have a few councilors' reports here.

The first is from Dr J A Hunter, as follows

As Councilor for the Strafford County Medical Society, I wish to give you the following report for the year 1935.

The Strafford County Medical Society held two meetings at the American House during the year 1935.

1 A special meeting was called April 24, 1935, by the President, Dr Manning, to instruct the county delegates to the New Hampshire Medical Society how to vote on the special problems to be presented.

- (a) Welfare
- (b) Fees
- (c) Rules and Regulations

2 A regular annual meeting, at which the officers for the ensuing year were elected and accounts settled.

At this meeting, it was moved and seconded to change the date of the annual meeting to some time in April, so that the delegates could be instructed on state problems, just prior to the annual meeting.

Dr Clifton S Abbott, of Laconia, President of the New Hampshire Medical Society, addressed the meeting.

Dr J H Blaisdell of Boston gave a talk on some practical points in the treatment of the ten most common skin diseases.

There were no new members or deaths during the year. There was one transfer, Dr Walter Rahmanop, of Dover, N H, to the Hillsborough County Medical Society.

SECRETARY METCALF The following is the report of Dr F M Dinsmoor, Councilor for Cheshire County.

Two meetings have been held during the year at the hospital at Keene, at both of which interesting and valuable papers were presented. One meeting of a social nature has been held. The society is in good condition, and there is nothing of general interest to report.

SECRETARY METCALF The following is the report of Dr T F Rock, for the Hillsborough County Medical Society.

The Hillsborough County Medical Society lost four members by death during the last year and four new members were elected and joined the society, making a membership of 140.

The fall meeting was held at the Derryfield Club in Manchester, N H. Dr C S Abbott, President of the State Medical Society, addressed the meeting in regard to the prepayment hospital insurance and the overcrowding in the medical profession. Dr G E Hoffses of Manchester, N H, read a paper on "Some Observations on the Diagnosis and Prognosis of Angina Pectoris and Coronary Thrombosis." Dr Dudley Merrill of Boston spoke on "Dangers Inherent in the Clinical Diagnosis of Cancer."

The spring meeting was held at the Nashua Country Club. Dr F E Kittredge, Vice-President of the State Medical Society, spoke at length in regard to the proposed changes in the meetings of the State Medical Society. He suggested that at least one morning session should be devoted to small group meetings, following the plan of the Maine Medical Association. Dr C R Metcalf, Secretary of the State Medical Society, was present and urged that one or two members of each county society be can-

didates for representatives at the State Legislature Dr Clifford L. Derick of Boston read an excellent paper on "Staphylococcus Infections and their Treatment" and Dr Elmer J. Brown of Manchester N. H., spoke on "The Medical and Surgical Treatment of Prostatism."

DR. D. G. SMITH We recommend the acceptance of the reports that have been made and their incorporation in the transactions of the Society

This motion was duly seconded and carried

SPEAKER WOODMAN Is there any further business or any new business to come before the House of Delegates at this time?

SECRETARY METCALF I move that we adjourn

This motion was duly seconded and carried

[Whereupon the Monday evening meeting of the House of Delegates was adjourned at eleven fifteen o'clock in the evening standard time]

MAY 26 1936

The second meeting of the House of Delegates convened at the Hotel Carpenter Manchester, on Tuesday morning May 26 1936 at eight thirty o'clock

Speaker James B. Woodman presided

The Secretary called the roll and the following members responded

The President, ex-officio
The Vice-President ex-officio
The Secretary Treasurer ex-officio
Richard W. Robinson Laconia
Francis J. C. Dube Center Ossipee
Osmond H. Hubbard Keene
Fred M. Dinsmoor Keene
Richard E. Wilder Whitesfield
Robert M. Deming, Glencoff
Deering G. Smith Nashua
Clarence E. Dunbar Manchester
Charles H. Cutler Peterborough
Warren H. Butterfield Concord
James B. Woodman Franklin Falls
Harry O. Chesley Dover
Jeremiah J. Morin Rochester
Henry C. Sanders Jr. Claremont

The following alternate delegates were appointed by the President of the Society

Dr. C. F. Keeley
Dr. G. C. Wilkins
Dr. F. P. Lord
Dr. H. O. Smith

SPEAKER WOODMAN Gentlemen we shall proceed by taking up the remainder of the reports of the Committee on Officers' Reports

DR. D. G. SMITH On the report of the President the Committee on Officers' Reports submits the following

We commend the President for his report, which summarizes so well the activities of the Society during the past year. We agree with his recommendation that our meetings be held on advanced or daylight saving time, provided that the people of a majority of our cities have adopted that time.

I move the adoption of that portion of the report

This motion was duly seconded and carried

DR. D. G. SMITH We do not believe that the House of Delegates should meet more often than once a year at any previously determined time. We do believe that the President should not hesitate to call special sessions of the House whenever he deems it to be advisable.

I move the adoption of that portion of the report

This motion was duly seconded and carried

DR. D. G. SMITH On the report of the Committee on Child Health the Committee on Officers' Reports has the following recommendations

We approve of the Committee's recommendations, which in brief are as follows: That the Society further the extension of preventive care for children; that the Society urge the adoption by the State of the child health provisions of the Social Security Act; that the State Department of Health adopt an up-to-date communicable disease code; and that the Committee be continued.

I move that the first recommendation of this committee be adopted which is that the Society further the extension of preventive care for children.

This motion was duly seconded and carried

DR. D. G. SMITH We recommend that the Society urge the adoption by the State of the child health provisions of the Social Security Act.

I move the adoption of that portion of the report

This motion was duly seconded

SPEAKER WOODMAN Is there any discussion on this matter?

DR. DUNBAR The Hillsborough County Society voted that we should be very hesitant about doing anything with reference to social security that will tie us up with the Federal Government.

DR. CRORAL C. WILKINS I think that the vote referred to the large question of the Social Security Act and not to the special provisions provided for in this motion by Dr. Smith. As a matter of fact as was explained last night some

broke Sanatorium a total of eighteen men, women and children

The infirmary facilities at the Glenclyff Sanatorium have been utilized to the limit. Additional infirmary beds are needed. Artificial pneumothorax and thoracoplasty have been carried out in carefully selected cases with encouraging results. Several lipiodol examinations of the chest have been made as well as a number of bronchoscopic examinations.

Your committee is keenly appreciative of the confidence and sympathetic co-operation which have been accorded to us by members of the New Hampshire Medical Society. This splendid spirit of helpfulness has been a large factor in the success which has attended the program for the control of tuberculosis, both in connection with the work of the sanatoria and throughout the State in the case finding and clinic and nursing service.

DR D G SMITH The Committee on Officers' Reports, submits the following:

We are glad to learn that the tuberculosis situation in this State is well in hand.

The long waiting list of thirty-one individuals who desire admission to our two sanatoria is indeed a serious condition. We, accordingly, recommend that the New Hampshire Medical Society approve the appropriation of sufficient funds by the Legislature to provide additional beds at our State Sanatoria.

We further recommend that this action be transmitted to the Governor and the other proper authorities in the State, and that our Committee on Public Relations and the Committee on Tuberculosis be instructed to make a study of the situation and endeavor to obtain the necessary appropriation.

I move the adoption of that portion of the report.

This motion was duly seconded and carried.

SPEAKER WOODMAN The next report is that of the Advisory Committee on Medical Relief.

Report of the Advisory Committee on Medical Relief

Under the new set up of a State Commission in place of the operation of House Bill No. 417 there has been very little concerning which the Committee has been consulted. A meeting was held last spring with the Commission and representatives of the County Commissioners but the plans then evolved have never been put into effect and so far as the Committee is officially aware its services have not been in demand either by the members of the Commission or by our membership.

Early in the year a few cases of gross overcharging were adjusted but since then we have no knowledge of how relief has been functioning, although it is our belief that the present set up is far from satisfactory.

DR D G SMITH The Committee on Officers' Reports recommends the acceptance of this report of the Advisory Committee on Medical Relief.

This motion was duly seconded and carried.

SECRETARY METCALF I have a few councilors' reports here.

The first is from Dr J A Hunter, as follows:

As Councilor for the Strafford County Medical Society, I wish to give you the following report for the year 1935.

The Strafford County Medical Society held two meetings at the American House during the year 1935.

1 A special meeting was called April 24, 1935, by the President, Dr Manning, to instruct the county delegates to the New Hampshire Medical Society how to vote on the special problems to be presented:

- (a) Welfare
- (b) Fees
- (c) Rules and Regulations

2 A regular annual meeting, at which the officers for the ensuing year were elected and accounts settled.

At this meeting it was moved and seconded to change the date of the annual meeting to some time in April, so that the delegates could be instructed on state problems, just prior to the annual meeting.

Dr Clifton S Abbott, of Laconia, President of the New Hampshire Medical Society, addressed the meeting.

Dr J H Blaisdell of Boston gave a talk on some practical points in the treatment of the ten most common skin diseases.

There were no new members or deaths during the year. There was one transfer, Dr Walter Rahmanop, of Dover, N H, to the Hillsborough County Medical Society.

SECRETARY METCALF The following is the report of Dr F M Dinsmoor, Councilor for Cheshire County:

Two meetings have been held during the year at the hospital at Keene, at both of which interesting and valuable papers were presented. One meeting of a social nature has been held. The society is in good condition, and there is nothing of general interest to report.

SECRETARY METCALF The following is the report of Dr T F Rock, for the Hillsborough County Medical Society:

The Hillsborough County Medical Society lost four members by death during the last year and four new members were elected and joined the society, making a membership of 140.

The fall meeting was held at the Derryfield Club in Manchester, N H. Dr C S Abbott, President of the State Medical Society, addressed the meeting in regard to the prepayment hospital insurance and the overcrowding in the medical profession. Dr G E Hoffses of Manchester, N H, read a paper on "Some Observations on the Diagnosis and Prognosis of Angina Pectoris and Coronary Thrombosis." Dr Dudley Merrill of Boston spoke on "Dangers Inherent in the Clinical Diagnosis of Cancer."

The spring meeting was held at the Nashua Country Club. Dr F E Kittredge, Vice President of the State Medical Society, spoke at length in regard to the proposed changes in the meetings of the State Medical Society. He suggested that at least one morning session should be devoted to small group meetings, following the plan of the Maine Medical Association. Dr C R Metcalf, Secretary of the State Medical Society, was present and urged that one or two members of each county society be can-

mittee on Maternal and Child Health of the State Board of Health should be the members of the Committees on Child Health and on Maternity and Infancy of this Society, and three dentists to be chosen by the New Hampshire Dental Society, that a member of our Society's Committee on Maternity and Infancy and a member of our Committee on Child Health to be appointed by these respective committees serve as our representatives on the State Advisory Committee on Maternal and Child Health.

I move the adoption of that portion of the report

SPEAKER WOODMAN This question is now open for discussion

DR. D. G. SMITH The State Board of Health has asked that these various Committees be appointed and they have asked that the New Hampshire Medical Society appoint these two Committees, the Technical Committee on Maternal and Child Health and the Advisory Committee, and that motion provides that members of our two Committees on Child Health, Maternity and Infancy, be also the members of the Technical Committee of the Maternal and Child Health Department of the State Board of Health, and that these two groups choose two men to serve on the State Advisory Committee on Maternal and Child Health

DR. COLIN STEWART Our Committee is not in favor of pushing the Society into something it does not want to adopt. The point is however, that the thing is coming, and the closer control we can keep over it the better off I think we shall be

In the recent discussion I got the impression that some of the members thought our Committee favored going out of our way to encourage the State to do things which were being done otherwise, that isn't the case at all. We would like to see all this preventive care kept under control as much as possible. We would like to do all we can to that end and we would like to see the private practitioners handle as much as possible. We would like to see the following procedure adopted as much as possible. For instance, if a well baby clinic is established, we should like to see the youngsters admitted by a card made out by the referring doctor, to the clinic, stating that the patient was unable to pay or that he couldn't see the patient, rather than just having them thrown open to everybody, no matter what the economic status

DR. BURROUGHS The substance of that motion was drawn up in conference with the Chairman of the Committee on Maternity and Infancy. It merely brings us into the position of co-operating with what is being done, at the same time leaving us free to disapprove of

anything that we afterwards may wish to eliminate

SPEAKER WOODMAN Is there any further discussion on this motion? If not, all those in favor will please signify by saying "aye"

There was a chorus of "ayes", and the motion was carried.

SECRETARY METCALF Mr Speaker, would the House of Delegates be willing to permit the Committee on Public Relations, if it saw fit, to employ a representative during the coming session of the Legislature?

I will make a motion that the House of Delegates permit the Committee on Public Relations, if it sees fit, to expend funds for the employment of a paid representative.

This motion was duly seconded

DR. DEXING Is there any program that is being put forth, or is he simply going to be there as a protectionist against whatever might arise?

SECRETARY METCALF I assume that this would be left to the discretion of the Committee on Public Relations, and that such an expenditure would be made only if in their opinion something of vital moment should come up during the session of the Legislature

SPEAKER WOODMAN If there is no further discussion, all those in favor of the motion will signify by saying "aye"

There was a chorus of "ayes" and the motion was passed unanimously

SPEAKER WOODMAN Is there any new business to come before the meeting?

DR. D. G. SMITH I should like to bring before the members of the House of Delegates the proposition that was placed before me last week, and again yesterday afternoon

There is being organized in this State, a corporation called the New England Motorists Inc., which is selling service to the people of the State. They aim to have in each city and town of any size a recommended attorney physician or surgeon and garage

On the back of the membership card of each member is this statement

In your community and vicinity, in case of accident, notify 'John Jones' of Nashua N H telephone . . . If you need legal advice, notify 'John Doe' lawyer. If you need a garage notify 'John Roe' garage man."

I was told that four doctors in the State had already signed up to act as physicians in this company's scheme

May I just read the section relating to first aid, emergency and medical and surgical service

"New England Motorists, Inc., will pay to any of its recommended physicians not exceeding \$50 00 for any emergency medical services or medical first-aid rendered by said recommended physicians to a holder of this contract, as hereinbefore defined, at the time and at the scene of any accident in which the above described automobile is involved or at the holder's home, or at said recommended physician's office within one hour after the happening of said accident. If a recommended physician is not available, then any other physician may be called by the holder and the obligation of this corporation will be the same."

But, as you will notice, it doesn't specify the care at a hospital, the care has to be at the home or the physician's office within an hour, or at the site of the accident.

But the part to which I particularly object is as follows

"The applicant (that would be the physician or surgeon) agrees that in lieu of paying a cash consideration to the New England Motorists, Inc. for said exclusive listing as a recommended physician and surgeon in the territory mentioned hereinafter, to give to said organization a credit in anticipated medical and surgical services to the extent of \$100 00, on account of services to be undertaken for the members of said organization, as set out in the contract issued by the said organization."

The part last referred to is what I previously read under the heading of first aid medical and surgical service.

I would like to ask this House of Delegates either to approve or disapprove of this plan.

DR GEORGE C WILKINS I move that the employment of physicians by this insurance organization be disapproved by the House of Delegates, and the joining of it by any members of the State Medical Society be discouraged.

This motion was duly seconded and carried.

DR KEELEY How are the rest of the members of the Society going to be made aware of it? I make a motion that we send a notice to all the members of the Society.

This motion was duly seconded and carried.

SPEAKER WOODMAN Is there any further business to be brought before this meeting?

DR R W ROBINSON The Committee on Memorials and Communications has only two communications

One of them deals with a suggestion of an old-age pension plan for physicians, with the request that we, as the House of Delegates, instruct our delegates to the American Medical Association that we advocate it. I believe that we should simply recommend no action.

The other communication deals with a suggestion made by the Committee on Contraception and Birth Control, asking us if we would not accept a speaker at one of our state meetings.

We suggest that this communication be turned over to the Committee on Scientific Work for their consideration.

DR H O SMITH Mr Speaker, in response to the vote taken last evening in relation to the request made by the delegates of the American Medical Association that the State and County Societies should so change or amend their by-laws to make provision in relation to the membership of men who are so unfortunate as to be obliged to serve terms in prison the members of the Committee submit the following proposed new Section 4 of Chapter I of the By-Laws.

"A member who is convicted of a crime punishable by imprisonment in a state or federal prison shall be automatically expelled."

If this is accepted, the following section is to be renumbered, in order to carry it through, as would be necessary in this State.

"We recommend that the component county societies amend Chapter I, Section 8 of the model by-laws drawn up for their adoption by inserting after the first sentence the words

"A member who is convicted of a crime punishable by imprisonment in a state or federal prison shall be automatically expelled."

DR D G SMITH I offer that as an amendment to the Constitution and By-Laws, so as to bring it before the House for action.

SPEAKER WOODMAN You have heard the amendment as read, gentlemen. That is automatically referred to the Committee on Amendments to the Constitution and By-Laws.

DR D G SMITH The Hillsborough County Medical Society has elected to Honorary membership Dr A Guertin, Dr D C Norton, Dr F J Robinson, and Dr H L Stickney.

I move that these men be made affiliate members of this Society, Dr Guertin, Dr Norton and Dr Robinson to begin January 1, 1935.

This motion was duly seconded and carried.

DR D G SMITH Dr Stickney has asked us to recommend him for affiliate membership, or affiliate fellowship, in the American Medical

Association, therefore I move that the New Hampshire Medical Society recommend Dr H L Stickney to the American Medical Association, providing that he meets the requirements for affiliate fellowship in the American Medical Association

This motion was duly seconded and carried

Dr F P Lord I have one matter that I should like to bring before the House of Delegates. It has to do with some of our Committees and the method of selection and appointment

At the present time there exist standing committees, listed in the by laws and standing committees which are not listed in the by laws and the special committees

The Committee on Maternity and Infancy was appointed two years ago with its Chairman named, and it runs in perpetuity

The Committee on State Medical Relief was appointed in 1934 and last year was made to exist for two years more. This committee was to be appointed by the Speaker of the House

The Child Health Committee was appointed by the President in 1935 and was continued until the end of this year and you have just voted to continue it for another year. That I think, is elected

The Committee on Medical Liability Insurance, listed in our blue book went out of existence a year ago. It doesn't exist, although it gave a report yesterday

The Committee on Constitution and By Laws, appointed by the President a good many years ago has continued indefinitely

It seems to me that it would be wiser and more simple to have all of the Committees elective

Therefore, I move that these committees be elected, and that all reference to duration be stricken out

The motion was duly seconded and carried

SECRETARY METCALF I move that we adjourn

This motion was duly seconded and carried

[Whereupon, the Tuesday Morning Session of the House of Delegates adjourned at ninety-five o'clock, standard time until eight thirty o'clock in the morning on Wednesday, May 27 1936]

MAY 27, 1936

The Wednesday Meeting of the House of Delegates convened at the Hotel Carpenter, Manchester, on Wednesday morning May 27 1936 at eight thirty o'clock

Speaker James B Woodman presided
The Secretary called the roll and the following members responded

The President, ex-officio
The Vice-President ex-officio
The Secretary Treasurer ex-officio
William J Paul Dye Wolfeboro
Osmon H Hubbard Keene
Deering G Smith Nashua
Clarence E Dunbar Manchester
Warren H Butterfield Concord
James B Woodman Franklin Falls

The following delegates were appointed by the President

Dr Frederic P Lord
Dr George C Wilkins
Dr Cleon W Colby
Dr Charles F Keeley
Dr Thomas W Luce
Dr Emery M Fitch
Dr H O Smith

SPEAKER WOODMAN I will now call upon the Chairman of the Nominating Committee for his report on Nominations

Dr CLARENCE E DUNBAR The Nominating Committee presents this list of nominations

For President—Frank E Kittredge Elmer M Miller L C Ager
For Vice President—Samuel T Ladd Arthur W Hopkins Joseph E Larocheville
For Secretary Treasurer—Carleton R Metcalf
For Councilor for Rockingham County—Herbert L Taylor Portsmouth
Councilor for Strafford County—John A. Hunter
Trustee—Henry O Smith
Speaker of the House of Delegates—Cleon W Colby
Vice-Speaker—Richard W Robinson
Neurologist—Clarence E. Dunbar
Delegate to the American Medical Association—Deering G Smith
Alternate Delegate to the American Medical Association—Emery M Fitch

DELEGATES TO NEW ENGLAND MEDICAL SOCIETIES

Maine—Charles F Nutter and Emery M Fitch
Vermont—Oscar C Young and Elmer M Miller
Massachusetts—Harry W Savage and John F Holmes
Rhode Island—Benjamin E. Sanborn and George M Crowell
Connecticut—A. Philip LaFrance and M Dawson Tyson

STANDING COMMITTEES

Amendments to the Constitution and By Laws
Henry O Smith Fred E Clow and Thomas W Luce
Control of Cancer George C Wilkins Howard N Kingsford and George F Dwinell
Medical Economics Timothy F Rock (for three years)
Medical Education and Hospitals John P Bowler (for one year) James W Jameson (for three years) and Harris E. Powers (for two years)
Mental and Social Hygiene Charles H Dolloff
Benjamin W Baker Charles A Weaver
Publication Carleton R. Metcalf Henry H Amundsen and Warren H Butterfield.

Public Relations Frank E Kittredge, Samuel T Ladd, Carleton R Metcalf.
Scientific Work Carleton R Metcalf, Frederick P Scribner, R. W Robinson
Tuberculosis Robert B Kerr, Robert M Deming, John D Spring

SPECIAL COMMITTEES

Committee on State Medical Relief Robert J Graves, John P Bowler, Roland J Joyce
Child Health Colin C Stewart, Jr, Travis P Burroughs, F N Rogers.
Maternity and Infancy Robert O Blood, Benjamin P Burpee, Chester F McGill

SPEAKER WOODMAN Gentlemen, you have heard the report of the Nominating Committee. What is your pleasure?

DR GEORGE C WILKINS I move that we ballot for the election of the President

This motion was seconded and carried

DR HENRY O SMITH I move that the Secretary be instructed to cast one ballot for the election of Frank E Kittredge of Nashua for President

This motion was seconded and unanimously carried

SECRETARY METCALF I have cast one ballot for the election of Frank E Kittredge of Nashua as President of this Society for the ensuing year

SPEAKER WOODMAN I have received one ballot for Frank E Kittredge as President of this Society. This being the entire number of votes cast, I declare Frank E Kittredge duly elected as President of the New Hampshire Medical Society for the ensuing year

DR FRANK E KITTREDGE I thank you, gentlemen. I am fully cognizant of the honor and the compliment that you have paid me, and I am well aware of the work that will be expected of me

I never attended a meeting of the House of Delegates before Monday night, I have held practically every office in the Hillsborough County Medical Society, but I don't think I was ever a delegate from the Hillsborough County Medical Society to the New Hampshire Medical Society. But, I assure you I was very much amazed, and still am amazed at the amount of work done here Monday night, and the extent of the variety of business necessary to carry on the affairs of the Society. I am well aware, as I said, of the task which confronts us during the coming year, and I shall do all that my strength will allow me to do. That is all I can say

I do want to say just one thing more. I shall have to expect help from you gentlemen of the House of Delegates, from the Secretary, and from the incoming Vice-President, and I know I shall have that without any question

SPEAKER WOODMAN Gentlemen, what is your pleasure in the matter of a Vice-President?

DR EMERY M FITCH I move that the election take place by ballot

This motion was duly seconded and carried

SPEAKER WOODMAN I appoint Paul Dye as teller. The candidates are Samuel T Ladd, Arthur W Hopkins and Joseph E Larochelle

[After ballot was taken] DR PAUL DYE It was a unanimous vote for Samuel T Ladd, seventeen votes

SPEAKER WOODMAN There were seventeen votes cast, and these seventeen votes were for Samuel T Ladd. I declare him unanimously elected as Vice-President of the New Hampshire Medical Society, for the ensuing year

Our next order of business is the election of a Secretary-Treasurer, for five years

DR PAUL DYE I move that one ballot be cast for Carleton R Metcalf, for Secretary-Treasurer for five years

This motion was duly seconded and carried, unanimously

SPEAKER WOODMAN Having cast one ballot for the election of Carleton R Metcalf for five years, as Secretary-Treasurer of this Society, I declare him duly elected to that office

We will now proceed to the election of the rest of the list. What is your pleasure?

DR THOMAS W LUCE I move that the Secretary cast one ballot for the remaining nominees

This motion was seconded and carried, unanimously

SECRETARY METCALF I have cast the ballot

SPEAKER WOODMAN The Secretary having cast one ballot for the list of names as presented by the Nominating Committee, I declare them duly elected

DR H O SMITH The Committee on Amendments to the Constitution recommends the adoption of the proposed new Section 4 of Chapter I of the By-Laws

"A member convicted of a crime punishable by imprisonment in a state or federal prison shall be automatically expelled"

The sections following to be renumbered Submitted by Henry O Smith and Thomas W Luce

SPEAKER WOODMAN All those in favor of the motion, as stated by Dr H O Smith will please signify by saying "aye"

There was a chorus of "aves" and the motion was carried

DR H O SMITH The Committee on Amendments to the Constitution and By Laws recommends that the component county societies amend Chapter I Section 8 of the model by laws, drawn up for their adoption by inserting after the first sentence the words

"A member who is convicted of a crime punishable by imprisonment in a state or federal prison shall be automatically expelled"

The Secretary of the State Society is requested to send a copy of the vote to the Secretary of each component Society and to urge that the county societies adopt the amendment in question

This motion was duly seconded and carried

SECRETARY METCALF I was approached yesterday by the Secretary of the Women's Auxiliary who asked me whether it would be permissible for the Auxiliary to call upon the Speakers' Bureau occasionally for a medical speaker to talk not before the various county auxiliaries necessarily but before groups of women in the various communities such as the League of Women Voters or women's clubs or other organizations of that sort

DR F E KITTREDGE I think it is something that should be encouraged. I don't believe you can find any better way of getting medical thoughts and possibly legislative thoughts, too before the women of the State not connected with the auxiliary, than this

DR WILKINS I want to approve also. I think that by this method, we can build up a considerable number of speakers throughout the State who are going to be very helpful in spreading health information

I talked to a group of women yesterday on Cancer and a cancer educational proposition. There were women there representing organizations from all over the State and I took the liberty of telling them that they could call upon the Directors of the Clinics in each separate city throughout the State for speakers. This group with reference to the Speakers' Bureau can do the same sort of good

SPEAKER WOODMAN The sentiment in this matter is obvious. The State Medical Society stands ready to co-operate

DR F E KITTREDGE I move that the Secretary be instructed to inform the officers of the Women's Auxiliary that the Speakers' Bu-

reau of the State Medical Society will be open to them, and that they be encouraged to make use of the Bureau

This motion was duly seconded and carried

DR. PAUL DYE I move that the Committee on Medical Economics be instructed to poll the doctors throughout the State and, on the basis of their findings, draw up a minimum fee list throughout the State and that each doctor who is a member of the State Society receive a copy of this minimum fee list

PRESIDENT ABBOTT I think that is a very good suggestion, because I know there is a great variation in fees charged in different places

DR. GEORGE C WILKINS I disagree because I have had some experience in making out fee lists for the City of Manchester and for Hillsborough County. It always creates a great deal of difficulty. I don't think that a fee list that would fit Manchester, Nashua and Concord would be suitable for some parts of Coos County and even in some parts of Hillsborough County

I think that the answer to the fee list is the local fee list and not a widespread fee list that covers a large territory with a varying population and a varying income

I think that if any inquiry were to be made, such as suggested by Dr Dye, it should be made through the organized medical societies of the State, rather than through individuals

DR F E KITTREDGE I have heard fee lists discussed and discussed, but I have never seen a fee list that was ever lived up to, in fact, it was hardly ever considered

I think that every part of the state should consider its own fee list. The doctors in a community know best the conditions where they live, and we know best the conditions where we live

DR W J PAUL DYE Mr Speaker, I was asked to bring this matter up largely in the nature of stimulating some discussion inasmuch as there have been so many different fee lists. It might save disagreement in the future if there was an average list

SPEAKER WOODMAN Those who are in favor of the motion will signify by saying "aye". There was no response

Those who are of contrary mind will say "no"

There was an overwhelming "no" vote, and the motion was lost

SPEAKER WOODMAN The next item of business is the selection of the place for our next Annual Meeting. What is your pleasure?

DR. W J PAUL DYE I move that our next meeting be held in Manchester

This motion was duly seconded and carried

SECRETARY METCALF Mr Speaker, I move that a vote of thanks be extended to the Manchester Medical Society, to our guests, to the State Board of Health, to the Exhibitors and to all those who have contributed to the success of this meeting

This motion was duly seconded and carried

SPEAKER WOODMAN Is there any further new business to come before the meeting? If not, a motion to adjourn is in order

SECRETARY METCALF I move that we adjourn

This motion was duly seconded and carried

[Whereupon, the Wednesday morning session of the One Hundred and Forty-Fifth Annual Meeting of the House of Delegates was adjourned at nine-fifty o'clock in the morning on May 27, 1936]

RECENT DEATHS

TAFT—ALBERT H TAFT, M D, aged twenty nine, who for a little more than a year practiced medicine in Hillsboro, died at the Margaret Pillsbury Hospital, Concord, N H, on April 21, 1936, after a short illness with a septic throat

Born in Winchester, he was educated at Winchester High School, the University of New Hampshire and McGill University

Survivors are his parents, Mr and Mrs DeForest Taft, of Winchester, three sisters, Mrs Walter Conlon, of Framingham, Mass, Mrs Willard Holt, of Epping, and Miss Alberta Taft, of Winchester

ANDERSON—HARRY EDWARD ANDERSON, M D, died of coronary heart disease with complications at Milton Mills, N H, on April 22, 1936 He was the son of Edward A. and Nettie Purinton Anderson and was born in Limington, Maine, April 1, 1887 He graduated from Limington Academy and was granted the degree of M D by Bowdoin Medical School in 1910

He began practice in Milton Mills, N H, and continued there with one or two interruptions until 1928 He served from August to December, 1918, as First Lieutenant in the Medical Corps at Camp Greenleaf, Georgia He was Assistant Superintendent at Ring Sanatorium and Hospital, Arlington Heights, Mass, from 1918 to 1920 In 1928, he went to Somersworth, N H, and practiced there until April, 1935, when he retired because of ill health

On August 21, 1912, he married Miss Abbie Small, of Limington, Maine There were no children

Dr Anderson was a member of Strafford County and the New Hampshire State Medical Societies and the American Medical Association He was a 32nd degree Mason, a member of Bektash Temple, Nobles of the Mystic Shrine, the Odd Fellows and the Knights of Pythias, of which he was Past Grand Chancellor for the State of New Hampshire He belonged to the American Legion Forty and Eight

He is survived by his widow, Mrs Abbie Anderson, of Milton Mills, two sisters, Clara and Helen Anderson, of Malden, Mass, one brother, Dr Justin Anderson, of Somersworth, and an uncle, Byron S Anderson, of Limerick, Maine

By his pleasing personality Dr Anderson won many friends both in the medical profession and the laity His constant attendance at medical meetings showed his abiding interest in his profession and his early demise is but another reminder of the price so often paid for accepting the trials and responsibilities of a hard country practice

CHASE—EZRA C CHASE, M D, of Plymouth, N H, one of the oldest practicing physicians in that section and a man widely known throughout New England because of his keen interest in his profession and in other activities, died at his home on Highland Street, Plymouth, late Monday afternoon, May 25, 1936 He had just returned from a ride and was enjoying his newspaper when the end came

Dr Chase was born in Piermont, October 10, 1857, the son of Daniel and Lavina (Clement) Chase, descendants of two of New England's old families His early years were spent in that vicinity where he attended the public schools of Piermont Upon the completion of the early courses of study, he began his career by working on a farm His desire was to become a physician and finally he was able to enroll as a student of the Eclectic Medical College in Maine At the time of his enrollment, the college had been in existence only six years and thus he had the honor of being one of the earliest graduates, receiving in 1884 the degree of doctor of medicine

He first began his career as physician and surgeon in Orford, where he practiced successfully for twentythree years In 1907 he moved to Plymouth where he continued his profession until the time of his death

Dr Chase was also active in civic and social affairs While in Orford he served two terms as representative to the State legislature and as representative from Plymouth for one term For several years he served as medical examiner for the schools of Plymouth Fraternally he was affiliated with the Olive Branch Lodge, Free and Accepted Masons, the Royal Arch Masons, the Royal and Select Masters and the Ancient Accepted Scottish Rite and Knights Templars

Dr Chase married first, Miss Margaret Brooks and to them were born three children Mrs Chase died in 1922 Some time later Dr Chase married Miss Minnie Ramsay, a graduate of the Woodsville Hospital training school for nurses, who served as Plymouth's school nurse for some years

Dr Chase is survived by his widow, Mrs Minnie (Ramsay) Chase, a daughter, Mrs Eda Brown, wife of Dr Lester Brown of Laconia, two sons, Dr Daniel Chase, of Orlando, Fla, and Bernard B Chase, of Concord, member of the State Liquor Commission

MISCELLANY

A DESERVED HONOR

Science reports that Dr John W Bowler of Dartmouth College has been made Emeritus Professor of Hygiene and Physical Education

STRAFFORD COUNTY MEDICAL SOCIETY

A meeting of the Strafford County Medical Society was held at the City Hotel in Rochester on April 29 1936 at 10 30 a m The meeting was conducted by the President Dr E G Marcotte The business was transacted promptly One new member Dr H. A Almond of Rochester was admitted The necrologist reported the death of Dr Harry E Anderson of Milton Mills recently of Somersworth N. H. and paid him a splendid tribute

The meeting adjourned for luncheon at 1 o'clock after which a very fine paper on Obstetrics was read by Dr Benjamin P Burpee of Manchester N. H.

EDNA WALSH M.D., Secretary

HILLSBOROUGH COUNTY MEDICAL SOCIETY

The twenty fourth semi-annual meeting of the Hillsborough County Medical Society was held at the Nashua Country Club Nashua N. H. on April 25 1936 T. H. Kall and John B Wlodkowski both of Manchester N. H., were elected to membership in the society Henry L Stickney was elected to honorary membership and the House of Delegates of the New Hampshire Medical Society was asked to make him an affiliate member of that society The deaths of Maurice Stark and Albert E. Taft were reported and suitable resolutions were adopted W. T. Rahmanop has transferred his membership from the Strafford County Medical Society to this society

F. E. Kittredge Vice-President of the New Hamp-

shire Medical Society told of the proposed changes in the meetings of the state society and after a full discussion it was voted to instruct the delegates to act favorably on the proposal to devote at least one of the morning sessions to small group meetings following the plan of the Maine Medical Association

O. R. Metcalf, secretary of the state society said that the physicians should become more interested in politics and urged that at least one or two men from the county society be candidates for representative in the legislature

Dr Clifford L. Derick, of Boston read an excellent paper on Staphylococcus Infections and Their Treatment He discussed the subject as a whole but stressed particularly the use of the staphylococcus antitoxin and staphylococcus toxoid Dr Elmer J. Brown of Manchester N. H. spoke on The Medical and Surgical Treatment of Prostatism He urged a thorough study of this group of cases and stated that with proper preparation the mortality rate from prostatectomy is low

NEW HAMPSHIRE BIRTHS MARRIAGES
DEATHS AND DIVORCES IN 1935

Births reported during 1935 numbered 77 97 less than were reported in 1934 Rate per 1000 estimated population for 1935 is 16.30 1934 16.58

Marriages in 1935 numbered 732 28 less than in 1934 Rate for 1935 is 30.86 1934 30.69

Deaths reported during 1935 numbered 6530 an increase of 132 over 1934 Rate for 1935 is 13.70 1934 13.49

Divorces reported in 1935 numbered 763 an increase of 26 over 1934 Divorces in 1935 affected 751 minor children Divorces in 1934 affected 796 minor children — Bulletin New Hampshire State Board of Health

VERMONT STATE MEDICAL SOCIETY

RURAL HEALTH PROBLEMS THE PROBLEMS THEMSELVES
AND THEIR CONTROL*

BY WARD WOOLNER, M.D.†

ANYONE who has been in any way interested in the administration of a health department even in a small center knows very well that there are many health problems and that the proper method for the control of these various activities has not been discovered In our large urban centers with a full time health service, including specially trained doctors, nurses, technicians and inspectors many health problems are being controlled In many rural centers and by rural centers I mean townships and villages very little has even been attempted

to solve them In Ontario we have only one rural health center where four counties have been grouped There are forty four counties in Ontario In the United States of America, out of 2500 rural counties only one-fifth or five hundred, have any form of organized health service Only about fifty have budgets and personnel of reasonable adequacy Only about one dozen have health organizations comparable with what is considered necessary in a city

Through the generosity of the Milbank Memorial Fund with state and county assistance a wonderful county health unit has been established in Cattaraugus County in New York State Under Federal control a large part of the state of Tennessee is receiving real rural

Read at the Annual Meeting of the Vermont State Medical Society at Ft. Island October 18 1935

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health service Under these units the rural health problems are or will be adequately controlled These are, unfortunately, the exceptions Until state and municipal finances are in a more flourishing condition, we cannot hope to solve all our problems but we must not fail in our attempts to carry on and we must use our present health machinery to its full capacity

In discussing the various rural health problems, you will pardon me if I refer to my own work. This, unfortunately, is the only health activity I feel capable of presenting fairly accurately to you

Here are a few of the rural health problems with which we have to deal

- (1) Water Supply
- (2) Sewage Disposal
- (3) Milk Supply
- (4) Control and Prevention of Communicable Diseases, Diphtheria, Smallpox, Scarlet Fever, Infantile Paralysis, Tuberculosis, and Venereal Diseases
- (5) Prenatal Care
- (6) Medical Inspection of School Children
- (7) Laboratory Work
- (8) Social Service

Water Supply

The water supply in rural districts is largely from wells (drilled or dug) In our cities the public water supply is always under control and with any suspicion of contamination, is treated chemically usually by using liquid chlorine (The orthotoluidine test will tell us if we are using the right amount of chlorine) With one well to every four or five of our population or five hundred wells for a township of 2500 people, it is simply impossible to test annually the water, from all these wells, chemically and bacteriologically Only when we have cases of typhoid or some other intestinal disease and a cause must be found, do we test the water The water from each school well is examined yearly as part of the routine under health regulations However, the residents in our rural sections are being educated to the advantages of pure water Many farm wells today are water-tight for the upper six to ten feet and nearly all have concrete covers Our school wells are all built in this way today Thirty years ago typhoid fever was one of the diseases we were sure to be treating in the township homes in September or October Now we seldom see a case The knowledge of the care taken of the water supply in the cities and that of the school wells has spread to all rural homes and the farmer is just as anxious to keep well as the city resident Health articles in the press on water supplies and the knowledge given to the children in the schools will help to control the danger of rural water supplies

Sewage Disposal

Here, too, the rural dweller is gradually learning of the dangers to health in open pit-closets or in the otherwise careless disposal of human excreta In our rural schools we are demanding chemical closets or, where electricity is available to pump the water, we have flush closets with septic tanks The taxpayer has to pay these bills and demands to know why these innovations are required Then he learns the advantages, carries the ideas into his home and many rural homes in my township have flush closets with properly built septic tanks and disposal beds The farmer is anxious to preserve his pure water supply by proper disposal of sewage Occasionally we do have serious trouble in our townships from the deposit of untreated city sewage in our streams, but this nuisance is passed to the state health authorities to control

Milk Supply

In no part of our health work have we made more rapid strides, in recent years, than in the supervision of our milk supply At first, the milk producers and milk dealers resented the regulations for the control of milk, but today, they are nearly all anxious to co operate An accredited herd is the hope and aim of every good dairy farmer The dairies and stables from which milk is delivered to the vendors in our villages, towns or cities must comply with rigid regulations The advantages of pasteurization are known even in rural homes Whether he supplies milk to an urban dairy or to a factory the good farmer is anxious to have healthy cows, clean stables, clean milkers and sterile utensils The teaching of our pediatricians that boiled milk digests more easily than raw milk has helped to keep down milk-borne diseases in the farmer's home How few children we see today with the bovine type of tuberculosis! Surely the safeguarding of the milk supply has been responsible By the continued education of our people our milk supply is being made safe

Control and Prevention of Communicable Diseases

I cannot go over the whole field, but I will discuss a few diseases over which we have control Diphtheria should and could be one of the diseases of the past if doctors, health workers and parents would do their duty If we could immunize with diphtheria toxoid every child over six months of age and under eleven years, from 90 per cent to 98 per cent of our children would be safe from this dread disease In fact, if we gave toxoid to all the children of preschool age, diphtheria would soon die out In my own municipalities we had, in 1933, 95 per cent of all school children treated with three

doses of toxoid. Fortunately we have a health nurse whose assistance is invaluable in obtaining the consent of the parents. Refusal is almost unknown. We have always made an effort to receive the whole-hearted support of the other physicians in the community in every immunizing campaign and we find that the family doctor's goodwill helps us very materially. In rural areas we have found it necessary to give toxoid in the schools. We do feel that in urban centers the family doctor should find a larger place in the health program. In Detroit and in many other parts of Michigan where the Kellogg Foundation is assisting in health work, the family doctor is getting a chance to share in the work and in the remuneration. He sets aside a certain hour each week when the children of his clientele are sent to his office to receive toxoid, vaccination, etc. He collects a reduced but definite fee from those who can pay. The municipality pays him a small fee for others. In Vancouver, British Columbia, the family doctors are giving toxoid to all children when they reach the age of six months in accordance with a plan developed by the Department of Health of the city. Certain centers in the United States and in England are using the family doctor to assist the Health Department in this preventive work. These centers report a better feeling between the doctors and the health departments. Co-operation between the therapeutic and preventive branches of medicine should be our constant aim. In our rural work we have not undertaken to do any systematic Schick testing, knowing from numerous published papers of the highly satisfactory immunizing power of the unmodified diphtheria toxoid, which is supplied by our Provincial Department of Health. (Alum precipitated toxoid is not used in Canada.)

Smallpox

Vaccination against smallpox is carried out in the country schools on the same plan as our toxoid campaign. We tried for years to have the children vaccinated during the summer vacation but only about one per cent responded. The offer of free vaccination in the school brought us 90 per cent of the children including many of preschool age.

Scarlet Fever

It would be my opinion that generally it is now agreed that five doses of diluted scarlet fever toxin will immunize at least 75 per cent of the children (negative Dick test) and that an additional dose will raise this figure very considerably. The value is shown by Dr. Hannah of the Sick Children Hospital, Toronto, in wiping out scarlet fever among nurses. It is probably not a measure for schools. It is for the practitioner to use among his families.

Infantile Paralysis

I will only mention this disease for we have as yet, neither a sure preventive nor a specific treatment. We use immune blood serum in Ontario, but I cannot see any definite results. The cases are usually in the paralytic stage when I see them or if no paralysis develops I doubt my diagnosis. We all hope some definite findings will be made soon. Few contributions to our knowledge of the epidemiology of this disease have equalled the pioneer investigations of Dr. Caverly made in this state of Vermont during and following the serious outbreak of 1894. In Rutland alone 132 cases were reported and intensively studied.

Tuberculosis

This is a serious health problem in city and rural districts alike. In my early days in practice I always had active pulmonary cases under my care. Now, we send all of these patients to our county sanatorium for treatment. The contacts are visited regularly by our health nurse and taken to a clinic in a nearby city or to the sanatorium for examination and x-ray as long as seems necessary. The cost of the care and treatment of the indigent patients is borne by the municipality and provincial department of health. The rich can easily pay for their own. The large middle class of farmers and villagers who do not want charity or would be refused if they asked for help, have a serious time meeting the payment of \$1.50 a day, which may be continued over a period of years. (This \$1.50 a day is the only charge for rich and poor alike and all have the same class of rooms and food.) Surely the time has arrived in civilized Christian countries, when men need not mortgage their homes to give the sick one a chance to regain health. We should remember that the isolation of the active cases in a sanatorium may save many others in that home or in our own homes. The province of Saskatchewan with a population of 960,000 has seen the need of the state's taking full charge of the cases of tuberculosis. The health department not only provides free care in sanatoria for all but maintains an organized follow-up service as well of all contacts. After ten years of this effective effort their beds now are not all needed and their death rate from tuberculosis has dropped to 30.3 per 100,000 in 1934, the lowest rate in Canada and one of the lowest recorded anywhere. It should be remembered in this connection that the Indian population very small in numbers contributes 20 per cent of all tuberculous deaths.

Through the examination of dairy cattle and the pasteurization of milk, human tuberculosis of the bovine type occurring in children has been greatly reduced.

To control this health problem of tuberculo-

sis, I would recommend the testing of all school children with tuberculin and a further examination and x-ray of those reacting to the test. In Ontario we now demand a tuberculin test and, if it is thought necessary, an x-ray of all girls entering training schools for nurses. Studies have shown that six per cent of nurses in several general hospitals in Ontario have developed tuberculosis. I would suggest traveling clinics with portable x-ray outfits to visit all the larger cities monthly. In this way our rural cases could be examined. The state should bear the full cost of the care and treatment of all cases of tuberculosis requiring institutional attention.

Venereal Diseases

These are not a serious problem in our rural districts. We do have an occasional family with congenital syphilis but the treatment is most unsatisfactory for several reasons. Cases in country districts are best treated in a clinic supported by the state.

Prenatal Care

If mothers live several miles from the family doctor, prenatal care becomes a difficult problem. They are becoming increasingly aware of the advantages of visiting their doctors early and often. Should the mother have no means of transportation our nurse will convey her to the doctor. The co-operation of the doctor and the continued education of mothers through the press, by pamphlets and by radio together with the services of the public health nurse, are the only ways by which we can improve our problem of having every mother receive prenatal care. Forty-four per cent of the maternal deaths in rural Ontario in 1933 had not had prenatal care, eighteen per cent had had Caesarean section.

Medical Inspection of Children in Rural Schools

Our provincial regulations require the medical officer of health to make annually, a careful inspection of the school premises but the school children are not necessarily included. However, I feel that the children in rural schools

have the right and often have more need of a medical examination, than their city cousins.

Our people are usually anxious to have the defects found and corrected. The only solution for the medical inspection of children in rural schools is a full-time county health service.

Laboratory Work

Branch diagnostic laboratories have been placed in a number of the cities in Ontario supplementing the services of the Central Provincial Laboratory. No doctor is many hours from a center where his needs may be promptly supplied. These laboratories supply us with many biological products including insulin, liver extract, various antitoxins, toxoid, vaccines, arsenical, bismuth and mercury preparations as well as diagnostic outfits for mailing blood, urine, fecal matter for suspected typhoid swabs, from throats and blood for sugar or culture and so forth to the laboratory.

Social Service

This is not so serious a problem in rural districts as in our large cities. Since 1930, with many families receiving relief, our health nurse is forced to spend many hours a week among these people. A county health service could correlate the work of various social agencies and co-operate in the provision of medical services.

Finally, if we are to solve these many rural health problems there are certain definite goals for which we must strive.

- 1 Health departments must work with and receive the full co-operation of the family doctors.
- 2 We must have, as soon as possible, full time health services financed jointly by the state and the municipality.
- 3 In rural areas the county health service seems the logical unit. The Cattaraugus County Unit demonstrates what can be accomplished.
- 4 The state should accept full financial responsibility for the care and treatment of pulmonary tuberculosis.

gravity of the disorder (schizophrenia) runs parallel with the encephalographically depicted brain anomalies, but he emphasizes that the duration of the schizophrenic process and the ventricular and cortical changes are independent of each other. Repeated encephalograms done at long intervals upon the same patients showed no variations from the original findings, despite the fact that the disease process continued to grow worse. "These two important results of my investigations, the independence of the encephalographic findings from the duration of the process and the negative results of repeated encephalographic studies lead me to the assumption, that the asymmetry of the brain ventricles, their frequent dilatation and the often encountered cortical changes have not developed secondarily, that they are not results of the schizophrenic process but exist as predisposing factors."

that these brain anomalies influence the course of the schizophrenic disorder unfavorably." Lemke regards the anomalies as being congenital in origin and believes that when they are noted in the presence of tainted heredity and eccentric prepsychotic personality traits they connote an unfavorable prognosis.

In this country Moore, Nathan, Elliott, and Laubach⁴ have reported encephalographic studies on schizophrenia, as well as other psychoses. These authors also report definite ventricular and cortical changes. Their findings are at variance with those of Lemke. For example, Lemke found no alterations in the encephalographically depicted anomalies when the examinations were repeated on the same patient eight years after the first studies. Moore and his associates noted that five of their series of seventy-one patients who had repeated encephalograms "deteriorated in characteristic praecox fashion during the interval of encephalography." The second set of encephalograms in these patients show an increased pathology in the form of further enlargement of the ventricular systems and cisterns and in some cases increased cortical atrophy.

If we bear in mind the complexity of the schizophrenic disorder, the multitude of pathological sections of brain from these patients which have failed to exhibit any constantly recurring anomalies and the number of difficulties arising in the technique of performing and interpreting encephalograms, we will not be misled by reports such as these of Lemke and Moore. So far as I know there is no recorded series of accepted normal encephalograms, and until we are more certain of the appearance of normal variations in encephalograms I think we are treading upon thin ice if we assume that unusual encephalographic findings in schizophrenia always indicate gross brain pathology. A recent review of 800 encephalograms by Lemere and Barnacle⁵ emphasizes the multitude

of normal variations to be encountered in encephalograms.

Those interested in the problem of psychiatric classification will find Rachlin's⁶ follow-up study of Hoch's benign stupors of much interest. Hoch's well-known Monograph appeared in 1921. This work depicts a series of cases manifesting psychoses characterized by inactivity, apathy, negativism and disturbance of intellectual functions. Often these symptoms were accompanied by slight elevations in temperature, leucocytosis and ideas pertaining to death. Hoch removed these cases from the schizophrenic group, classified them with the manic-depressive reactions and gave them a good prognosis. In November, 1935 Rachlin published a follow-up study of Hoch's cases. The majority of the patients living at that time were between forty-five and sixty years of age. Of the forty cases referred to by Hoch, Rachlin has been able to identify nineteen through hospital records (Manhattan State Hospital), but he succeeded in tracing only thirteen. Of the thirteen traced nine are living (six are in state hospitals), three are residing in their homes (1934), and four died (two died in state hospitals and one was deported to Ireland). The readmission of so many of the cases to hospitals and their subsequent courses led Rachlin to reclassify many of Hoch's cases with the schizophrenics. For details of Rachlin's follow-up study it is suggested that those who are interested in stupors consult his article after re-reading Hoch's Monograph.

It is futile to become involved in a discussion as to whether a case is manic-depressive or schizophrenic. These terms carry almost as many different connotations as there are clinics working with psychotic patients. For this reason I see little to be gained by reclassifying Hoch's cases with the schizophrenics as Rachlin has done. What seems more important is the fact that the great majority of Hoch's cases experienced remissions of long durations (one patient as long as twenty-five years and others ten to fifteen years except for brief periods). Certainly there are other types of stupor reactions which are not followed by remissions of this nature. Hoch's stupor cases may not have run such a benign course as he thought they would undergo, on the other hand, we should not forget that Hoch recorded a masterful description of a type of reaction with which we are familiar today.

In 1929 Huhnerfeld⁷ injected hematoporphyrin, a photosensitizing decomposition product of hemoglobin into rabbits and found that after ten minutes they became livelier, reacted strongly to stimuli and showed no fear. This same investigator later treated depressive psychoses by means of hematoporphyrin (photodyn) and reported favorable results. Since the publica-

tion of Hühnerfeld's work, foreign literature has contained several favorable reports of hematorporphyrin therapy. In this country Strecker Palmer and Braceland⁸ have published favorable results. Of the 1935 reports of Notkin Huldart and Denner,⁹ Stenberg¹⁰ and Angus¹¹ only Angus was impressed by the use of hematorporphyrin in depressive psychoses. Out of a series of forty-one cases "whose chief symptom was depression" this investigator found that six manic depressives, one schizophrenic, and one psychoneurotic recovered or were much improved. Of the balance ten were improved, five showed slight improvement and eighteen were unaffected.

Notkin treated ten cases of schizophrenia and ten cases of involuntal melancholia with hematorporphyrin. Only one case in the melancholic series showed any considerable clinical improvement, three showed mild transitory improvement, none of the schizophrenics improved. Stenberg's series of fourteen cases included only two who could be regarded as improved and one of these suffered a relapse six months later. With Whitehorn, Anthony, Sen and Rose I observed a limited number of depressions (McLean Hospital) who received hematorporphyrin treatment. During the treatment only one patient improved but since she had recovered from a previous depression in approximately the same period of time without drug treatment we could not attribute her second recovery to hematorporphyrin. The control of drug treatment in the manic depressive psychoses is exceedingly difficult. So many of these patients recover without any specifically directed form of treatment even after they have remained in institutions as long as ten years, we must be extremely cautious in attributing improvement or recovery to a drug until all of the variables have been weighed carefully.

The remarkable electrical disturbances arising in the brain, the potential oscillations or "Berger rhythm" of Adrian continue to occupy the attention of many investigators. It seems well established that these potential waves which were recorded first in man by Hans Berger in 1929¹² arise in the cortex but there still persists considerable difference of opinion concerning the locality of their origin. Berger continues in the belief that every part of the cortex, when active, gives rise to potential waves with a frequency of about ten a second. Their disappearance when the eyes are closed is due, according to Berger, to a widespread inhibitory effect which interferes with a perception of the potential changes through the skull. This view has been criticized by many investigators, especially Adrian and his associates who have suggested that "the rhythm is a spontaneous or resting discharge from a large group of neu-

rones in the occipital lobe neurones mainly concerned with the vision." Adrian and Matthews¹³ argue that the active region must be concerned with vision because in their studies they have found that the rhythm is abolished most effectively when the eyes are open and there is a presence of visual stimuli, also because exposure of the eyes to a flickering field results in potential waves with the same general distribution over the head but with the frequency of the flicker instead of the usual ten a second frequency.

In 1935 Adrian and Yamagiwa¹⁴ reported a series of experiments which they believe resulted in evidence that further confirms the assumption that the potential changes reach a maximum in the occipital region. Limited space will not permit a detailed review of their experiments. It suffices to say that they are more or less in confirmation of Adrian's and Matthews' earlier work. Berger¹⁵ himself has continued the controversy in an article appearing in the *Archiv für Psychiatrie und Nervenkrankheiten*. Here he calls attention to the variations in applying the electrodes and emphasizes that this may be a factor in the results which have led to different explanations of the phenomena at work. He takes issue with Adrian and Matthews' inability to detect the potential waves in people who have been blind for many years and presents electro-encephalograms showing the waves from three subjects who suffered complete blindness for fifteen, seventeen, and eighteen years. To explain the discrepancy between his results and those of Adrian and Matthews, Berger returns to their argument as to whether pattern vision or the process of simple attention prohibits a detection of the rhythm. Adrian and Matthews have assumed that "the area is so much a part of the visual apparatus that when vision (particularly pattern) is cut off there will be nothing left to disturb it. But an intense activity in the rest of the brain will do so and it seems that if vision is permanently cut off the area is not allowed to remain idle but becomes gradually more and more accessible to excitation from other parts." This seems to be Adrian and Matthews' explanation for their failure to obtain the Berger rhythm in the blind. On the other hand, Berger who did detect the rhythm in blind subjects is of the opinion that the abolition of the rhythm involves chiefly the process of attention, that by careful consideration of the psychological and sensory factors, particularly hearing through which the blind orient themselves to the experimental set up, one should be able to reduce attention to a minimum and thereafter detect the rhythm. Berger obtained the rhythm in one of his subjects who was blind deaf in one ear, and had the sound ear plugged with cotton.

In this country Gibbs, Davis and Lennox¹⁶

have utilized the electro-encephalogram in studies of epilepsy and conditions of impaired consciousness. With them leads the most constant and pronounced fluctuations noted in the resting subject displayed frequencies of ten to twenty a second and reached a maximum of sixty microvolts. In sleep the frequency of these waves decreased to one and five a second. Sometimes the amplitude of the waves decreased. Groups of large slow waves were detected in subjects suffering frequent attacks of petit mal epilepsy, they were associated with the seizures. Grand mal epileptic seizures were preceded by the gradual appearance of waves with a higher frequency than the previously dominant waves. There was an increase in the amplitude of the waves and the convulsions began. Until the clonic phase began the wave amplitude continued to increase, but the frequency did not alter. As the clonic phase set in, fast waves tended to clump together into slower waves—as the convulsive movements ceased the amplitude and the frequency of the waves decreased. These investigators also observed that if subjects became unconscious by breathing nitrogen or from failure of cerebral blood supply, the frequency of the waves decreased and the amplitude increased.

The report of the American Neurological Association's Committee for the investigation of sterilization appeared in June, 1935. The Committee was composed of Drs. Abraham Myerson, Chairman, James B. Ayer, Tracy J. Putnam, Leo Alexander and Clyde E. Keeley, consultant in genetics. Their report is a full one and appears in monograph form. Since *The New England Journal of Medicine*⁶ has published in an earlier number a review of the report it seems unnecessary here to do more than refer those who are interested in the matter of sterilization to the Committee's original report.

The results of Cannon's¹⁷ experiments in which he showed that a rise in blood sugar occurs in cats when these animals are frightened by a barking dog have been confirmed by many investigators, but attempts to detect similar elevations of the blood sugar content in man while he is disturbed emotionally have resulted in conflicting reports, particularly in the case of "normal" man.

Bowman and Kasanin¹⁸ and Whitehorn¹⁹ have reported the blood sugar findings in patients experiencing emotional disturbances during the course of mental disease. These investigators are essentially in agreement that there is no correlation between the mood of the patient and the height of the blood sugar. The blood sugar levels of emotionally disturbed subjects suffering mental disease were usually within normal limits during fasting states. When elevations were noted in these patients the clinical

picture usually included evidences of organic disease (fever, diabetes, arteriosclerosis). Bowman and Kasanin believe that these factors were more concerned with the rise in blood sugar than was the emotional state of the patient. Recently, Gildea²⁰ and his associates have studied blood sugar levels in "normal" subjects and mentally ill patients who experienced disturbing emotional states. These workers observed that "the only normal subjects in whom we could consistently find a substantial elevation in the sugar content of the blood were those who had been through profoundly disturbing experiences which aroused a genuine fear of death or other catastrophe either for the individuals themselves or for a person whom they loved." An elevation of the sugar content of the blood in patients with manic-depressive psychosis, schizophrenia and psychopathic personalities was rarely observed. This latter finding is in keeping with the earlier works of Bowman and Kasanin, and Whitehorn. Gildea²⁰ and his associates suggest that the failure of the blood sugar to rise in severe emotional states occurring in patients suffering mental disease indicates that these reactions may be "qualitatively different from the externally similar disturbances in people without mental disease."

Concerning the nature of this qualitative difference they speculate as to the possibility of the psychopathic personalities playing dramatic rôles without disturbing or taxing their metabolic processes. They are more cautious in speculating about the manic depressive but raise the question as to whether the fact that these patients do not mobilize their carbohydrate to any marked extent may partially explain why it is possible for them to show extreme emotional disturbances for long periods of time without becoming exhausted. Reference to what may happen in the schizophrenic whose blood sugar does not rise in disturbing emotional states is omitted.

In regard to blood sugar studies in disturbing emotional states of psychotic subjects, I think the instigators whom I have cited will agree to the statement that when we attempt to compare the laboratory findings in animals which have been subjected to death-threatening experiences that must be accompanied by the most disturbing of emotions, with the results obtained in studies of emotional states of psychotic patients, our task becomes extremely complex. In the first place, it is indeed rare to encounter disturbing emotions in the human being, in health or in mental disease, which may be said to be analogous to the state of a cat when it feels that its very life is about to be snatched away. Moreover, there is evidence to suggest that one of the rôles of certain psychoses is to bind or dissipate some of the unpleasant and disturbing physiological com-

ponents of emotion. It may be that fancied death threatening enemies are capable of instigating the same disturbing emotions which an objective and palpable one arouses but in my clinical experience such states are extremely rare in the manic depressive and schizophrenic psychoses. The verbal introspective accounts of these patients are often misleading—as the physical components of their emotions illustrate. At times the fear states of the toxic psychoses (acute alcoholic) seem to approach the genuine fear states of the frightened laboratory animal.

Among the new psychiatric books appearing in the English language in 1935 special attention should be called to Kanner's "Child Psychiatry," Campbell's "Destiny and Disease in Mental Disorders" and Alexander and Healy's "Roots of Crime." Limited space will not permit a satisfactory review of these books here.

Kanner's "Child Psychiatry" is a textbook the first of its kind in English. The general trend of the author's approach to the problems of the child is in keeping with Adolf Meyer's teachings. The pediatrician as well as the psychiatrist, will find much of interest in this book.

Campbell's "Destiny and Disease in Mental Disorders" outlines the author's views with regard to the so-called endogenous psychoses but especially those referred to as schizophrenia. The reader will find the views expressed in this book very stimulating. They emphasize the complexity of the manifold life experiences which are so often relegated clinically to the limbo of schizophrenia.

"Roots of Crime" is a volume dealing with psychoanalytic studies of established delinquents. The authors present detailed analyses of personalities which illustrate some of the unconscious forces at work in these people. This book represents one of the few serious at-

tempts to understand the personality factors involved in crime. The life histories of Richard Vorland, Sigrid Amnson, Henry Elton, and others referred to in the book will have to be read to obtain the full significance of the authors' views concerning the roots from which crime springs.

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MAJOR RECOMMENDATIONS*

The mental health of a community requires the services of experts dealing mainly with the individual case. To conceive of a mentally healthy community without adequate and expert leadership and assistance is to believe merely in the value of verbalistic ideologies. Mental health can be most effectively accomplished by having practical concrete service available.

The most significant observation of the survey in regard to Springfield was lack of just such adequate mental hygiene service and leadership in the face of an increasing and intelligent demand for it from social health and educational agencies and from individuals. The major recommendations of the survey are therefore: (1) Provision for additional clinical service for the public school system

An abstract from the Report of the Mental Hygiene Survey of Springfield, Mass., by the Massachusetts Society for Mental Hygiene.

as previously stated and (2) Enlargement of the present child guidance clinic at the Springfield Hospital which operates on a part time basis to a full time clinic giving service to both adults and children with an adequate staff and with a psychiatrist especially trained in child psychiatry at its head. As the survey believes that a local community should bear part of the expense of its own mental hygiene clinic and should not expect the State to bear the entire financial load it recommended that Springfield share about one-fourth of the expense of the clinic, with the State taking care of the balance. The survey also recommended that this new clinic be given the advantage of an advisory and sponsoring committee in which the Monson and Northampton State Hospitals, the Belchertown State School, the State Division of Mental Hygiene, the Springfield Academy of Medicine and the Council of Social Agencies should be represented.

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C CABOT, M D

TRACY B MALLORY, M D, *Editor*

CASE 22261

PRESENTATION OF CASE

A fifty-three year old American businessman was first seen complaining of jaundice

Six years before his initial visit he developed loss of weight, increased thirst and polyuria. Two months later he went to a hospital where his urine was found to contain 48 per cent sugar and his blood sugar level was 190 milligrams. A night urine specimen contained 50 per cent sugar. He was given 10 units of insulin three times daily and within twenty-four hours his urine became sugar-free. At the onset of his illness he weighed about 190 pounds and three months later his weight was 166 pounds. At this time he was taking 8 units of insulin once daily and his urine was sugar-free. His blood sugar, however, was 210 milligrams. Four months later his blood sugar was 160 milligrams and three months after that 130 milligrams. At this time he weighed 152 pounds but he had remained upon a rigid diet since the onset of his illness.

Four years ago he was found to be jaundiced and was again admitted to a hospital. There were no associated symptoms but the van den Bergh test showed 2 milligrams per cent of bilirubin. The blood showed a red cell count of 3,700,000 with a hemoglobin of 70 per cent. The fasting blood sugar was 140 milligrams and examinations of the urine were negative except for the presence of bile. An x-ray examination of the chest showed slight increase of the lung markings and calcified hilar lymph nodes but was otherwise negative. A gastrointestinal series and barium enema were negative except for a concavity at the splenic flexure consistent with an enlarged spleen. He remained noticeably jaundiced for several months and finally improved after the removal of some upper teeth. Thereafter he remained well for about three years and then had several infected teeth extracted. Shortly after this he developed jaundice, chills, fever, crampy sensations in the abdomen, and tenderness in the right upper quadrant. Physical examination showed him to be deeply jaundiced. The lungs were clear and the heart was negative. The abdomen was dis-

tended and firm but no definite tenderness or spasm was elicited. The liver edge was not felt but the spleen was readily palpated. The temperature was 103°, and the pulse 96. Although his urine was sugar-free he continued to take five units of insulin daily and to adhere to his diet. The insulin was discontinued and he was given a high carbohydrate diet. The temperature then rapidly returned to normal and the icterus disappeared. He returned to work and remained well except for occasional fever and sensations of abdominal distention until eight months later, at which time he developed chills, a fever of 102°, and some midabdominal discomfort. Despite the fact that he was eating a high carbohydrate diet and subsequently received much glucose intravenously his urine contained no sugar. At this time the liver was not felt but the spleen was enlarged two finger breadths beneath the costal margin. An icterus index was 29. X-ray examination of the abdomen was negative. He was given daily glucose infusions and in five days his icterus index fell to 19. At the end of this period he began to develop edema and ascites and the infusions were discontinued, after which his icterus index rose to 32 but he became much less waterlogged. He remained icteric for about three months but felt quite well otherwise. His urine and stools consistently contained bile.

He had a perforated gangrenous appendix sixteen years before entry. No story of chronic alcoholism or drug ingestion was obtained.

Physical examination showed a poorly nourished, slightly jaundiced man. The tongue was smooth at the tip, at which point a wart-like bud protruded. There were small telangiectases over the right chest but the heart and lungs were normal. The liver was readily palpated two finger breadths beneath the costal margin. Its edge was sharp and smooth. The spleen extended three finger breadths beneath the costal margin. No edema or evident ascites was noted.

Examination of a urine specimen showed a specific gravity of 1.013 and a slight trace of albumin. There was no sugar in a twenty-four hour specimen. Urobilinogen estimation was reported as 1/20. Examination of the blood showed a red cell count of 3,470,000, with a hemoglobin of 60 per cent. The white cell count was 5,950. A serum protein was 7.1 grams per cent, of which the albumin was 2.87 and the globulin 4.28. A liver function test showed 50 per cent dye retention. The van den Bergh was 3.9 milligrams. A sugar and fat tolerance curve showed the following:

	Sugar	Fats	Choles terol	Esters
Fasting	125	360	260	94
1/2 Hour	125	409	200	104
1 Hour	146	412		
2 Hours	129	357		

The patient continued to be comparatively well for about six months, when he developed an acute upper respiratory infection. Severe terminal jaundice appeared and he died within a few days.

DIFFERENTIAL DIAGNOSIS

DR ALFRED KRAVES In reading over this story one is faced with two problems. In the first place, what was the nature of the illness which caused recurrent jaundice, chills, fever and abdominal pain over a period of about four years and which ultimately caused death? The second, and, it seems to me, more interesting problem is why as this disease progressed did his diabetes disappear? In regard to the first problem the nature of his fatal illness he came under observation four years before his death and at that time he had a period of asymptomatic jaundice during which the only abnormal finding aside from the jaundice was a slight anemia and an enlarged spleen by x-ray. He was studied pretty thoroughly at that time. I do not quite see why all the gastrointestinal x-rays were taken and I am a little surprised that no Graham test was done although it might not have revealed anything in the presence of jaundice. That illness it seems to me was consistent with a mild attack of hepatitis of some sort, either infectious or toxic. Just what the cause was, we cannot say. I can see no reason for believing he had gall stones or any other disease of the major biliary ducts. A mild hepatitis would best explain that initial picture from which he recovered and remained well during the next three years.

Then he gets a series of illnesses during which he had recurrent and fluctuating jaundice, abdominal discomfort, fever, chills, and at one stage of which he becomes water logged. Now of course, the first thing one thinks of in the presence of liver disease, which the patient undoubtedly had, and, in addition diabetes, is hemochromatosis. The association of the two seems to strike one but I cannot see any way of substantiating that diagnosis. There is no mention in the record of abnormal skin pigmentation and I think the chief point against the diagnosis is that the diabetes got better instead of worse, which is contrary to what one would expect with progressive pigmentary cirrhosis. If he had hemochromatosis it seems to me that the pancreatic cirrhosis which accompanies it and which is responsible for the diabetes usually progresses along with the liver disease and although the diabetes may be mild or severe, depending on the amount of pancreatic cirrhosis it rarely clears up as the disease progresses, so that I think hemochromatosis is unlikely.

Could he have had gallbladder disease? Obviously the people who were taking care of him did not think so or he would have been operated

on. There are a number of things against gall bladder disease in this case. In the first place he starts out with asymptomatic jaundice and enlargement of the spleen, an unusual picture for either cholecystitis or cholelithiasis, and as the disease progresses the spleen becomes increasingly larger. The progressive splenic enlargement argues very much against primary disease of the gallbladder. As I see it it is regrettable that no Graham test was done but perhaps those who took care of him thought that inasmuch as he retained fifty per cent of the bromsulphthalein at the end of a half hour the chances were that he would not have excreted much of the gallbladder dye and the Graham test would therefore only serve to confuse the picture. On the whole I am inclined to think that the gallbladder and the larger bile ducts at any rate will probably be normal. Moreover if any stones are found they probably do not explain the severe liver damage from which this patient obviously suffered. I do not think one can exclude however, diffuse intrahepatic lithiasis which can conceivably cause a picture of this sort and which I do not see how one can diagnose. All we can say is that it is consistent with the picture but very unlikely. Other conditions like carcinoma of either the pancreas or bile ducts I think are very unlikely in view of the enlarged spleen which one very infrequently sees with primary or metastatic malignancy of the liver or gallbladder.

Can he have had a diffuse cholangitis and cirrhosis as a result of it? Possibly, but just what the nature of that process was that took place during that year and a half preceding his death I do not believe we can be sure of, because the patient died six months after he recovered from that illness and all we shall find will probably be the resultant scars the precursors of which we can only speculate about. I think the most likely possibility is that the patient was suffering from severe progressive necrosis of the liver and that he finally ended up with a small nodular cirrhotic liver. Whether it was infectious or toxic I do not see how we can say. But the end result of the picture was as I saw a cirrhotic liver. It is the result of what we might call a subacute yellow atrophic cause unknown.

There are some interesting laboratory data here although I do not think they help us very much. He has an anemia, a normal serum protein but you will notice a very marked reversal of the albumin globulin ratio which has been reported in severe liver disease in human beings and in experimental animals whose livers have been damaged by various means. The fact that he showed urobilinogen in the urine merely indicates liver damage and is not diagnostic of any particular type of liver disease. Surprisingly enough the fat tolerance curve which I

take it was done by Dr Jones—I do not know anyone else around here who does this sort of thing—is surprisingly normal except for the high initial fatty acid level. The shape of the curve is essentially normal. Usually in severe liver disease the fatty acids are depressed below the fasting level within a half hour after subcutaneous adrenalin. I hope Dr Jones will say more about that later. On the whole, the laboratory work does not help us very much and leaves us with our original clinical impression that this patient died with cirrhosis of the liver, probably the result of subacute yellow atrophy and he will exhibit a small nodular liver and an enlarged spleen. I think the liver will be small, although six months before he died it was felt two fingerbreadths below the costal margin. Some time ago I looked up a good many of these cases of acute and subacute yellow atrophy, where the liver had been felt clinically, and found that at postmortem the liver was very much shrunken. I think that probably will be the case in this patient. I cannot exclude a cirrhosis due to a diffuse intrahepatic lithiasis, although that is very improbable.

Assuming for the moment that he did die of cirrhosis of the liver of some infectious or toxic type, why did the diabetes disappear as the liver disease progressed? While there are certain patients with diabetes in whom the diabetes later disappears spontaneously for some unexplained reason, it is very uncommon, although a number of cases have been reported. We have learned in the past few years from the work of Houssay and of Long that pancreatic diabetes in experimental animals can be alleviated or cured by lesions of the pituitary or adrenals. In this case we have no evidence of disease in either the pituitary or adrenals. There also have been cases reported of improvement in diabetes with progressive cirrhosis of the liver. To be sure those cases are very unusual and quite rare but it is, nevertheless, a recognized clinical entity. I looked this question up a short time ago and found that the first one to report any such phenomenon was Claude Bernard in 1877. No further cases were reported until 1930, when Bordley at Johns Hopkins reported another case. Bordley in commenting on his case, whom Dr Joslin had seen quotes Dr Joslin as saying that in his experience diabetes had never disappeared after the onset of cirrhosis of the liver of which he had seen several cases. Since that time several other cases have been reported of very severe diabetes requiring as much as one hundred units of insulin daily, the diabetes subsequently subsiding as the liver disease progressed and the patients finally dying in hypoglycemia. Why that takes place, I do not know, and there is no adequate explanation for it. One would think, believing what we are told about the physiology of the

liver, that the reverse ought to take place. In other words as the liver becomes progressively damaged its ability to store carbohydrates becomes impaired. As a matter of fact we use that glycogen storing power as a test for liver function. The levulose and lactose tolerance tests depend on the ability of the liver to transform and store this sugar as glycogen. One would therefore expect that if any change occurred in the glycogen storing function of a damaged liver it would be expressed in an inability to convert glucose into glycogen and store it with a consequent hyperglycemia and glycosuria. But strangely enough in this case we have the peculiar phenomenon of diabetes disappearing with progressive liver disease. Experimentally and clinically one can find arguments to support either side of the question. There are a fair number of cases in the literature of severe liver damage most of them due to metastatic malignancy with practically complete liver obliteration in which the patients die in spontaneous and severe hypoglycemia and in which hypoglycemic attacks precede death for some time. We all are acquainted with Mann's original work on dogs in whom hepatectomy resulted in death from hypoglycemia unless glucose was administered. Nevertheless recent work by Mann on hepatectomized dogs reveals that when their glucose tolerance curves were done they were diabetic in nature which is quite at variance and does not seem to jibe with a hypoglycemic death. The patient under discussion reveals an increased glucose tolerance test in the curve here. Other work done on animals whose livers were damaged by various toxins showed very variable results upon the glucose tolerance when the tests were done at different periods. Sometimes they will have an increased carbohydrate tolerance and at others it will be decreased. There seems to be no relationship between the degree of liver damage and the shape of the curve. As you will probably gather the whole question is quite a confusing one. This patient, however, probably represents one of those rare and unusual cases of diabetes disappearing with progressive liver disease of which there are only five or six cases in the entire literature.

Just one word about his final episode here. It has been my impression in seeing some of these patients that if they die primarily of the liver disease they are sick for a fairly long time before. This patient was comparatively well and died within a few days. I believe the chances are that he had some terminal acute episode taking place which turned the balance and caused him to die. I do not think he died primarily of his liver disease. He had some contributing factor toward the end. What that may be, would be sheer speculation, because we are told absolutely nothing about the way

he looked or the manner of his death but I want to hazard a guess because of several patients I have seen with this picture. It is perhaps a little foolhardy but I have seen three patients with severe progressive liver damage who came to the hospital and died within a few days after being comparatively well for a long time. One had a diffuse pneumonia and the other two severe renal disease. Whether this patient had one or the other of these two terminal events I cannot say, but I believe something of that nature will be found.

DR. CHESTER M. JONES I saw this patient for Dr. Fish in 1934 and he then had perfectly obvious disease of the liver. The question was what kind I think it was no more clear at that time than it is now why the diabetes faded out of the picture. I can only put that question to Dr. Root of the Deaconess Hospital. At one time the patient had a perfectly definite and severe diabetes which subsequently disappeared. I have no explanation why it disappeared.

I think Dr. Krane is absolutely right in saying the laboratory tests did not help us a bit. I think that is important to remember. In most instances we make a diagnosis of liver disease and confirm it by laboratory methods rather than make the diagnosis by laboratory tests alone. It is of some interest that the laboratory tests for the most part showed a serious disturbance of liver function but in this case showed no abnormal response to adrenalin as far as the blood fatty acids were concerned. I would have expected in this case to see a definite failure to rise in the fatty acid of the plasma after adrenalin, not a perfectly normal response.

As far as the diagnosis is concerned my impression at the time was biliary cirrhosis. All such patients tolerate infection very poorly and this patient died from a terminal infection as do most of them.

There is one other point of some interest. These patients with biliary cirrhosis frequently have attacks that simulate gall stone colic, with right upper quadrant pain, tenderness, fever, chills and jaundice. The pain sometimes is so severe that the surgeon is justified in exploring expecting to find gallstones. At exploration one finds nothing but hypertrophic biliary cirrhosis. I would like to know what Dr Root has to say about the case.

Dr. How and F. Roy. This patient is a most interesting case and arouses a variety of speculative thoughts. When the patient was first seen in 1928 neither spleen nor liver could be palpated. In 1930 my note on his record was somewhat surprising. Both the liver and spleen were felt. The liver was felt two fingerbreadths and the spleen descended with respiration from five to six centimeters by actual measurement.

below the costal margin. He certainly had changed in the two years. The diabetes antedated whatever the process was that produced such a change in the liver and spleen. The urine and stools consistently contained bile. One of the reasons we made limited x-ray studies at the Deaconess Hospital at that time was that we really did not think there was any chance that the patient had gallbladder disease and we were interested to see what the outline of the duodenum might be around the head of the pancreas. The disappearance of the diabetes interests me now because at the moment at the Deaconess Hospital we are studying a girl twenty years of age who has had severe diabetes twelve years requiring fifty units of insulin daily. In the last six months suddenly she has changed so that she has severe hypoglycemic attacks without taking any insulin whatever. Her liver is palpable and enlarged. One case that was not mentioned, reported from the Mayo Clinic* is that of a woman aged thirty-six at onset of typical diabetes. At forty-three she came to the clinic and was then resistant to insulin, taking five hundred to six hundred units a day. In 1931 she gradually became so sensitive to insulin that it had to be omitted. Even then she had without insulin severe attacks of spontaneous hypoglycemia during which she was unconscious for hours. By 1933 these attacks had become so serious that she was operated upon and a liver in which fatty metamorphosis was the chief feature of the pathologic examination was found. She was then started on treatment with betain on the assumption that betain might reduce the fatty deposits. Within a week I have learned that she is now once again a diabetic, having gone for a period of two years with practical disappearance of diabetes.

Then I was interested very much in the adrenalin test because in this girl under observation the blood sugar fell from under 160 to 70 milligrams after receiving half a cubic centimeter of adrenalin. After ergotamine it also fell from 90 to 20 milligrams per 100 cubic centimeters. The glucose tolerance test varies greatly with the conditions of glycogen storage. I should suppose that this patient had a progressive cirrhosis of the liver probably not hemochromatosis. I should suppose that it was a chronic cirrhosis with probably some terminal event of which we have few data. I do not know whether as a terminal event the infection produced return of the diabetes.

CLINICAL DIAGNOSIS

Cirrhosis of the liver
Diabetes

Judd, E. B. & J. H. J. and Ryan from L. H. Spence
(anterior hypopharyngeal) part of crura anterior f. l. with fatty
met morphology f. l. r. Am J Eng 26:115 (31) 1934

DR ALFRED KRANES' DIAGNOSIS

Cirrhosis of the liver, post atrophy type

ANATOMIC DIAGNOSES

Cirrhosis of the liver, toxic

Ascites

Pyelonephritis

Miliary abscesses of the kidneys

Splénomegaly

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY This case was followed over a four-year period by Dr Fish and he himself eventually did a postmortem examination in the patient's home. We have his notes and he sent in tissues for examination. He found marked atrophic cirrhosis of the liver with a very coarsely nodular liver. The spleen was enlarged. The gallbladder and pancreas were negative. The pancreas was grossly negative and the kidneys were swollen to about twice the normal size. These were the significant findings. The enlargement of the kidneys proved to be a severe diffuse infection associated with multiple abscesses and that undoubtedly was the immediate cause of death. The liver looks like a typical post acute yellow atrophy cirrhosis. There is no suggestion of proliferation of the bile ducts and no marked degree of lymphocytic infiltration of the portal areas such as one would expect with biliary cirrhosis. The pancreas as far as one can make out from a couple of sections is within normal limits. Certainly there is no hemochromatosis.

This is the first case that we have seen here of this syndrome of disappearance of diabetes in association with cirrhosis of the liver. For that reason we have all been tremendously interested in it. In regard to the differential diagnosis of the type of liver disease, I was in agreement with Dr Kranes rather than Dr Jones. It seemed to me the very much enlarged spleen and especially the leukopenia were against biliary cirrhosis. Moreover I think a point that we often forget is that there is a stage in the acute hepatitis that leads to atrophy, a stage often of pretty long duration, in which the liver is quite large.

CASE 22262

PRESENTATION OF CASE

A fifty year old native male was admitted complaining of abdominal pain and vomiting.

The patient at the time of admission was too ill to warrant a very detailed history. Two years before entry he began to have irregular attacks of vomiting without relation to meals. Occasionally cramp-like pains in the lower abdo-

men were associated with the emesis. He noted increasing constipation and had lost over fifty pounds during the two-year period. There were no tarry stools or coffee grounds vomitus. A gastrointestinal x-ray series done about eight months before entry was said to show evidence of adhesions.

Seventeen years before admission the patient was operated upon for a perforated appendix.

Physical examination showed a well developed and nourished pallid man appearing older than his stated age. There was a sour odor to his breath and some dried vomitus was noted upon his lips. The tongue was dry. The pupils were pin-point in size, evidently resultant upon a previously administered sedative, and reacted sluggishly to light. The lungs were clear. The heart was not enlarged and its sounds were regular. The pulse volume was poor. The blood pressure was 78/58. The abdomen was scaphoid and the upper border of liver dullness was at the fifth rib. The free edge was rounded and extended about three fingerbreadths beneath the costal margin. The descending colon was palpable and there was a questionable mass in the left lower quadrant just beneath the level of the anterior superior iliac spine. Another questionable mass was noted in the epigastrium. Rectal examination revealed the sphincter to be very tight with a sharp, smooth edge.

The temperature was 97°, the pulse 85. The respirations were 15.

Examination of the urine showed a specific gravity of 1.018 and a slight trace of albumin. The sediment was negative. The blood showed a red cell count of 4,300,000 with a hemoglobin of 75 per cent. The white cell count was 6,300, 84 per cent polymorphonuclears. A stool examination was negative. A Hinton test was negative. The nonprotein nitrogen of the blood was 51 milligrams. The serum chlorides were equivalent to 74 cubic centimeters of N/10 sodium chloride. The serum protein was 6.3 grams per cent and the bromides 75 milligrams per cent.

A plain x-ray film of the abdomen showed gas filling the entire duodenum, which was markedly dilated. The dilatation ended abruptly in the region of the duodenojejunal flexure. There were no other abnormal gas shadows in the abdomen but the colon contained considerable gas. A barium enema flowed freely from the rectum to the cecum. It was necessary to use about twice the usual quantity of barium before filling of the cecum was obtained. The cecum was smooth in outline and no constant deformities were noted. After evacuation a large quantity of barium remained in the colon. A small quantity of barium was given by mouth and although examination was not adequate no gross deformity was noted in the stomach. The duodenum filled normally and remained filled.

throughout the examination. A point of obstruction was present at the duodenojejunal flexure. The duodenum was markedly dilated and its mucosa was thickened. The pyloric valve was not identified.

The patient was treated supportively with parenteral fluids and his blood pressure gradually rose to 130/75. The chlorides rose to 96 and on the third hospital day a laparotomy was performed.

DIFFERENTIAL DIAGNOSIS

DR. MARSHALL K. BARTLETT. The essential features of this history are increasing constipation and a loss of over fifty pounds in weight during a two year period associated with irregular attacks of vomiting and low abdominal pain in a man of fifty terminating in an acute episode which brings the patient to the hospital. The duration of the acute attack is not given but he was evidently very ill on admission.

The explanation for this train of symptoms could best be found in a partial or intermittent obstruction to the lumen of the intestinal tract which has recently become more or less complete. Pain has not apparently been a very prominent symptom and no exact description of his pain is available. All we know is that it was low in the abdomen, which would suggest an obstruction of the lower bowel rather than a higher lesion.

That a gastrointestinal x ray done eight months before entry is said to have shown evidence of adhesions does not help me particularly.

The possibility that there is some relation between the present symptoms and the operation for appendicitis with perforation seventeen years ago must be kept in mind but it does not seem likely that a band or adhesions would lie dormant for fifteen years and then give symptoms of intermittent obstruction for two years, ending in an acute episode. I am inclined to conclude that the operation for appendicitis has nothing to do with his present symptoms.

The physical examination gives us some faint clues toward localizing this man's disease and much evidence as to the seriousness of his general condition. He is evidently much dehydrated, undoubtedly the result of prolonged vomiting. Questionable masses are noted in the left lower quadrant and in the epigastrium. This does not help me particularly as it has been my experience that questionable masses are usually not confirmed at operation. The scaphoid contour of the abdomen, however, seems to me to be very important. If this man has intestinal obstruction we are forced to conclude that it is a high obstruction. If the point of obstruction were in the lower small bowel or colon we would certainly expect to find some

abdominal distention. The statement that the anal sphincter is tight with a sharp smooth edge does not seem significant.

The urine is normal except for a slight trace of albumin and examination of the blood shows only a slight degree of anemia. It would be my impression that the dehydrated condition with consequent concentration of the blood, accounts for the red cell count and hemoglobin being so nearly normal. It would be interesting to know what these figures were after the dehydration had been corrected. One stool examination shows no evidence of bleeding into the intestinal tract. The moderate elevation of non protein nitrogen in the blood seems consistent with the patient's dehydrated state and the serum protein is within normal limits. The reduction of serum chlorides indicates the electrolyte loss which this patient has sustained by prolonged vomiting. A serum bromide determination of seventy five milligrams per cent suggests that he has been getting bromides but is well below the usual toxic level. Since the serum bromides and chlorides are reciprocal, this rise in bromide would seem less significant in the presence of a reduction in chlorides than it would be if the latter were normal.

The x rays in this case are extremely interesting and give us our only real clue to the exact site of the obstruction. The plain film shows a dilated and gas filled duodenum, the dilatation ending abruptly at the duodenojejunal junction. The barium enema seems to be essentially normal although the colon emptied poorly. Barium by mouth confirms the finding of obstruction at the duodenojejunal flexure with dilatation of the duodenum.

Since all available evidence points to an obstruction at the duodenojejunal junction, let us consider the possible causes of obstruction at this point. It might be due to extrinsic pressure, as from a kink, band or tumor outside the bowel or to a stricture of neoplasm in the lumen of the intestine, either benign or malignant.

If due to a kink or band either congenital or acquired, as a result of his previous operation, it seems unreasonable for such a mechanism to give no symptoms for many years then intermittent symptoms and finally complete obstruction. Likewise it would seem unlikely that a tumor outside the bowel, such as a mesenteric or pancreatic cyst, would cause enough pressure to give obstruction until it had reached sufficient size to be more than a questionable mass in the epigastrium on physical examination. That a malignant tumor of the body of the pancreas could cause obstruction at the duodenojejunal flexure by direct extension is a possibility and I do not see that it can be ruled out.

It seems more likely, however, that the obstructive process is in the bowel itself. A stric-

ture traumatic or inflammatory, is a theoretical possibility but would be exceedingly uncommon and would not, I believe, be likely to cause complete obstruction. The most probable cause, therefore, seems to be a neoplasm of the bowel, benign or malignant. This diagnosis would be strengthened by the presence of blood in the stools, as either a benign or malignant neoplasm would probably bleed from time to time. One negative stool examination does not seem to me to be enough to influence us unduly, however. It is unusual for benign growths of the small intestine to cause complete obstruction of the lumen while malignant disease typically does so, after a longer or shorter period of intermittent symptoms. The patient's age and marked weight loss also favor this choice. The enlarged liver with a rounded edge suggests the possibility of metastatic disease in the liver.

My conclusion would be that this man has an intestinal obstruction in the region of the duodenojejunal flexure, due to a malignant tumor.

CLINICAL DIAGNOSES

Carcinoma of the jejunum
Intestinal obstruction

DR MARSHALL K BARTLETT'S DIAGNOSES

Intestinal obstruction
Carcinoma of the duodenojejunal flexure

ANATOMIC DIAGNOSES

Operation wounds: resection of carcinoma of the jejunum, jejunostomy
Operation scar: appendectomy
Intestinal obstruction, partial, lower ileum
Pulmonary embolism
Pulmonary infarct, right middle lobe
Pulmonary atelectasis, right lower lobe
Arteriosclerosis, slight

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY: This man's condition as the result of his long-standing obstruction was obviously desperate at the time of entry. Two days were spent in trying to get him into a state to stand operation by forcing intravenous fluids. An exploratory laparotomy was then performed. A constricting tumor growth was found in the jejunum beginning 3 centimeters beyond the ligament of Treitz and running for a distance of about five centimeters. The liver was free from metastases. By the time the situation could be evaluated the patient's condition had become progressively worse. It was impossible to obtain the blood pressure and he had several periods of apnea. With artificial

respiration plus oxygen and carbon dioxide and an intravenous injection of ten per cent glucose his condition improved enough so that it became possible to do a jejunostomy though any further operative procedure remained out of the question. Following this operation he improved slowly but continued to vomit frequently and it seemed probable that part of the feedings given through the jejunostomy opening were being regurgitated through the stomach. At the end of a week the situation remained at a standstill and it was decided to attempt a resection of the growth. This was carried out and the patient left the operating table in fair shape but the following day showed a feeble reaction and proceeded to go progressively downhill. No localizing signs appeared to indicate intestinal obstruction or peritonitis though both were considered fairly probable. He died six days after the second operation.

The specimen which was sent to us following the resection proved to be a segment of jejunum 25 centimeters in length near the upper end of which was a firm annular growth which constricted the lumen to a diameter of less than three millimeters. The mucosa was irregularly granular in this area without frank ulceration and the tumor obviously extended into the muscularis but not quite to the serosa. Several small rather firm lymph nodes were found in the mesentery one of which only showed metastasis on microscopic examination. The tumor itself proved to be a fairly well differentiated adenocarcinoma which showed a slight tendency to mucoid degeneration.

The autopsy added comparatively little information of interest. There was a localized and probably not very significant degree of peritonitis. The small bowel was moderately distended down to the last three and a half feet, where it was kinked about an old fibrous band. The portion beyond the kink was completely collapsed. Further dissection of the mesenteric and retroperitoneal glands showed no evidences of metastases and no nodules were found in the liver. A moderate sized infarct five centimeters in diameter was discovered in the middle lobe of the right lung and an adherent embolus was found in the pulmonary artery leading to this area. The right lower lobe was atelectatic.

Cancers of the jejunum are of course relatively uncommon. We have had about six in the course of the last thirty years at this hospital. When we do see them they differ in no respect grossly or microscopically from cancers of the large bowel except in their location. In our experience benign tumors of the jejunum such as myomata have been quite as common as the malignant ones.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

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SUBSCRIPTION TERMS: \$8.00 per year in advance, post paid for the United States; Canada \$7.00 per year; \$12.00 per year for all foreign countries belonging to the Postal Union. Material for early publication should be received at latest the noon on Saturday. Orders for reprints must be sent to the Journal office 8 Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine 8 Fenway, Boston 15, Mass.

PREVENTION BY CHEMICAL MEANS OF INTRANASAL INFECTION WITH VIRUSES

OLITSKY and Cox¹ were the first investigators to report experiments which showed that treatment of the nasal mucous membranes with a chemical resulted in a very definite protection against subsequent intranasal infection with a virus. By spraying the nostrils of mice with 0.5 to 1.0 per cent solutions of tannic acid on three successive days, they were able to obtain 95 per cent protection against the intranasal implantation of equine encephalomyelitis virus on the following day. This protection lasted for about five days after the last treatment with tannic acid, but the percentage decreased sharply after the third day. They believed the effect to be local, for no protection was afforded against intracerebral inoculation of the virus.

More recent experiments at the National Institute of Health have established the fact that certain chemicals used in a similar way are effective against experimental encephalitis and

poliomyelitis. Armstrong and Harrison² and Armstrong³ have found that the intranasal instillation by an atomizer of 4 per cent sodium aluminum sulphate or of 0.64 per cent picric acid either alone or dissolved in a 0.5 per cent solution of sodium alum affords a high degree of protection against subsequent intranasal infection in mice with encephalitis virus (St. Louis type) and in monkeys with poliomyelitis virus and against intravenous infection in monkeys with poliomyelitis virus. Such protection is present at least four to seven days after the last chemical treatment. The chemical does not interfere with the development of immunity in mice against encephalitis virus. No general or local injurious effects were noted, even after sixteen applications of picric acid. Treatment with picric acid one or two days before or after infection does not make the animal more susceptible to the virus. They conclude that the effect is purely local, either rendering the mucous membrane less permeable or acting directly on the virus or both.

Lennette and Hadson⁴ have shown that severing the olfactory nerves of monkeys results in survival of all animals when inoculated intranasally or intravenously with an otherwise fatal dose of poliomyelitis virus. This confirms the belief that the olfactory tract is the usual, perhaps the only natural route of experimental infection. Although this may not be strictly analogous to the route of infection in human beings, the possibility of adapting the chemical treatment of the nasal mucous membranes to prophylactic treatment in human beings against infection with poliomyelitis virus appears attractive. Such a procedure would seem to be more reasonable than recent attempts to immunize with presumably dead virus and certainly safer than using living even though attenuated virus for the same purpose. Further more widespread use of this chemical treatment in epidemic areas should not demand unusual outlays for the personnel and equipment necessary for carrying out controlling and evaluating the method in a proper manner.

REFERENCES

1. Olitsky P. K. and Cox H. H. *Science* 83:564 1951.
2. Armstrong G. C. and Harrison M. T. *Pub. Health Rpt.* 53:7 1952 and 53:13 1952.
3. Armstrong G. C. *Pub. Hlth Rpt.* 53:13 1952.
4. Lennette E. H. and Hadson C. P. *Proc. Soc. Exper. Biol. & Med.* 23:144 1952.

VACCINATION IN THE OLD LINE STATE

THE monthly publication of the Baltimore Health Department for April-May¹ contains a noteworthy lithographic reproduction of a series of paintings of vaccinal reactions. They represent a careful selection of the standard types of reactions which may follow vaccination including eleven pictures of a primary

"take" in the Negro. Then preparation was supervised by the Health Department, and the Department of Art as Applied to Medicine in the Johns Hopkins Medical School. Accompanying these pictures are a dozen pages of equally excellent reading matter concerning the preparation and care of vaccine, the technique of its insertion, the standard reactions and other pertinent information.

Also contained therein are a few pages on the early history of vaccination in Maryland. Many New Englanders will be surprised to learn that Benjamin Waterhouse of Cambridge may have unknowingly raced with Dr. John Crawford of Baltimore in performing the first vaccinations on this continent. Crawford seems to have successfully vaccinated in the summer of 1800. He left no dated record, so the vaccination of Waterhouse's son on July 8, 1800 still holds priority in Massachusetts. Another Baltimore physician, Dr. James Smith, worked ardently and over a period of many years to secure the more universal adoption of vaccination. The endorsement of the Medical and Surgical Faculty of Maryland in 1802 is referred to as the first "official recognition and sanction of Jenner's great discovery by any American association of physicians." One wonders if it preceded or followed the Noddles Island experiment of the Boston Board of Health in the same year, when nineteen vaccinated children were not only housed and constantly exposed in the smallpox hospital for a period of twenty days, but were inoculated and reinoculated with variola in a vain attempt to give them the disease. It was thus that the Board of Health reached its unequivocal conclusion that "cowpox is a complete security against the smallpox."

Vaccination in Massachusetts is stated to have been "stubbornly opposed by the profession for years." To be sure, we had our difficulties but if our friends on the Chesapeake think that it was stubborn opposition they should have been here in 1721, when Zabdiel Boylston began to inoculate for smallpox. Dr. Boylston was threatened with lynching, was the target of a bomb which fortunately failed to explode, and could not go upon the street or visit his patients except in darkness and by stealth. That was probably the beginning of what is now known as "medical liberty" and it almost certainly is the spirit which forced Massachusetts to enact legislation in 1809 ordering every town where no board of health existed to appoint three or more persons to supervise vaccination. It also led us to pass (and later to enforce) our compulsory vaccination law, and in 1905 to test its validity in the Supreme Court of the United States. All this may have happened ac-

tually on account of the Divine Discontent of our forefathers.

REFERENCE

1. Baltimore Health News 13: Nos. 4 & 5 (April-May) 1936

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

COHEN, SIDNEY SLATER, A.B., M.D. Harvard University Medical School 1930. Junior Assistant Surgeon to the Surgical Service, and Member of the Vascular Clinic, Beth Israel Hospital. Address: 475 Commonwealth Avenue, Boston, Mass. Associated with him is

BARRON, MAURICE E., A.B., M.D. Tufts College Medical School 1914. F.A.C.S. Assistant Professor of Surgery, Tufts College Medical School. Visiting Surgeon, Beth Israel Hospital. Address: 475 Commonwealth Avenue, Boston, Mass. Their subject is Thrombo Angitis Obliterans with Special Reference to Its Abdominal Manifestations. Page 1275.

WOOLNER, WARD, M.D. University of Toronto Faculty of Medicine 1903. Medical Officer of Health, Ayr, Ontario. His subject is Rural Health Problems, the Problems Themselves, and Their Control. Page 1305. Address: Ayr, Ontario.

THOMAS, JACKSON M., B.S., M.D. Emory University School of Medicine 1926. Chief Medical Officer, Boston Psychopathic Hospital. Instructor in Psychiatry, Harvard University Medical School. His subject is Progress in Psychiatry for 1935. Page 1309. Address: 74 Fenwood Road, Boston, Mass.

MISCELLANY

DR. ROBERT T. MONROE BECOMES A MEMBER OF THE STAFF OF THE PETER BENT BRIGHAM HOSPITAL

Dr. Robert T. Monroe, A.B., University of Michigan, 1918 and M.D. 1924, Associate in Medicine at the Harvard Medical School, has been appointed Physician to the Peter Bent Brigham Hospital, effective September 1 to succeed Dr. Reginald Fitz.

He served as medical house officer at the Peter Bent Brigham Hospital from July 1, 1924 to November 1, 1925, as Assistant Resident Physician from November 1, 1925 to September 1, 1926, as Junior Associate in Medicine from September 1, 1926 to December 8, 1932 and as Associate in Medicine from December 8, 1932 to date.

A CHANGE IN THE POSITION OF CITY PHYSICIAN OF NORTH ADAMS

Mayor William Johnson of North Adams, Massachusetts has appointed Dr. Vincent Paul Cummings to the position of city physician to succeed Dr. W. F. McGrath.

Dr Cummings graduated from the McGill University Medical School in 1931 and is about thirty two years old

He is a Fellow of the Massachusetts Medical Society

AN ADDRESS BY DR. ALBERT M. SNELL

Dr Albert M. Snell head of a division in medicine at the Mayo Clinic, gave an address before the staff of St. Vincent Hospital June 5 at the hospital. The Worcester District Medical Society was invited and one hundred and fifty attended. His subject was "The Diagnosis of Conditions Associated with Jaundice." There were discussions by the hospital staff.

GRADUATES FROM TUFTS COLLEGE MEDICAL SCHOOL JUNE 1936

Mildred I. Adell, Anthony A. Apuzzo, Vincent A. Balkus, Thomas A. Barry, James C. Bates, Karl T. Benedict, Albert Bernard, Jr., Bascom Bogle, Samuel H. Bolarsky, Morris Botvin, Homer L. Brayton, 3d, Edward D. Burns, James T. Cameron, Jr., Joseph E. Cannon, Ralph Carbone, Arthur C. Carter, Paul J. Catlinella, Saverio Cerullo, Calvin B. Chamberlain, Waldo A. Clapp, Joseph H. Colman, George F. Connor, Charles A. Currier, 2d, George E. Currier, John B. Curtis, Kenneth V. Dalton, Edward Damarjian, Kenneth E. Dore, Frank K. Duffy, Joseph E. Dushane, Harold W. Epling, James E. Fell, Jacob H. Fine, Sawyer Foster, Donald K. Freedman, Edwin M. Fuller, Jr., Joseph E. Funk, David Galinsky, Paul P. Gates, Francis T. Goldman, Morris Goldenberg, Max Goldman, William E. Greer, John E. Grigas, Herbert I. Harris, Elinor B. Harvey, Kiernan W. Hennessey, Frederic L. Hewes, Elwood O. Horne, Chester W. Howe, Norbert W. Humpage, Sheldon L. Hunt, Clayton L. Ingwell, Paul E. Johnson, Beaumont J. Kinty, Edward Klane, Leo V. Levins, James J. Macek, Stanley W. Machaj, Charles H. MacLaughlin, Chester W. Malmstead, Oscar J. Marcell, Samuel H. Marder, Leonard L. Mauro, George E. McCabe, Joseph B. McKenna, Jacob Mezer, Frank P. Morse, Jr., Charles S. Mullin, Jr., Laurence J. Murphy, Jr., Frank W. Musche, Michael C. Nakashian, John A. Neimant, Richard S. Nugent, Andrew W. Orlovski, Rocco Pavone, John J. Pearson, Jr., Norman E. Peatfield, George J. Pohas, Robert L. Pollard, Raymond R. Preffer, Harold A. Press, Joseph A. Reynolds, Fred Eric W. Ripley, Jr., Henry Rosen, Milton G. Rosoff, Albert P. Royal, Jr., John K. Ruggles, Jr., James F. Seccareccio, Daniel C. Shaughnessy, John J. Sheehan, Jr., Jules H. Shelnberg, George A. Small, Kenneth E. Smith, Seymour J. Solomon, Andrew E. Spognardi, Benjamin Stein, Max D. Stein, Joseph M. Stowell, Henry F. Sullivan, Nils E. Svibergson, Thomas J. Tarasovic, Francis E. Temple, Otis B. Tibbitts, Robert W. Tower, Euclides L. Tremblay, Henry C. Van Acker, Wallace E. Viles, Carl P. Viola, Charles N. Warner, Jr., Lulu H. Warner, George White, Raymond D. Willard, Jr., Israel Zeltserman, Arnold M. Zetlin.

BOSTON UNIVERSITY SCHOOL OF MEDICINE GRADUATES JUNE, 1936

Magna Cum Laude: Priscilla Sellman; Cum Laude: Charles W. Bush, Jr., John Fieichy, Jr., Morris Fogel, Leo A. Green, Mitchell Wasserman, Roland P. Wilder.

Others: Joseph Aleta, Jr., Grace E. Anrig, Fred C. Barald, Harry L. Benson, Nathan Chasnet, Gilbert Clapperton, James H. Crowe, Silverino V. DeMarco, Joseph F. Dinan, Wilbur E. Dolfin, John R. Feeley, Thomas M. Feeney, Maxwell H. Feinman, William P. Finnegan, Arthur L. FitzGerald, Donald J. Flanagan, Nathan G. Gordon, Goulaz B. Goulazian, Sydney Grace, Peter P. Gudas, James V. Halloran, Jr., William R. Helfrich, Ernest B. Howard, Edward R. Janjigian, Louis M. Kalajian, Samuel J. Kowal, Lionel D. Lavote, Homan E. Leech, Emil H. Lewis, Stanley R. Livingston, William E. MacDonald, John J. Mastropolo, Jr., Frances C. McInnes, John F. McManus, Jack Meyers, Walter M. Mulvihill, William B. O'Brien, Bertha Offenbach, Ernest J. Pastorello, Henry M. Pollock, Jr., Pierre E. Provost, Edward V. Putnam, Louis Ravreby, Robert Salwen, Harold E. Sheldon, Patricia H. Smith, Frank L. Springer, George E. Sullivan, Arthur L. Tauro, Joseph P. Thornton, William W. Walner, Ellsworth F. Walte, Lincoln D. Webber, Arthur B. Woodman, Marian L. Wright.

HARVARD MEDICAL SCHOOL

GRADUATES, JUNE 18, 1936

Albaugh, Clarence Henry, A.B. (Dartmouth College) 1933
Anderson, Albert Burton, S.B. (Yale University) 1931
Appel, John Wilberforce, III, S.B. 1932
Avery, Noyes Latham, Jr., A.B. (Williams College) 1932
Baldwin, Arthur Dwight, A.B. (Amherst College) 1932
Barron, Edward Milton, A.B. 1932
Bartram, John Bowman, S.B. (Hamilton College) 1932
Bayles, Theodore Bevier, S.B. (Rutgers University) 1932
Beck, Irving Addison, A.B. (Brown University) 1932
Blodgett, William Henry, A.B. (Oberlin College) 1932
Bonnet, Philip Dirlam, A.B. (Wesleyan University) 1932
Brines, John Kincaide, A.B. (Yale University) 1932
Brooks, Samuel McLeod, A.B. (Yale University) 1932
Bunting, Henry A.B. (Yale University) 1932 A.M. (University of Wisconsin) 1934
Burke, Francis Madden, A.B. 1931
Campbell, Henry Arthur, Ph.B. (Brown University) 1932
Cannon, Espey, Farnsworth, A.B. (University of Utah) 1933

- Cantlon, Edwin Lowell, S B (University of Nevada) 1932
- Carlin, Gerald Joseph A B (College of the Holy Cross) 1932
- Cassels, Donald Ernest, A B (University of North Dakota) 1932 S B (ibid) 1934
- Catlin, Daniel, A B (Yale University) 1932
- Caulfield, Thomas Edward, Jr., A B (College of the Holy Cross) 1932
- Cheever, Francis Sargent, A B 1932
- Clarke, Samuel Tracy, A B (Stanford University) 1933
- Congdon, Palmer, A B (Amherst College) 1932
- Cummings, Harwood Warrilows, A B (Middlebury College) 1932
- Dorman, Daniel Bliss, A B 1932
- Downs, Roger Sherman, A B (Williams College) 1932
- Drew Robert Whitmarsh A B (Wesleyan University) 1932
- Dublin Thomas David, A B (Dartmouth College) 1932
- Egan William Joseph A B (Boston College) 1932
- Ennis, David, A B 1932
- Ewell, John Woodruff (Yale University)
- Frackelton William Hamilton, S B (Boston University) 1932
- Franklin, Roy Wade, S B (University of North Carolina) 1934
- Freeman, James Voorhees, A B (Washington and Lee University) 1932
- Gilmour, Monroe Taylor, A B (Davidson College) 1929, A M (Princeton University) 1930
- Goldberg Samuel James Jr., A B (Yale University) 1932
- Greene Laurence Francis, S B (University of Chicago) 1932
- Griffith Robert Leland A B (University of Alabama) 1932
- Hall, Walter Louis Henry, A B (University of Maine) 1932
- Hamilton, Alfred Thompson, A B (University of North Carolina) 1932
- Hammon, William McDowell, A B (Allegheny College) 1932
- Harken, Dwight Emery, A B 1931
- Harrison, Marlow Bristow, A B (Stanford University) 1933
- Havens, Walter Paul, Jr., A B 1932
- Hayes, Donald Robert, A B 1932
- Hinds, Charles Benjamin, Jr., A.B (Dartmouth College) 1933
- Hirtle, Ralph Benjamin, S B (Bowdoin College) 1930
- Hodges, Richard Gilbert, A.B 1931
- Hoff, Hebbel Edward, S B (University of Washington) 1928 B A, (University of Oxford) 1930, M A and Ph.D (ibid) 1933
- Humphrey, Stanley Galbach, A B (University of Kansas) 1932
- Ingelfinger, Franz Josef, A B (Yale University) 1932
- Jimenez, Roberto Juan, A.B 1932
- Keller, Karl William, A B 1932
- Kennard, John Harold, A B 1932
- Kutzer, Max, A B 1932
- LaDue, John Samuel, A B (University of Minnesota) 1932
- Lambert, Benjamin deForest, A.B (Williams College) 1932
- Langacher, Karl Thomas, S B (Mount Union College) 1932
- Laudig, Guy Henry, S B (Lafayette College) 1932
- Lawson, Robert Barrett, A B 1932
- Levin, Robert Raphael, A B 1932
- Lowell, Francis Cabot, S B 1932
- Lynch, Joseph Patrick, A.B (Boston College) 1932
- MacMahon, Charles Eugene, S B (University of Washington) 1932
- Macmanus, Joseph Edward, A B (Fordham University) 1932
- Maltby George Langford, A B (Yale University) 1932
- Mathews, William Henry, A B (Colgate University) 1932
- May, Charles Davidson (Massachusetts Institute of Technology and Harvard College)
- McClung, Hugh Lawson, Jr., A B 1932
- McDaniel, Lewis Tillman, A B (University of Texas) 1932
- McGirr, John Clune, A B 1932
- Meister, Lester, A.B (Dartmouth College) 1932
- Moorman, John Demont, S B (University of Virginia) 1932
- Motley, Hurley Lee, A B (University of Missouri) 1930, A M and S B (ibid) 1932, Ph D (ibid) 1934
- Nesbit, Clayton William, A.B (Williams College) 1932
- Niles, John Oliver, A.B 1932
- Oxnard, Edward Warren, A.B 1932
- Papera, John Joseph, S B (Notre Dame University) 1932
- Patricelli, Liberino, S.B (University of Washington) 1930
- Pearson, Robert Winsor, S B 1931
- Pease, Bradford Norman, A B (Stanford University) 1933
- Peltz, William Learned, A B (Yale University) 1931
- Perkins, John Forbes, Jr (Harvard University)
- Peters, Carey Moss, A B (Colgate University) 1932
- Peterson, Richard Urho, A B (Yale University) 1932
- Pike, George Manuel, A.B 1932
- Pritchard, Walter Herbert, A B (Hamilton College) 1932
- Regan, John Ward, III (Massachusetts Institute of Technology)
- Renick, Charles Alexander, A B (University of Michigan) 1930

Richards Robert Ladd S.B. (University of New Hampshire) 1932 S.M. (ibid) 1932
 Roach Frederick Eugene A.B. (Western Reserve University) 1931
 Rogers Daniel Miner A.B. (University of Michigan) 1931
 Rutherford Robert Northwell A.B. (University of Illinois) 1932

Segel, Arnold Lester A.B. 1932
 Shields Randolph Tucker Jr., A.B. (Washington and Lee University) 1932
 Shull John Coulter A.B. (Princeton University) 1932
 Smedal Harald Asavald Jr., A.B. (University of Wisconsin) 1932
 Smedal, Sigmund Henry S.B. (Northwestern University) 1932
 Smith, Robert, A.B. (Cornell University) 1931
 Spath William Henry A.B. (Lehigh University) 1932

Stewart, Robert Alexander A.B. (University of California) 1929 A.M. (ibid) 1930

Talbot Nathan Bill, A.B. 1932
 Truex, Edward Hamilton Jr. A.B. (Dartmouth College) 1932

Ulfelder Howard A.B. 1932

Vogel Ernest James, A.B. 1932

Weed Milton Ralph A.B. (Wesleyan University) 1931

Weir David Reid A.B. 1932

Welch Edward James A.B. (Princeton University) 1932

Whelan Vincent Matthew S.B. (University of Notre Dame) 1932

Whitten James Francis A.B. (University of Maine) 1932

Wilkins Samuel Bryan Jr. A.B. (University of Georgia) 1931

Worth Thomas Clarkson S.B. (University of North Carolina) 1934

Wright, Jackson White A.B. (Dartmouth College) 1933

Zamecnik Paul Charles A.B. (Dartmouth College) 1933

Zoll Paul Maurice A.B. 1932

Zollinger Richard William A.B. (Ohio State University) 1933

M.D. CUM LAUDE

Baum Otto Sigmund A.B. 1932
 Blodgett, James Bishop A.B. (Oberlin College) 1932
 Dexter Lewis A.B. 1932

Durkee, Ralph Everett Jr., A.B. 1929
 Good Conrad Evans A.B. (Williams College) 1932
 Hall Donald Wilson A.B. (Lehigh University) 1932
 Hoerr Stanley Obermann A.B. (Antioch College) 1932

Kelcher Paul Corbett A.B. (College of the Holy Cross) 1929

Landowne Milton S.B. (College of the City of New York) 1932

Ruffin Marshall deGraffenried S.B. (University of Virginia) 1932

Sarris Spiros Peter A.B. 1932

Sweet William Herbert, S.B. (University of Washington) 1930 B.Sc. (University of Oxford) 1934

Todd Barnard Peale, A.B. (Dartmouth College) 1932

M.D. CUM LAUDE IN ANATOMY

Bennett, Henry Stanley A.B. (Oberlin College) 1932

M.D. CUM LAUDE IN PHYSIOLOGY

Ross Joseph Foster A.B. (Stanford University) 1933

118—without honors

13—General Honors

2—Special Honors

1-8

A TESTIMONIAL DINNER

Grateful Atlantic City hotel men appreciative of the fact that the American Medical Association voted to hold its 1937 meeting in that city gave a testimonial dinner recently at the Hotel Traymore in honor of the four delegates from New Jersey and the Director of the great Atlantic City Convention Bureau, Albert Breen.

The delegates who were honored were Dr. Walt P. Conaway and Dr. Hilton S. Pead of Atlantic City, Dr. John F. Hagerty of Newark, N. J. and Dr. E. R. Mulford of Burlington, N. J.

The object of the dinner to the delegates of the American Medical Association Convention was to honor the Medical Fraternity of the State.

DARKFIELD SERVICE FOR THE DIAGNOSIS OF PRIMARY SYPHILIS

The diagnosis of primary syphilis is a laboratory procedure. The appearance of the lesion and the patient's history may strongly suggest syphilis and yet a diagnosis of syphilis be erroneous. Conversely the most "insignificant" or atypical lesion may be the primary lesion of syphilis.

Although the more sensitive blood tests will frequently detect syphilis soon after the appearance of the primary lesion there is often a delay of several days or even two or three weeks before blood tests become positive. Delay in beginning treatment is dangerous to the patient because it seriously affects the prognosis and to the public because of the communicability of an untreated recent infection. Even the delay of waiting for the result of a blood test is to be avoided if possible although blood tests should always be done.

The darkfield examination of serum from the lesion for living spirochetes offers a method of immediate diagnosis. The examiner however must have had training and experience in the identification of the spirochete pallidum. The patient must

be sent to the physician who is to make the examination as living organisms must be seen, and several specimens may have to be examined

In order that the physicians of Massachusetts may be informed as to available darkfield diagnostic service, the State Department of Public Health publishes, herewith, a list of the physicians who have indicated to the Department that they are equipped, competent and willing to make darkfield examinations for syphilis

This service will be of the greatest usefulness if those who use it will be guided by the following suggestions

- 1 Make arrangements with the consultant physician or laboratory by telephone or in person, as to when the patient can be seen and as to the cost of the examination. The physicians and laboratories listed have agreed, with few exceptions, to adjust the fee to the ability of the patient to pay
- 2 If the patient is referred for diagnosis only, state so clearly, or both consultant and patient may assume that treatment also is to be provided by the consultant
- 3 Under no circumstances apply any treatment to the lesion, except saline compresses (see No 4), before the darkfield examination is made
- 4 If an ointment or other local treatment has already been applied, prescribe salt solution compresses for twelve to twenty-four hours before the darkfield examination is to be made
- 5 Under no circumstances give the patient any anti-syphilitic treatment until the darkfield examination and the diagnosis have been made. A single injection of an arsenical may cause all the spirochetes to disappear from the lesion
- 6 Do not depend upon the result of a darkfield examination of a lesion which is located *within* the mouth (on the tongue, tonsil, buccal membranes) for there are spirochetes in many mouths which are readily mistaken for the spirocheta pallida. A darkfield diagnosis may ordinarily be made of a chancre of the lip, however
- 7 Any genital lesion, however "insignificant", and any extragenital lesion, especially of the mouth, which does not heal promptly or which cannot be diagnosed absolutely as non-syphilitic, should be subjected to darkfield investigation

PHYSICIANS

who have indicated to the Department that they are equipped, competent and willing to make darkfield examinations for syphilis

Amherst

Barrett, Charles G., 9 Main St

Athol

Bassow, Carlton F., 193 Main St

Beverly

Stanley, Francis G., 242 Cabot St

Boston

Adams, John, Jr., 704 Huntington Ave
 Appel, Bernard, 311 Commonwealth Ave
 Atkinson, G D., 482 Beacon St.
 Baird, Perry C., Jr., 270 Commonwealth Ave
 Belding, David L., 80 East Concord St. (Boston Univ)
 Boardman, William P., 388 Marlboro St.
 Burnett, Francis Lowell, 205 Beacon St
 Cass, J W., 205 Beacon St
 Chapman, E M., 66 Commonwealth Ave
 Cheever, Austin W., 41 Bay State Road
 Cohen, Julius W., 276 Commonwealth Ave
 Cohen, Nathaniel M., 153 Richmond St
 Condo, Annunziato, 10 Prince St
 Downing, John G., 520 Commonwealth Ave
 Ein, John, 296 Belgrade Ave
 Flashman, D H., 37 Schuyler St
 Gamboa, Armand M., 496 Massachusetts Ave
 Garfield, Walter T., 19 Bay State Road
 Greenberg, Samuel L., 536 Commonwealth Ave
 Greenwood, Arthur M., 416 Marlboro St
 Grund, J L., 483 Beacon St.
 Hahn, Myron J., 536 Commonwealth Ave
 Jacoby, Rudolph, 270 Commonwealth Ave.
 Knight, John Ellis, 520 Commonwealth Ave
 Landesman, H M., 463 Commonwealth Ave
 Lane, C Guy, 416 Marlboro St
 Lehnherr, Earl R., 472 Commonwealth Ave
 Macdonald, Maxwell, 270 Commonwealth Ave
 Macdonald, William J., 270 Commonwealth Ave
 Oslin, J Edwin, 30 Huntington Ave
 Overlander, C L., 443 Marlboro St.
 Papas, P N., 467 Commonwealth Ave
 Rooney, J Steward, 53 Parker Hill Ave
 Sawyer, Alpha R., 371 Commonwealth Ave
 Schwartz, George, 311 Commonwealth Ave
 Skirball, Louis I., 353 Commonwealth Ave
 Smith, C Morton, 437 Marlboro St
 Spitz, Jacob, 491 Commonwealth Ave
 Splaine, R L., 370 Commonwealth Ave
 Swartz, J H., 371 Commonwealth Ave
 Thurmon, Francis M., 520 Commonwealth Ave
 Ulrich, Helmuth, 99 Bay State Road
 Vose, S N., 15 Bay State Road
 Wetherell, B D., 520 Commonwealth Ave
 Wheeler, William D., 452 Beacon St.
 Zuckerman, Bernard, 978 Blue Hill Ave

Brockton

Chase, H A., 141 West Elm St
 Weiner, F F., 231 Main St.

Cambridge

Amaral, M F., 871 Cambridge St.
 Lawlor, James J., 374 Cambridge St.

Chelsea

Tolman, M M., 9 Crescent Ave

Chicopee

Fletcher, S E., 96 Grape St.

Everett

Sanford, Wallace, 5 Hancock St.

Fall River

Sandler Samuel 51 Franklin St.

Falmouth (East)

Tavares Charles M., Main St

Fitchburg

DeCicco L. M. 355 Water St

DeLisle A. D. 182 Clarendon St.

Mattia, Anthony F. 97 Summer St

Gardner

Heininger Arthur G., 14 Main St.

Haverhill

Consentino Albert B., 112 Emerson St.

Laskey E. Philip 30 Summer St

Whitney George B. 3 Washington Square

Holden

Rice G. Arnold Laurelwood Rd.

Washburn Frank H., Holden Clinic

Holyoke

Carroll John J., 192 Chestnut St.

Fox Samuel 207 Elm St.

Skvirsky Solomon L., 176 Chestnut St.

Lawrence

McArdle John J. 477 Essex St.

Lexington

Crumb Harold J. 1632 Massachusetts Ave.

Lovell

Leland Harold L. 226 Central St.

Lynn

Appel Bernard 281 Ocean St. (also Boston)

Cheever Austin W., 306 Lewis St. (also Boston)

Merrill E. A. Hotel Edison

Malden

Atkinson G. D., 686 Main St. (also Boston)

Hoberman S. 115 Salem St.

Leavitt Thomas W., 628 Salem St.

Schwartz, George 520 Medford St. (also Boston)

Medford

Mauriello Francesco P. C. D. 349 Salem St.

Vard John L. 37 Forest St.

Melrose

Corbett, John Robert, 792 Main St.

Thorp Edward G., 8 Porter St.

Nantucket

Menges, Ernest H. 7 Orange St.

Natick

Rowe L. B., 27 West Central St.

New Bedford

Groh Herman 488 Pleasant St.

Shattuck, Edwin C. 22 South Sixth St.

Tessier Joseph N., 33 South Sixth St

Palmer

Slowick, J. E. 431 Main St.

Plymouth

Swenson Rudolph E. 2 North St.

QuincyEdelstein I. 5th Elm St

Smith Edwin E., 39 Elm Ave

Revere

Wilkins G. A., 648 Beach St

Salem

Rushford, Edward A., 184 Lafayette St

Springfield

Davis, Frederick D. 1537 Main St

Devine H. Leo 1597 Main St.

Dwyer John E. 146 Chestnut St.

Federici Louis, 971 Main St.

Peck, Roy H., 1314 Main St.

Sullivan Edward C., 1597 Main St.

Tober J. B. 1786 Main St

Wilder W. O. 20 Maple St.

Webster

Plouffe, Bernard L. 359 Main St

Westborough

Olson J. Merrill 54 West Main St.

Woburn

Atwood Eldridge D. 36 Pleasant St.

Worcester

Bleiberbach Walter D. 26 Pleasant St.

Felton Lester M., 36 Pleasant St

Looney J. M., 10 Newton Ave

Phelps O. Draper 27 Elm St.

Scarcello N. S. 27 Elm St.

Torney Leonard L., 151 Grand St.

LABORATORIES

In hospitals institutions and clinics, at which dark field examinations are made.

Boston

Beth Israel Hospital 330 Brookline Ave

Boston Dispensary 25 Bennett St.

Boston Health Department, 1101 City Hall Annex

Faulkner Hospital 1153 Centre St. Jamaica Plain

Leary Laboratory 43 Bay State Road

N. E. Deaconess Hospital, 16 Deaconess Road

Peter Bent Brigham Hospital 721 Huntington Ave

Brockton

Board of Health Laboratory City Hall

Brockton Hospital, 680 Center St.

Cambridge

Board of Health Laboratory City Hall

Cambridge City Hospital 1493 Cambridge St.

Fall River

Board of Health Laboratory City Hall Annex

Fall River General Hospital 228 Stanley St.

Tuesdale Hospital 18th Highland Ave**Forborough**

Foxborough State Hospital

Haverhill

Board of Health Clinic 6 Court St.

Holyoke

Holyoke Hospital 509 Beech St.

Lawrence

Board of Health Clinic 130 Oak St.

Lovell

Board of Health Clinic, Cor Kirk and Page Sts.

eye and ear infirmaries. He practiced in Ashburnham, Massachusetts several years before settling in Fitchburg and served as alderman in the last named city in 1906-1907.

He was a Fellow of the Massachusetts Medical Society until he retired in 1935 and had been a member of the American Institute of Homeopathy.

He was a past master of the Aurora Lodge A F & A. M. and had progressed through the various orders to become a 32nd degree Mason.

Dr Perkins is survived by his widow Mrs Edith (Prescott) Perkins a daughter Mrs A M Powell of Worcester Massachusetts, and two sisters.

FALLON—As the forms for this issue of the *Journal* were closing a notice of the death of Dr Michael F Fallon of Worcester on June 24 was received. A further notice will appear in the *Journal* of July 2.

OBITUARY

JAMES TATE MASON M.D.

It is with the deepest regret that the *Journal* records the death on June 20 at Seattle of Dr James Tate Mason President of the American Medical Association.

Dr Mason was born in Virginia in 1882 and received his medical education at the University of Virginia, graduating in 1905. After practicing a few years in Philadelphia he moved to the West Coast and eventually settled in Seattle in 1909. As an eminent skillful and successful surgeon he founded and built up the Mason Clinic and the Virginia Mason Hospital was consulting surgeon for several large industrial companies and a member of many important medical societies.

During his incumbency of the position of President Elect of the American Medical Association Dr Mason visited Boston and was entertained by Dr Roger L. Lee Trustee of the Association and the officers of the Massachusetts Medical Society.

Although unable because of illness to attend the annual meeting of the American Medical Association at Kansas City this spring he was elected president *in absentia*. It is unfortunate that death should have come at the very height of Dr Mason's career and the *Journal* takes this opportunity of expressing its most sincere sympathy to his family and to the American Medical Association.

REPORTS OF MEETINGS

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The adjourned Annual Meeting of the New England Physical Therapy Society was held at the Hotel Kimball Springfield on June 8 1936 directly following the program of the Section of Radiology and Physiotherapy of the Massachusetts Medical Society.

Arrangements were completed for the New England Physical Therapy Society to act as hosts to the

Academy of Physical Medicine when the latter organization holds its three-day Annual Meeting in Boston next October. This will be the Academy's first visit to Boston since 1930.

PETER BENT BRIGHAM HOSPITAL LECTURE

The first of a series of three lectures was delivered by Dr K. H. Gieritz, Surgeon-in-Chief in the Sabbatsberg Sjukhus Stockholm and Surgeon to the late Queen of Sweden on May 18 1936 in the Peter Bent Brigham Hospital where he is serving as Surgeon-in-Chief *pro tempore*. In introducing the speaker Dr Elliott C. Cutler reminded the audience of the admirable place held by Sweden in providing good medical care for all the people from both the scientific and social viewpoints. Dr Gieritz spoke on "Twenty Five Years Experience in the Treatment of Peritonitis."

The cases analyzed by him in studying peritonitis included all instances of the disease treated under his direction as Senior Surgeon between 1910 and 1934 except for pelvic peritonitis in women. Peritonitis is not a uniform and constant disease; the manifold character of reactions in various individuals combined with the diverse origins of the condition produces a variety of clinical forms. The really effective way of combating peritonitis is to prevent it by eradicating the cause before the process has gone beyond the stage where it is irreversible. As a warning sign abdominal pain of a generally severe nature stands first because if it is heeded promptly the cause can be removed in time to check the spread of infection. Unfortunately there exist certain rare forms typified by pancreatic and acute purulent peritonitis of undetermined origin where one cannot remedy the cause.

Misinterpretation of reported statistics in this condition may be blamed on several factors: the first of which is a failure to distinguish the stage of the progressing infection. In the beginning the peritoneal cavity is filled by a free effusion spreading from a local source of infection as a seropurulent or purulent exudate. After the second or third day the infection tends to become walled off and local encapsulated abscesses not communicating with the general peritoneal cavity are formed. In the case of appendicitis, the position of the appendix, the presence of adhesions, and other local factors may be influential in determining the course of the process. While cases which heal often present residual abscesses the exudate may all be reabsorbed during recovery.

Even when an early operation is performed it is impossible to tell whether the result will be reabsorption, encapsulation or general peritonitis. The free diffuse type shows a decreasing tendency to reversibility up until forty-eight hours after which general peritonitis is the rule. Early operations have a low mortality; require no drainage and heal without difficulty while delayed surgery entails a considerable mortality. Long incisions with drainage the removal of encapsulated pus and the possibility of ileus. An estimate of the peritoneal in

volvement is preferred to a statement of whether the appendix has perforated. In generalized purulent peritonitis better results are found from small incisions, little handling of the bowel, and primary closure of the wound than from large incisions and aggressive measures.

A third point of disagreement arises from the comparison of late septic operations with those undertaken early for prophylaxis. Since the prophylactic operations must be as simple and nonirritating as possible, good diagnosis beforehand is essential to prevent unnecessary exploration. X-rays of the abdomen may prove very useful in determining the nature and extent of the trouble, and should be employed without delay. A midline incision for diffuse peritonitis should be made only for a definite reason, but a small exploratory incision over the appendix may be justified by the frequency of inflammation there.

Ileus associated with peritonitis is of two types, mechanical and paralytic. In recent and acute inflammations a limited part of the small intestine becomes a stiff and rigid tube, producing a mechanical obstacle to intestinal function. When the peritonitis becomes fibropurulent a toxic factor is added to the mechanical one, giving a paralytic or inhibited ileus. Whether a specific toxin exists is not certain, although the observation that the circulatory collapse occurring in intestinal obstruction is relieved by gastrostomy and recurs when the gastrostomy is closed suggests the activity of a toxic agent. The surgical treatment of ileus in the presence of peritonitis is none too satisfactory. In acute purulent peritonitis ileostomy proved useless, as all the patients died. Cecostomy is superfluous and may prove hazardous. Besides being easily performed and healing readily, gastrostomy relieves the fecal vomiting and allows fluids to be given, if the tube has been put through the pylorus into the duodenum. Dr. Giertz commented on the use of the Wangenstein tube only to say that his experience was not large enough to state whether this was as efficacious as gastrostomy.

In appendiceal peritonitis the mortality was 8.35 per cent, but if there was not more than seropurulent peritonitis locally it was 1 per cent or less. From routine leucocyte counts and sedimentation rates done on all appendicitis cases, it has been observed that acute gangrenous appendicitis presents a leucocytosis of 10,000 to 14,000 (rarely above 20,000) with a normal sedimentation rate in the first two days. If a low white cell count or a high sedimentation rate is discovered, a diagnosis of appendicitis is less likely to be made. Up until forty-eight hours the operation for appendicitis is considered easy, while after that it becomes serious and should be done only by an experienced surgeon. Primary closure of the wound is done routinely, if phlegmon of the abdominal wall develops, as it may do even in the absence of peritonitis, secondary drainage is instituted.

Residual abscesses are commonest in the pouch of

Douglas, and may also localize in the iliac fossae and under the diaphragm. In the latter location they may arise after gallbladder disease, perforated peptic ulcer, gunshot wounds, tumor, and the like, although appendicitis is the usual cause.

Perforated peptic ulcer demands early operation, to prevent the development of peritonitis. If the patient is in poor condition, the perforation is more than four hours old, or the operator is inexperienced, the best results will follow a simple closure of the perforation and a gastrostomy. More extensive procedures, like gastroenterostomy and resection, are not justified by their results.

The gangrenous gallbladder rarely produces a purulent peritonitis, of a comparatively mild sort, which almost never results in ileus. Death occurs as a result of the original disease, not from peritonitis.

Pneumococcal peritonitis occurred only three times in the series, although cases of empyema of the peritoneum and umbilical abscess caused by this organism were observed.

Certain cases of acute generalized purulent peritonitis disclosed no local cause at operation or necropsy. These cases ought always to be explored with appendicitis in mind, if the appendix is normal it may be left in, to minimize trauma to the already infected peritoneum. In twenty-five years three cases of gangrenous appendicitis missed early operation because the diagnosis was not made, and ended fatally when the operation was performed later.

An acute onset of scarlet fever in children with severe abdominal pain may simulate appendicitis; a serious streptococcal peritonitis is likely if operation is done.

In closing, Dr. Giertz reiterated the importance of accurate diagnosis and early operation in reducing the mortality from acute abdominal conditions and emphasized the necessity of educating the public with regard to the great risk of delay in such cases.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY, JUNE 29, 1936

Tuesday, June 30—

- 9 A.M. Massachusetts General Hospital Orthopedic-Poliomyelitis Clinic—Out-Patient Department
- 9 A.M. Massachusetts General Hospital Thoracic Clinic

Wednesday, July 1—

- 4 P.M. Massachusetts General Hospital X-Ray Conference

Thursday, July 2—

- *8:30-9:30 A.M. Clinic Surgical and Orthopedic Staffs of the Children's Hospital, at the Children's Hospital
- 9 A.M. Massachusetts General Hospital Surgical Grand Rounds
- 9:15 A.M. Massachusetts General Hospital Neurological Conference
- 12 M. Massachusetts General Hospital Clinico-Pathological Conference

Friday, July 3—

- 10 A.M. Massachusetts General Hospital Cardiac Clinic
- 10:30 A.M. Massachusetts General Hospital Fracture Rounds

*Open to the medical profession

- June 29 July 11—Hospital Administration See page 557 issue of May 7
- August 24 29—Harvard University Tercentenary Celebration See page 1165 issue of June 4
- September 1935—First International Congress of Sanatoria and Private Nursing Homes See page 503 issue of April 16
- September 7 10—International Union against Tuberculosis. See page 554 issue of March 12
- September 14 and 15—Tercentenary Session of the Harvard Medical School. See page 1165 issue of June 4
- September 23 October 3—First International Conference on Fever Therapy. See page 1325 issue of December 26 1935 and page 1075 issue of May 21
- October 12 18—Third International Congress on Malaria. See page 1076 issue of May 21
- October 19 23—Clinical Congress of the American College of Surgeons. See page 180 issue of January 22
- October 19 31—1935 Graduate Fortnight of the New York Academy of Medicine See page 1241 issue of June 11
- October 20 23—The American Public Health Association See page 1226 issue of June 11
- April 21 24, 1937—American Society for Experimental Pathology See page 1075 issue of May 21

BOOKS RECEIVED FOR REVIEW

- The True Physician The Modern "Doctor of the Old School" Wingate M Johnson 157 pp New York The Macmillan Company \$1.75
- La Rate en Pathologie Sanguine E Houck 154 pp Paris Masson et Cie 45 fr
- Les Petites Règles de la Chirurgie Parfaite. J Okinczyk 60 pp Paris Masson et Cie 12 fr
- The Phenomena of Life A Radio-Electric Interpretation. George Crile 379 pp New York W W Norton & Company Inc. \$3.50
- Pediatric Nursing John Zahorsky 569 pp St. Louis The C V Mosby Company \$3.00
- Clio Medica. Tuberculosis. Gerald B Webb 205 pp New York Paul B Hoeber Inc. \$2.00
- Physiology of Love Paolo Mantegazza. 137 pp New York Eugenics Publishing Company
- L Année Thérapeutique Médications et Procédés Nouveaux. A Ravina. 195 pp Paris Masson et Cie. 18 fr
- Psychology of Sex A Manual for Students Havelock Ellis. 377 pp New York Emerson Books Inc. \$3.00
- The Chemistry of Natural Products Related to Phenanthrene. An American Chemical Society Monograph L F Fieser 358 pp New York Reinhold Publishing Corporation \$6.50
- Transactions of the American Gynecological Society Volume 60 For the year 1935 Edited by Otto H. Schwarz. 353 pp St. Louis The C V Mosby Company
- American Martyrs to Science Through the Roentgen Rays. Percy Brown. 276 pp Springfield and Baltimore Charles C Thomas \$3.50
- Bewildered Patient. Marian S Newcomer 323 pp Boston and New York Hale Cushman & Flint. \$1.75

BOOK REVIEWS

Endocrinologie Noël Piessinger 152 pp Paris Masson et Cie 20 fr

This small volume is one of a series of brochures which is being published dealing with the various phases and specialties of medicine Psychiatry gynecology the treatment of syphilis dermatology neurology and the digestive disorders have been among the subjects covered thus far Short volumes on radiotherapy and the disorders of nutrition are in preparation

The present book is written by an authority on endocrinology and is intended to present in a brief simple yet embracing manner the essentials of this branch The author takes up the glands of internal secretion from the standpoint of their normal and altered physiology their pathology and accompanying physical changes and the treatment of them Care is taken to limit the text to the consideration of only those glands which contain or produce hormones The subject of endocrinology is indeed an extensive one Nevertheless the author manages in this relatively small volume to accomplish the purpose previously referred to The illustrations though small in number are excellent The book is highly recommended to the medical student. It can in addition be utilized with benefit by the physician desiring a quick review of or an introduction to the very interesting subject of endocrinology

An Introduction to Surgery Rutherford Morison and Charles F M Saint Third Edition 367 pp Baltimore William Wood & Company \$5.00

The title of the book indicates its purpose It is designed for students beginning their surgical studies. In setting forth the signs and symptoms of surgical diseases its basis is pathological—an exposition of the reaction of various tissues to various insults We read in the introduction Nature alone can heal but often requires help In order that the help which surgery can give may be applied correctly and to the best advantage we must understand her methods and seek to imitate them" Although to two such experienced surgeons as the authors the temptations to discourse on operative practices may have been difficult to submerge, they have steadfastly held to their primary objective The volume is more than one on surgical pathology It instructs the student not only in nature's immediate reaction to various insults but also in her methods of repair The twenty-two chapters proceed in good order gradually developing the student's knowledge so that by the twenty-first chapter he is prepared for a consideration of the Indications for Operations" and in the twenty-second chapter for Pathological Conditions Illustrating the Application of the Principles of Surgery

The text is terse in places little more than a topical outline. This fact and the two hundred illustrations with a good index enhance its value as a reference book for students and teachers of

the fundamentals of surgery. In a volume of this scope there are naturally certain moot matters which are set forth in too didactic a manner. The reviewer regards the work favorably and believes that others than those who are starting their surgical studies may profit greatly by its perusal.

Convalescent Care in Great Britain Elizabeth Greene Gardiner 163 pp Chicago The University of Chicago Press \$1.50

This book is the result of a survey made in 1930 of the hospitals and rest houses in England, Wales and Scotland especially designed for convalescent care. There is nothing in this country which quite compares with the service offered in Great Britain, except possibly in the region of New York City. It is felt that lack of facilities for the convalescent care of patients is one of the outstanding weaknesses of American medicine. The survey is thus published with the idea that similar service may ultimately be offered to patients in the United States. The book is important in relation to the social aspects of medicine. The survey seems to have been adequately done and the report full.

A Textbook of Roentgenology The Roentgen Ray in Diagnosis and Treatment Bede J. Michael Harrison 826 pp Baltimore William Wood & Company \$10.00

The method of presentation is rather unusual for a book on Radiology. There are 826 pages with only 238 illustrations. No reference to the current literature is made, either in the text or in the form of a bibliography. In the Preface the Author gives a list of standard textbooks to which he has referred, and he definitely states that he has planned the book for students and general practitioners rather than for specialists.

On the whole he has succeeded in producing a rather unique book which accomplishes very well the object for which it was written. Advice to the student and practitioner in the Introduction is particularly good and worth quoting even in a review such as this.

'So far it does not appear to have been accepted as a basic fact in medical practice that consultation between the roentgenologist and the clinician should take place before any roentgenological examination other than the very simplest is undertaken. It must be remembered that the examination and interpretation of roentgenograms are directly correlated with the technique of their production, and that it may be very difficult to analyze a roentgenogram satisfactorily unless one is capable of analyzing the technique which was employed in producing it. Hitherto overmuch stress has been laid on the promiscuous viewing of roentgenograms in wards and operating theatres, etc., and insufficient stress

has been laid on the proper consultation prior and subsequent to the roentgenological investigation.

In discussing the various conditions in which the x-rays may be used either as a diagnostic aid or a therapeutic procedure, the Author has preceded each subject with a discussion of the underlying pathology. The roentgen findings are then presented briefly with a short discussion of the roentgen treatment when this therapeutic procedure is indicated.

Controversial procedures have been avoided and the presentation is clear and concise. No extravagant claims are made. Recent advances in the field of roentgenology and therapeutics are included. The book contains an excellent chapter on Radio-Physiology and Biology, and one on Dangers and Protection.

It is well printed and the illustrations, although limited, are well selected. It should prove a satisfactory textbook for students and practitioners, and is worthwhile for the experienced roentgenologist.

A Textbook of Obstetrics. For Students and Practitioners Frederick C. Irving 558 pp New York The Macmillan Company \$6.00

In his introduction the author states that this book is an amplification of the lectures used for a number of years in teaching the second, third and fourth year students at the Harvard Medical School, and represents the policies and practices at the Boston Lying-in Hospital. The book is divided into two parts, Part I containing the material on normal obstetrics, and Part II that on abnormal obstetrics.

The author covers the whole subject satisfactorily and in a clear and concise manner. The procedures that he advises are carefully described and are those of safe, conservative obstetrics. If all practitioners carefully followed the advice that the author has laid down, a tremendous improvement in obstetrics would follow.

At times the author assumes that students and practitioners know more than they really do, and he omits details which in a textbook should be made absolutely clear. There is no warning to the student about the necessity of carefully watching cases which have developed puerperal insanity. There is no description of the postoperative care in Cesarean section. Neither is there any reference to the use of ether in a breech delivery.

The author's advice to insert a Voorhees' bag in all cases of ruptured membranes where labor does not ensue within forty-eight hours is questionable, and he makes no clear distinction between a contraction ring and a retraction ring. He advises a very conservative stand in the treatment of eclampsia. In connection with plasmapheresis, it would be interesting to know the number of cases in which this procedure was used alone, or whether it was used only as an adjuvant to other procedures in the treatment of eclampsia, and what results were ob-

ained. In the treatment of pre-eclampsia as advised by the author he apparently condemns the use of Caesarean section in those cases where improvement does not take place after treatment, and emptying the uterus is thought necessary. It is an important admission on the author's part, that regardless of the treatment employed, the mildness or severity of the individual case of eclampsia is in most instances the determining factor between recovery and death.

The illustrations on the whole are well chosen. They are reproduced with varying degrees of excellence. The similarity of the drawings on the technique of the use of forceps to those of the well known work of Farabeuf and Varnier is striking and they are without question among the best in the book clearly explaining the application of forceps in the various positions.

At the end of each chapter are well-chosen references for the student's use.

The book is a well-defined exposition of obstetrics giving the student an excellent understanding of at least one method of managing his cases.

The Single Woman and Her Emotional Problems
Laura Hutton. 150 pp. Baltimore: William Wood & Company \$2.00

Although excellent in parts this little book is distressingly inadequate. Many will disagree with the Freudian explanations and will prefer to apply more generally the statement that the author makes regarding sexual inversion—At the present time then all theories must be tentative—Although stressing the physiological innocuousness of masturbation—by oneself or by another woman—may well be worth while and a great source of relief to many worried women the taboo which makes sexual relations between women in Sweden and Germany illegal cannot be disregarded. Strangely enough the author does not discuss the origin and merits of this taboo.

The author makes no mention of the value of exercise, diet or other means of lessening sex drive—thereby greatly lessening the adequacy and usefulness of this book.

The Specificity of Serological Reactions. Karl Landsteiner. 178 pp. Springfield and Baltimore: Charles C. Thomas \$4.00

This is an excellent monograph concerning a very specialized subject. Originally published in German this second edition which is the first English edition brings the subject matter up to date.

After the introductory remarks the five chapters cover in turn the serological specificity of proteins, the specificity of all antigens, the specificity of antibodies, artificial conjugated antigens, including serological reactions with simple chemical compounds, and chemical investigations on specific cell substances including carbohydrates and lipids.

As one would expect, the author presents the different aspects of this complicated branch of immunology clearly and in logical sequence. There are many explanatory footnotes and the majority of these, as well as the text refer to approximately 1,300 titles in the bibliography. In addition the author provides a list of textbooks, reviews and monographs covering the general aspects of serology and immunology and the more specialized considerations of specificity. The book is beautifully printed on good paper and is well bound.

Though hardly to be recommended to the busy practitioner unless he happens to be interested in the allergic manifestations of disease, the book should be of inestimable value to all concerned with teaching and with investigative work in serology and immunology.

A Textbook of Surgery by American Authors. Edited by Frederick Christopher. 1633 pp. Philadelphia and London: W. B. Saunders Company \$10.00

Christopher's Textbook of Surgery is a long text book (1567 pages plus 40 pages of fine print index). The individual sections have been written by a large group of the best surgeons and teachers of surgery in the country. The choice of contributors for each subject is on the whole excellent. The book is well made, well printed, and well illustrated. Like any book made up in this way the subject matter is a little uneven but most of the articles are very up to date and contain the best practice thought and developments of the last few years. It is certainly on a par with the best of other modern textbooks in this field except, perhaps, for the unevenness of the articles mentioned above. On the whole it attempts to go into a little more detail in operative technique than some of the shorter textbooks.

Of course an individual reviewer can find fault with almost any book if he looks hard enough. The most glaring statement noticed here was the recommendation in the section on radiological examination that the use of Thorotrast intravenously is good practice for demonstrating certain diseases of the liver and spleen. A very large number of roentgenologists and other physicians would not agree with this because of the danger of late harmful results from this radioactive substance. Again in the section on tumors of the breast it is indicated that transfusion should be available at the completion of all radical breast operations. The reviewer believes that routine transfusion should not only be available but given in such operations as resection of the stomach and intestines and many others but has never found shock of serious degree to follow radical mastectomy in the great bulk of such cases. In this section also which is a very full one one would think that a little space might have been saved in the anatomical description of the intra-thoracic lymph nodes which cannot be reached any way and a little more attention given to a discussion of which cases should have radical surgery and which should have radiation or other forms of

treatment There is no statement in this section as to the prognosis following treatment at different stages of the disease or in relation to different types of pathology

In spite of occasional slips such as these this book should be extremely valuable to the student, the practitioner and even to the master surgeon

The Phenomena of Life A Radio-Electric Interpretation George Crile 379 pp New York W W Norton & Company, Inc \$3 50

'The Phenomena of Life' is another in the series of books written by George Crile to explain in popular form his thoughts and beliefs in physiology. It is arranged in the form of an exposition of the development of thought and knowledge concerning surgical shock as it has come to him in his lifetime. In the chapters of the book on the most recent developments he gives a very loose interpretation of some of the newer ideas having to do with neurophysiology and especially with regard to processes of combustion and nervous impulses.

So-called "popular science" of which this is a typical example, even if the author does not label it as such, may be "popular", but all too often it is not science.

If the author were more rigorous in his reasoning and exposition, a book having to do with the subject at hand could be extremely valuable, not merely by stimulating thought along lines that really are new and important, but as a point of departure for further investigations. As it is, it has some value to any reader well enough trained in the method of science to realize that his "proofs by analogy" are not scientific proofs, but are merely hypotheses that need investigation. Taken in this way, that is, as the brilliant speculations of an extremely brilliant mind, and realizing that among these speculations there are probably a few among many that will be found to be important, the book is interesting.

However there are many sections that any reader will be unable to understand because pseudoscience, not being logical, is not adapted to being understood by the logical mind. The average reader will probably lose interest before finishing the book.

Your Hay Fever Oren C Durham 264 pp Indianapolis and New York The Bobbs Merrill Company \$2 00

Whenever a real authority talks or writes about his particular subject, the words, whether spoken or written, command attention. Dr Durham has devoted his full time and energy for many years to the study of pollen and now he presents the results, in a book which will appeal to every hay fever sufferer, and to his physician also.

The story of hay fever which occupies the first half of the book is delightfully written. How dramatic was the early development of our present

knowledge! Dr Bostock and Dr Blackley come life for us and it is almost painful to see how close they came to the facts as we know them today. The account of their interesting experience almost begs the reader to look over the original works for himself.

The second half of the book contains a variety of technical points about pollen—its structure, function, and particularly its distribution. The common hay fever trees, grasses, and weeds are described briefly but sufficiently. Simple maps, tables and a few illustrations amplify and summarize the text. At the end is a short section on treatment written by Dr S M Feinberg in which the principles and objects of specific treatment are explained in a simple, clear fashion. Technical details are given.

The book can be recommended to anyone interested in hay fever.

The Single, The Engaged, and The Married Maurice Chideckel 268 pp New York Eugenics Publishing Company \$2 50

It is difficult to see why this book was written or published. Whatever of value it contains has already been written. The style is poor and sometimes even illiterate. The book also contains many misstatements of fact such as the following on page 238—"In a small percentage the male sperm is strongly alkaline and the vagina is weakly acidic. These marriages produce essentially only male children. The reverse is also true that in other marriages weakly alkaline sperm are deposited in a strongly acid vagina and the result is that practically only girls are born", and on page 240—"So the ovary on each side has a sac, in the center of which is an egg, the sac ruptures and a yellow body, the corpus luteum, takes the place of the sac. The yellow body, after it takes the place of the egg, grows, becomes large and exerts great pressure on the lining of the womb. The womb lining has many blood vessels. Because the yellow body, or corpus luteum, by becoming large gives off a hormone which presses these blood vessels, they rupture and bleed. That bleeding is what causes the woman to menstruate."

The Eugenics Publishing Co, which puts out many books, is responsible for the following: *Sane Sex Life*, *The Sex Side of Marriage*, *The Torch of Love*, *The Sex Side of Marriage*, *The Torch of Love*, *America's Sex and Marriage Problems*, *Woman's Sex and Love Life*, *Sexual Truths*, and so forth. All at the same address: The Book Collectors' Association, 100 N. 4th St., St. Paul, Minn. Some of their productions are more racy. *The Satyricon of Petronius*, *The History of Bundling*, and so forth.

The author has evidently had a considerable experience in sex problems of various kinds. His comments and handling of many of the problems seem reasonably valid but, when he claims to have cured 69.5 per cent of 200 cases of sterility, that his statistics and claims are open to considerable doubt.

